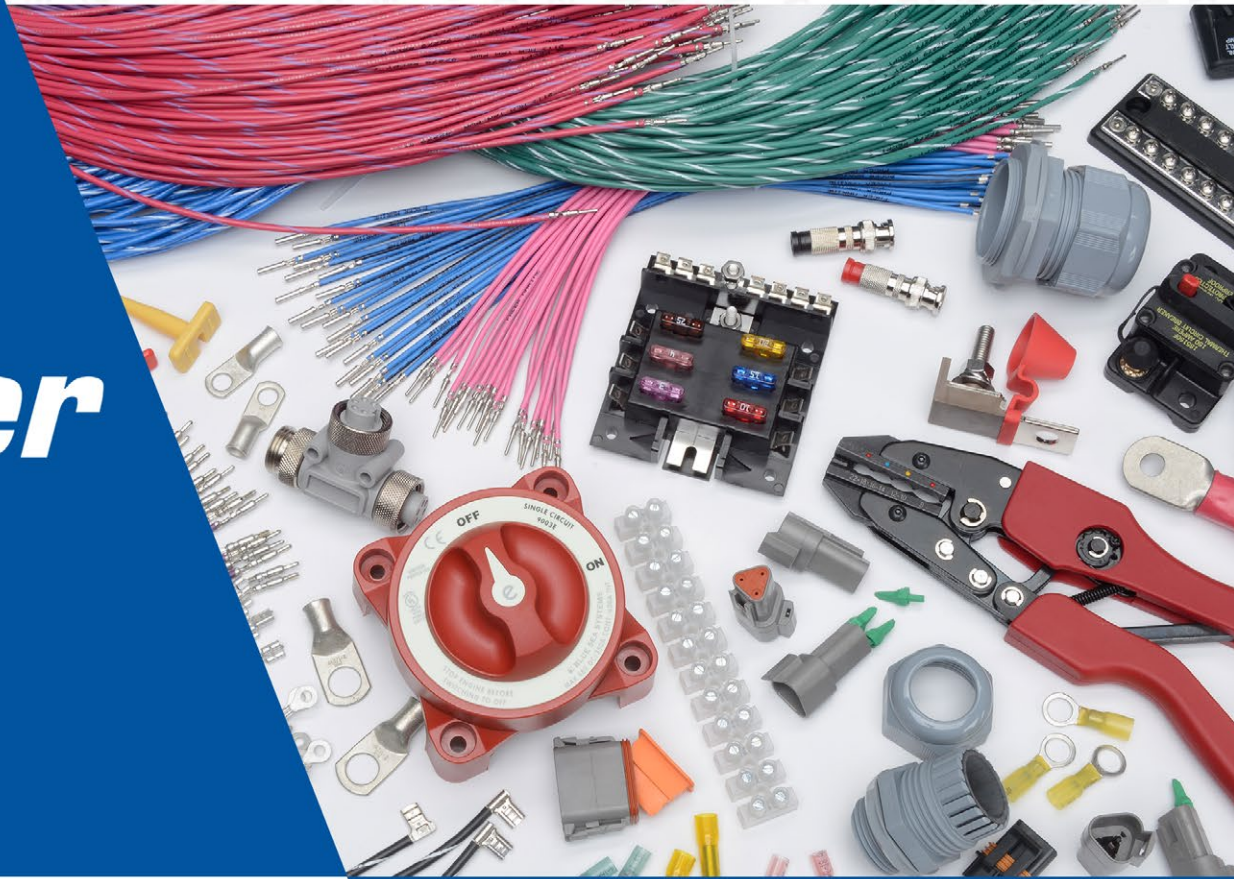
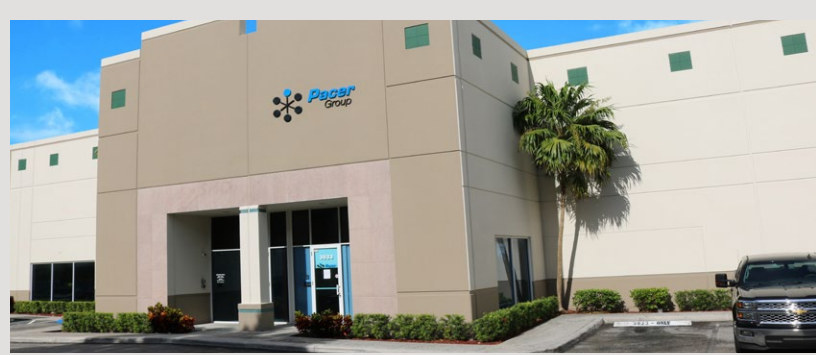


*Pacer*



# PRODUCT CATALOG





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*Pacer offers an unparalleled inventory of marine wire, cable & electrical products.*

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*At Pacer we're able to keep minimums low & our prices competitive across all our product lines.*

**RETURNS:** Pacer strives to serve our customers to the best of our ability. Most products can be returned for a full refund within 15 days of receipt. Contact customer service to obtain an approved RMA (Return Material Authorization). Product returned without an RMA will not be accepted. After 15 days, a 20% restocking fee will apply. Sales of non-standard products (cut-to-length, striped, cable assemblies, etc.) or after 90 days are non-returnable, non-refundable. Please inspect all items received for transport damage as freight claims are against the carrier.

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**MEMBERS**





# Why Choose *Pacer*

## Our Vision:

Since the very beginning, our focus has been on quality and customer experience. We do not just sell products, we offer solutions. With forty years experience in the marine industry, we have mastered our craft and cultivated a product line of the highest caliber. Every single item you will find in this catalog has undergone a battery of tests. We trust each of these products enough to put them into our own boats. Why choose Pacer? It's simple. When you see Pacer, you know it means quality.

- Manufacturer for some of the biggest names in the marine industry such as;

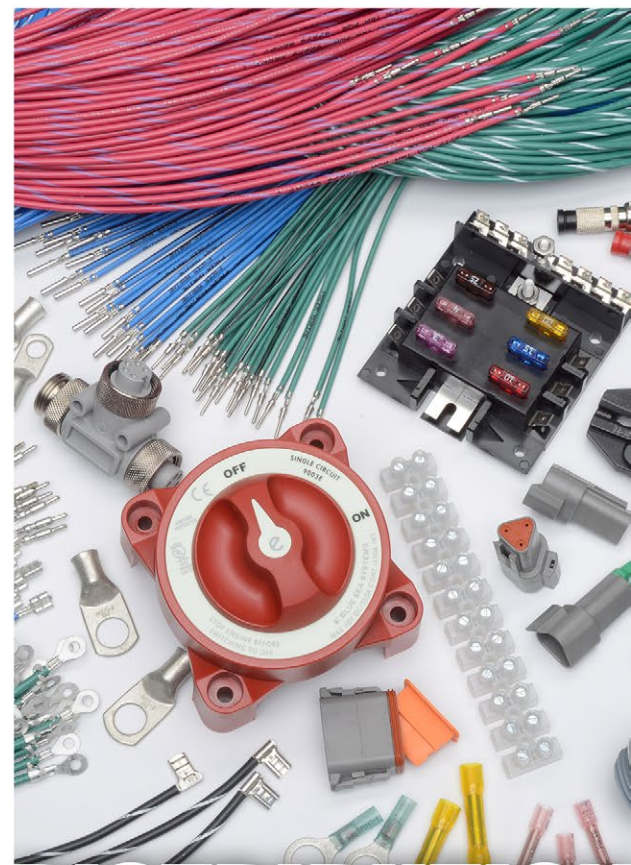
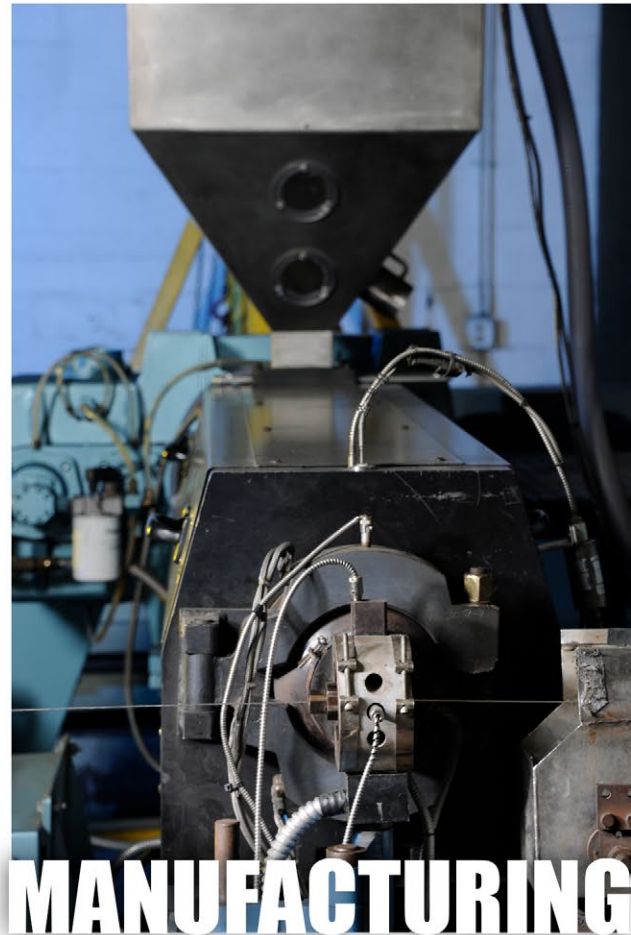
*Correct Craft*  
Making Life Better

*P*  
**PURSUIT**

*M*  
**MONTEREY**

*Yellowfin*

- Supplier for OEMs, Wholesalers, Repair shops, marinas, boat yards and boating enthusiasts around the world.
- All Pacer internally engineered and manufactured products are Made in the USA.



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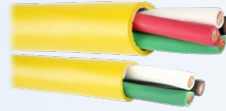
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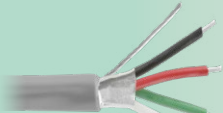


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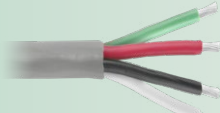
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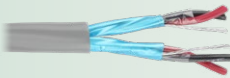
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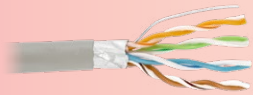


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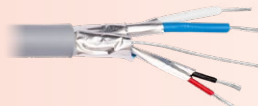
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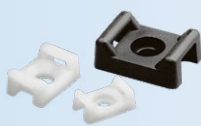
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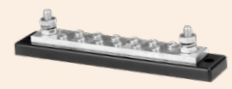
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# Wire & Cable

## UL 2-CONDUCTOR BOAT CABLE 600V 105°C

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



PART NUMBER	AWG NO.	NO. OF COND.	CONDUCTOR STRANDING	NOM. JACKET THICKNESS (IN.)	NOM. CABLE O.D. (IN.)	STANDARD PUT-UPS	APPRX LB/M
<b>"DC" Red + Black Conductors, White Jacket</b>							
W18/2DC	18	2	16/0.0100	0.035	0.185 x 0.300	C,TL,D,M	40
W16/2DC	16	2	26/0.0100	0.035	0.200 x 0.330	C,TL,D,M	51
W14/2DC	14	2	41/0.0100	0.035	0.225 x 0.370	C,TL,D,M	65
W12/2DC	12	2	65/0.0100	0.035	0.245 x 0.410	C,TL,D,M	82
W10/2DC	10	2	105/0.0100	0.035	0.265 x 0.455	C,TL,D,M	128
W8/2DC	8	2	7x24/0.0100	0.040	0.350 x 0.630	L,C,TL,D	230
W6/2DC	6	2	7x38/0.0100	0.045	0.450 x 0.800	L,C,TL,D*	364
<b>"Safety Wire" Red + Yellow Conductors, White Jacket</b>							
W18/2RYW	18	2	16/0.0100	0.035	0.190 X 0.300	C,TL,D,M	40
W16/2RYW	16	2	26/0.0100	0.035	0.200 x 0.330	C,TL,D,M	51
W14/2RYW	14	2	41/0.0100	0.035	0.225 x 0.370	C,TL,D,M	65
W12/2RYW	12	2	65/0.0100	0.035	0.245 x 0.410	C,TL,D,M	82
W10/2RYW	10	2	105/0.0100	0.035	0.265 x 0.455	C,TL,D,M	128
W8/2RYW	8	2	7x24/0.0100	0.040	0.350 x 0.630	C,TL,D	230
W6/2RYW	6	2	7x38/0.0100	0.045	0.450 x 0.800	C,TL,D	364
<b>White + Black Conductors, White Jacket</b>							
W16/2	16	2	26/0.0100	0.035	0.200 x 0.330	C,TL,D,M	51
W14/2	14	2	41/0.0100	0.035	0.225 x 0.370	C,TL,D,M	65
W12/2	12	2	65/0.0100	0.035	0.245 x 0.410	C,TL,D,M	82
W10/2	10	2	105/0.0100	0.035	0.265 x 0.455	C,TL,D	128

Standard Put-Ups: L=50 ft, C=100 ft, TL=250 ft, D= 500 ft, M=1000 ft \*W6/2DC-D may require a lead time.

**Ordering Information:** Combine part number with put-up designation. **Example:** 16 AWG, 2 Conductor, 100 feet = W16/2DC-C

**WEB ENHANCED** - Reel Measurements: Available at [PacerGroup.net/reel-measurement-table/](http://PacerGroup.net/reel-measurement-table/)



Pacer's manufacturing process extrudes a flexible yet tough PVC jacket. The extrusion process fills the voids between the conductors leaving no airspace for condensation to accumulate. The inner wires are talcum powder coated allowing for the easy removal of the jacket. The finished product is flexible, durable and easy to install.

**APPLICATIONS:** Two conductor boat cable is a durable product for use in DC circuits as well as low voltage AC applications.

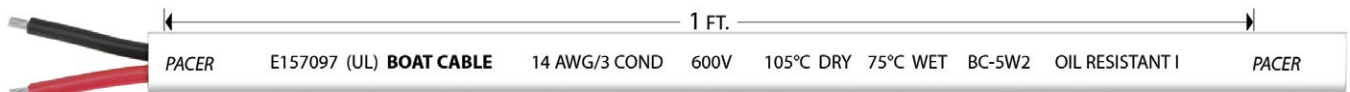
**FEATURES:** \*Stranded, tinned copper \*Color coded conductors \*Tough PVC jacket \*Highly flexible \*Easy to strip & route

**COMPLIANCES:** \*UL standard 1426 \*ABYC: E-11.14 \*Coast Guard: 33 CFR part 183 \*RoHS compliant \*UL compliant

**CHARACTERISTICS:** **Conductor:** Annealed Fine Stranded Tinned Copper ASTM B172 Class K **Insulation:** -20°C to 105°C Flexible, Color Coded PVC

**Voltage Rating:** 600V **Temperature Rating:** 105°C Dry, 75°C Wet, 60°C Oil **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**PRINT:** PACER E157097 (UL) BOAT CABLE \_AWG/\_COND 600V 105°C DRY, 75°C WET BC-5W2 OIL RESISTANT I



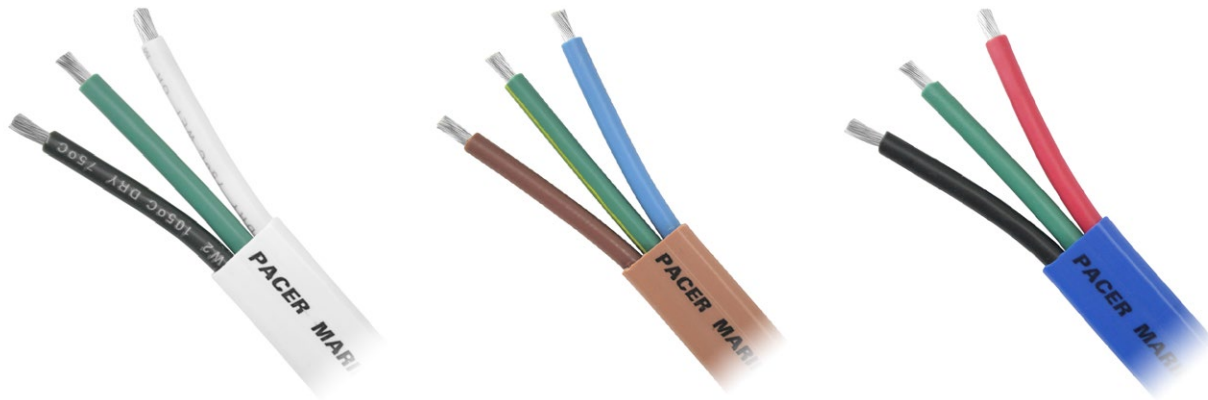
PACER... to PACER equals 1 ft. on all boat and battery cables.



# Wire & Cable

## UL 3-CONDUCTOR BOAT CABLE 600V 105°C

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



PART NUMBER	AWG NO.	NO. OF COND.	CONDUCTOR STRANDING	NOM. JACKET THICKNESS (IN.)	NOM. CABLE O.D. (IN.)	STANDARD PUT-UPS	APPRX LB/M
<b>UL TRIPLEX CABLE - Black, Green, White Conductors, White Jacket</b>							
W16/3	16	3	26/0.0100	0.030	0.200 x 0.465	C,TL,D,M	93
W14/3	14	3	41/0.0100	0.030	0.210 x 0.505	C,TL,D,M	99
W12/3	12	3	65/0.0100	0.030	0.230 x 0.560	C,TL,D,M	128
W10/3	10	3	105/0.0100	0.030	0.265 x 0.645	C,TL,D	180
W8/3	8	3	7x24/0.0100	0.045	0.375 x 0.930	L,C,TL,D	340
W6/3	6	3	7x38/0.0100	0.045	0.450 x 1.140	L,C,TL,D*	523
<b>UL TRIPLEX "EURO" CABLE - Brown, Green/Yellow, Lt. Blue, Tan Jacket</b>							
W14/3EURO	14	3	41/0.0100	0.030	0.210 x 0.505	C,TL,D,M	99
W12/3EURO	12	3	65/0.0100	0.030	0.230 x 0.560	C,TL,D,M	128
W10/3EURO	10	3	105/0.0100	0.030	0.265 x 0.645	C,TL,D	180
W8/3EURO	8	3	7x24/0.0100	0.045	0.375 x 0.930	C,TL,D	340
W6/3EURO	6	3	7x38/0.0100	0.045	0.450 x 1.140	C,TL	523
<b>UL TRIPLEX "240-V" CABLE - Black, Green, Red Conductors, Blue Jacket</b>							
W14/3B	14	3	41/0.0100	0.030	0.210 x 0.505	C,TL,D,M	99
W12/3B	12	3	65/0.0100	0.030	0.230 x 0.560	C,TL,D,M	128
W10/3B	10	3	105/0.0100	0.030	0.265 x 0.645	C,TL,D	180

Standard Put-Ups: L=50 ft, C=100 ft, TL=250 ft, D=500 ft, M=1000 ft

\*W6/3-D may require a lead time.

**Ordering Information:** Combine part number with put-up designation.

**Example:** 14 AWG, 3 Conductor White Jacket, 500 ft = W14/3-D



**WEB ENHANCED** - Reel Measurements: Available at [PacerGroup.net/reel-measurement-table/](http://PacerGroup.net/reel-measurement-table/)

Pacer Boat Cable is designed for maximum durability and ease of installation. Type 3 Class K tinned copper wire and PVC jackets provide maximum protection from moisture and fatigue due to vibration and flexing. White jacketing is typical of 120V AC US wiring, tan jacket is typical for 230V AC European wiring, and blue jacket is typical of 240V AC US wiring.

**APPLICATIONS:** Pacer's UL triplex cable is perfect for AC circuits in boats and recreational vehicles.

**FEATURES:** \*Stranded, tinned copper \*Color coded conductors \*Tough PVC jacket \*Highly flexible \*Easy to strip & route

**COMPLIANCES:** \*UL standard 1426 \*ABYC: E-11.16 \*Coast Guard: 33 CFR part 183 \*RoHS compliant \*UL compliant

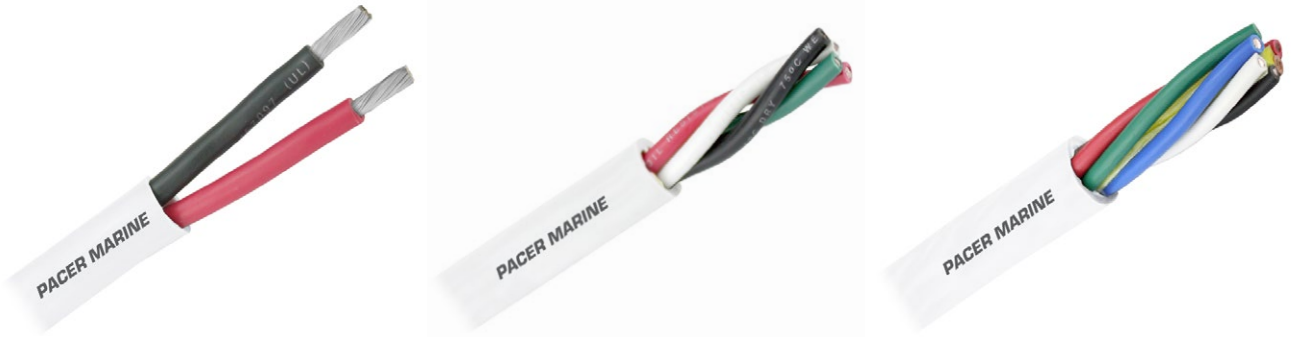
**CHARACTERISTICS:** **Conductor:** Annealed Fine Stranded Tinned Copper ASTM B172 Class K **Insulation:** -20°C to 105°C Flexible, **Voltage Rating:** 600V Color Coded PVC **Temperature Rating:** 105°C Dry, 75°C Wet, 60°C Oil **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**PRINT:** PACER E157097 (UL) BOAT CABLE \_AWG/\_COND 600V 105°C DRY, 75°C WET BC-5W2 OIL RESISTANT 1

# Wire & Cable

## UL ROUND BOAT CABLE

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



PART NUMBER	AWG NO.	NO. OF COND.	CONDUCTOR STRANDING	JACKET THICKNESS (IN.)	NOM. O.D. (IN.)	STANDARD PUT-UPS	CONDUCTOR COLORS	APPRX LB/M
<b>2 CONDUCTOR, WHITE JACKET</b>								
WR16/2DC	16	2	26/0.0100	0.030	0.350	C,TL,D,M	BK, RD	50
WR14/2DC	14	2	41/0.0100	0.030	0.390	C,TL,D,M	BK, RD	67
WR12/2DC	12	2	65/0.0100	0.030	0.410	C,TL,D,M	BK, RD	85
WR10/2DC	10	2	105/0.0100	0.030	0.475	C,TL,D,M	BK, RD	130
<b>3 CONDUCTOR, WHITE JACKET</b>								
WR16/3	16	3	26/0.0100	0.045	0.395	C,TL,D,M	BK, GN, WH	73
WR14/3	14	3	41/0.0100	0.045	0.410	C,TL,D,M	BK, GN, WH	96
WR12/3	12	3	65/0.0100	0.045	0.470	C,TL,D,M	BK, GN, WH	131
WR10/3	10	3	105/0.0100	0.045	0.545	C,TL,D	BK, GN, WH	178
<b>3 CONDUCTOR, GREY JACKET</b>								
WR6/3-8/1	6	4	6 AWG @ 7x38/0.0100 8 AWG @ 7x24/0.0100	0.080	0.985	L,C,TL,D	6 AWG @ BK, RD, WH (8 AWG @ GN)	650
WR4/3-6/1	4	4	4 AWG @ 7x60/0.0100 6 AWG @ 7x38/0.0100	0.080	1.155	L,C,TL	4 AWG @ BK, BK/RD, WH (6 AWG @ GN)	920
<b>4 CONDUCTOR, WHITE JACKET</b>								
WR16/4	16	4	26/0.0100	0.045	0.420	L,C,TL,D,M	BK, GN, RD, WH	108
WR14/4	14	4	41/0.0100	0.045	0.465	L,C,TL,D,M	BK, GN, RD, WH	136
WR12/4	12	4	65/0.0100	0.045	0.560	L,C,TL,D,M	BK, GN, RD, WH	185
WR10/4	10	4	105/0.0100	0.045	0.600	L,C,TL,D	BK, GN, RD, WH	253
WR8/4	8	4	7x24/0.0100	0.080	0.830	L,C,TL,D	BK, GN, RD, WH	475
<b>6 CONDUCTOR, WHITE JACKET</b>								
WR16/6	16	6	26/0.0100	0.450	0.455	L,C,TL,D	BK, BR, RD, GN, BL, WH	130
WR14/6	14	6	41/0.0100	0.450	0.530	L,C,TL,D	BK, BR, RD, GN, BL, WH	200
<b>9 CONDUCTOR, WHITE JACKET</b>								
WR14/9	14	9	41/0.0100	0.450	0.680	L,C,TL	*	280
<b>12 CONDUCTOR, WHITE JACKET</b>								
WR14/12	14	12	41/0.0100	0.600	0.700	L,C,TL	**	375

\*WR14/9 Colors: Black, Red, Orange, Yellow, Green, Blue, Violet, Grey, White

\*\*WR14/12 Colors: Black, Brown, Red, Orange, Yellow, Green, Blue, Violet, Grey, White, White/Black, White/Brown

Standard Put-Ups: L=50 FT, C=100 ft, TL=250 ft, D=500 ft, M=1000 ft

**Ordering Information:** Combine part number and put-up designation. **Example:** 10/4 Round, 100 ft = WR10/4G-C

Pacer's round boat cable is manufactured in 2, 3, 4, 6, 9 or 12 conductors. The round shape is easy to fit through tight spaces, and is flexible in all bending directions. This style of cable is excellent for running through sailing spars, t-tops and poling platforms. Round boat cable is easily sealed when running through bulkheads or enclosures by using Liquid Tight cable gland connectors (page 31).

**APPLICATIONS:** Pacer's round boat cable is excellent for AC and DC internal wiring of boats and recreational vehicles.

**FEATURES:** \*Easy installation \*Easy to organize \*Easily sealed through bulkheads

**COMPLIANCES:**   \*UL standard 1426 BC-5W2 \*ABYC: E-11.16 \*Coast Guard: 33 CFR part 183 \*RoHS compliant

**CHARACTERISTICS:** **Conductor:** Annealed Fine Stranded Tinned Copper ASTM B172 Class K **Insulation:** -20°C to 105°C Flexible, Color Coded PVC

**Voltage Rating:** 600V **Temperature Rating:** 105°C Dry, 75°C Wet, 60°C Oil **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**PRINT:** PACER E157097 (UL) BOAT CABLE \_AWG/\_COND 600V 105°C DRY, 75°C WET BC-5W2 OIL RESISTANT 1



# Wire & Cable

## UL TINNED COPPER PRIMARY WIRE



**WIRE & CABLE**

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

PART NUMBER	AWG NO.	CONDUCTOR STRANDING	NOM. INSULATION (IN.)	NOM. O.D. (IN.)	NOM. CIRCULAR MILS	STANDARD PUT-UPS	APPRX LB/M
-------------	---------	---------------------	-----------------------	-----------------	--------------------	------------------	------------

**22 AWG - 18 AWG UL1015/1230 CSA TEW 600V 105°C Dry, 60°C Wet**

WUL22	22	7/0.0100	0.030	0.093	700	C,TL,D,M	6.4
WUL20	20	10/0.0100	0.030	0.100	1000	C,TL,D,M	7.8
WUL18	18	16/0.0100	0.030	0.114	1600	C,TL,D,M	10.3

**16 AWG - 8 AWG UL Standard 1426 BC-5W2 600V 105°C Dry, 75°C Wet**

WUL16	16	26/0.0100	0.032	0.125	2600	C,TL,D,M	14.8
WUL14	14	41/0.0100	0.032	0.145	4100	C,TL,D,M	22.0
WUL12	12	65/0.0100	0.032	0.160	6500	C,TL,D,M	32.0
WUL10	10	105/0.0100	0.032	0.185	10500	C,TL,D,M	49.0
WUL8	8	168/0.0100	0.045	0.265	16800	C,TL,D,M	80.0

**UL Tinned Copper Primary Wire Ordering Information:**

Build the part number. Select (A) Wire Gauge, (B) Jacket Color, (C) Wire Stripe Color, (D) Spool Size

**(A) Select Wire Gauge**

22	20	18	16	14	12	10	8
(WUL22)	(WUL20)	(WUL18)	(WUL16)	(WUL14)	(WUL12)	(WUL10)	(WUL8)

**(B) Select Jacket Color**

	(BK)	(BR)	(RD)	(OR)	(YL)	(GN)	(LG)	(BL)	(LB)	(VI)	(GY)	(WH)	(TN)	(PK)
	Black	Brown	Red	Orange	Yellow	Green	Lt Green	Blue	Lt Blue	Violet	Grey	White	Tan	Pink
WUL22														
WUL20														
WUL18														
WUL16														
WUL14														
WUL12														
WUL10														
WUL8														

**(C) Select Stripe Color: Optional\***

	(-0)	(-1)	(-2)	(-3)	(-4)	(-5)	(-15)	(-6)	(-16)	(-7)	(-8)	(-9)	(-11)	(-12)
	Black	Brown	Red	Orange	Yellow	Green	Lt Green	Blue	Lt Blue	Violet	Grey	White	Tan	Pink

\*Striped wire is non-returnable, non-refundable, requires a minimum order of 500 feet.

**(D) Select Spool Size**

Cut to Order	100 FT.	250 FT.	500 FT.	1000 FT.
(-B)	(-C)	(-TL)	(-D)	(-M)

Longer lengths available. Please call or email a Pacer expert. **Example:** UL 8 AWG, Red, 250 ft = WUL8RD-TL

Our wire is constructed from Type 3 Class K tinned copper conductor and is insulated with flexible PVC. Pacer's UL wire has been the choice of hundreds of boat builders for over 30 years.

**FEATURES:** \*Stranded, tinned copper conductors \*Highly flexible color coded insulation

**COMPLIANCES:** 22 AWG - 18 AWG \*UL1015/1230 \*CSA: TEW \*Temperature Rating: 105°C Dry, 60°C Wet



16 AWG - 8 AWG \*UL standard 1426 BC-5W2 \*UL: AWM 1028/1231 (8 AWG) \*ABYC: E-11.14 \*UL: MTW

\*Coast Guard: 33 CFR 183.401 Subpart 1-Electrical Systems \*Temperature Rating: 105°C Dry, 75°C Wet

**CHARACTERISTICS:** Conductor: Type III Annealed Finely Stranded Tinned Copper ASTM B172 Class K Voltage Rating: 600V

Insulation: -20°C to 105°C Flexible, Color Coded PVC Resistant to: Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

PRINT: (For 16-10 AWG) PACER E157097 (UL)\_AWG 600V BC-5W2 105°C DRY, 75° WET OR MTW OR AWM 1015/1230 (1028/1231 -8AWG ONLY) VW-1 OIL RESISTANT I Length of Print is 1 FT PACER TO PACER = 1FT

# Wire & Cable

## UL TINNED COPPER BATTERY CABLE

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



PART NUMBER	AWG NO.	CONDUCTOR STRANDING	NOM. INSULATION (IN.)	NOM. O.D. (IN.)	NOM. CIRCULAR MILS	NOM. MM <sup>2</sup>	STANDARD PUT-UPS	APPRX LB/M
WUL6	6	7x38/0.0100	0.060	0.350	26600	13.5	L,C,TL,D	136
WUL4	4	7x60/0.0100	0.060	0.400	42000	21.3	L,C,TL,D	189
WUL2	2	7x95/0.0100	0.060	0.465	66500	33.7	L,C,TL,D	292
WUL1	1	19x44/0.0100	0.080	0.550	83600	42.4	L,C,TL,D	360
WUL1/0	1/0	19x56/0.0100	0.080	0.600	106400	53.9	L,C,TL	450
WUL2/0	2/0	19x70/0.0100	0.080	0.650	133000	67.4	L,C,TL	551
WUL3/0	3/0	19x88/0.0100	0.080	0.705	167200	84.7	L,C,TL	670
WUL4/0	4/0	19X111/0.0100	0.080	0.780	210900	106.9	L,C,TL	820

**UL Tinned Copper Battery Cable Ordering Information:**  
Build the part number. Select (A) Wire Gauge, (B) Jacket Color, (C) Spool Size

(A) Select Wire Gauge

6	4	2	1	1/0	2/0	3/0	4/0
(WUL6)	(WUL4)	(WUL2)	(WUL1)	(WUL1/0)	(WUL2/0)	(WUL3/0)	(WUL4/0)

(B) Select Jacket Color

	(BK)	(RD)	(OR)	(YL)	(GN)	(WH)
	Black	Red	Orange	Yellow	Green	White
WUL6						
WUL4						
WUL2						
WUL1						
WUL1/0						
WUL2/0						
WUL3/0						
WUL4/0						

(C) Select Spool Size

Cut to Order	50 FT.	100 FT.	250 FT.	500 FT.
(-B)	(-L)	(-C)	(-TL)	(-D)

Longer lengths available. Please call or email a Pacer expert.  
**Example:** UL 1/0 AWG, Red, 250 ft = WUL1/ORD-TL



**WEB ENHANCED** - Reel Measurements: Available at [PacerGroup.net/reel-measurement-table/](http://PacerGroup.net/reel-measurement-table/)

Pacer uses finely stranded tinned copper conductors for superior corrosion protection in conjunction with highly flexible PVC compound. Pacer Battery Cables offer easy workability when installing in tight spaces such as boats, cars, industrial equipment and power generators.

**APPLICATIONS:** Connecting a battery or generator to a switch, starter or ground, windlass, inverter or in any high amperage equipment.  
**FEATURES:** Easy to strip, bend and route. Excellent flexibility with the durable properties of PVC.  
**COMPLIANCES:** \*UL standard 1426 BC-5W2 \*AWM 1232/1283 (6-2 AWG) \*AWM 1232/1284 (1-4/0 AWG) \*MTW \*CSA: TEW  
 \*ABYC: E-11.16 \*Coast Guard: 33 CFR part 183 Subpart 1  
**CHARACTERISTICS:** **Conductor:** Annealed Fine Stranded Tinned Copper ASTM B172 Class K **Insulation:** -20°C to 105°C Flexible, Color Coded PVC  
**Temperature Rating:** 105°C Dry, 75°C Wet 60°C Oil **Voltage Rating:** 600V **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture  
**PRINT:** PACER E157097 (UL) \_AWG 600V BC-5W2 105°C DRY, 75°C WET OR MTW OR AWM 1232/1283 (1284 1-4/0) VW-1 OIL RESISTANT 1 LL102583 CSA TEW 105°C FT1 Length of Print is 1 FT PACER TO PACER = 1FT



# Wire & Cable

## MARINE SAE SGT FLEXIBLE BATTERY CABLE



**WIRE & CABLE**

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

PART NUMBER	NO.	CONDUCTOR STRANDING	NOM. INSULATION (IN.)	NOM. O.D. (IN.)	NOM. CIRCULAR MILS	NOM. MM <sup>2</sup>	STANDARD PUT-UPS	APPRX LB/M
WSA4	4	7x55/0.0100	0.065	0.400	38500	19.5	L,C,TL,D	175
WSA2	2	7x91/0.0100	0.065	0.465	63700	32.3	L,C,TL,D	285
WSA1/0	1/0	19x53/0.0100	0.065	0.560	100700	52.0	L,C,TL	422

**Marine SAE SGT Flexible Battery Cable Ordering Information:**  
Build the part number. Select (A) Wire Gauge, (B) Jacket Color, (C) Spool Size

**(A) Select Wire Gauge**

4 (WSA4)	2 (WSA2)	1/0 (WSA1/0)
-------------	-------------	-----------------

**(B) Select Jacket Color**

	(BK) Black	(RD) Red	(GN) Green
WSA4			
WSA2			
WSA1/0			

**(C) Select Spool Size**

Cut to Order (-B)	50 FT. (-L)	100 FT. (-C)	250 FT. (-TL)	500 FT. (-D)	1000 FT. (-M)
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Longer lengths available. Please call or email a Pacer expert.

**Example:** 2 gauge, Red, 50 ft = WSA2RD-L



**WEB ENHANCED** - Reel Measurements: Available at [PacerGroup.net/reel-measurement-table/](http://PacerGroup.net/reel-measurement-table/)

Pacer's flexible SGT battery cable offers dramatic ease of installation and usability. All battery cables are insulated with Pacer's high flex PVC compound. By replacing traditional coarse copper stranding with flexible fine stranded rope constructed conductors of equivalent circular mil area our SGT cable is economical and efficient to install. Intended for applications operating at potentials of 60V DC or less.

**APPLICATIONS:** Automotive battery cable, connecting a battery or generator to a switch, windless starter or ground, operating at potentials of less than 60V.

**FEATURES:** \*Finely stranded rope conductors combined with a highly flexible PVC jacket redefines traditional SGT cable while remaining economical. \*Flexible SGT offers speed and easy installation.

**COMPLIANCES:** \*SGT J1127 & J378 \*ABYC: E-11.14 \*Coast Guard: 33 CFR part 183.430

**CHARACTERISTICS:** **Conductor:** Soft Annealed Stranded Bare Copper **Insulation:** Flexible PVC, 105°C

**Temperature/Voltage Rating:** 105°C Dry / 60V DC **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**PRINT:** PACER No. \_TYPE SGT 105°C 60V J1127 AND J378 Length of Print is 1 FT PACER TO PACER = 1FT

# Wire & Cable

## BATTERY CABLE ASSEMBLIES

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



**B40Y-12-P-12**



**B2B-A38-38-15**



**B4R-N-P-18**

**Battery Cable Assembly Ordering Information:** Build the part numbers. Select (A) Cable Style, (B) Gauge Size, (C) Cable Color, (D) Boot Type, (E) Lug Type, (F) Length. All battery cable assemblies are made to order and are not refundable.

**(A) Cable Style**



SAE  
**(A)**



UL  
**(B)**

**(B) Gauge Size**

6 AWG	4 AWG	2 AWG	1 AWG	1/0	2/0	3/0	4/0
<b>(6)</b>	<b>(4)</b>	<b>(2)</b>	<b>(1)</b>	<b>(10)</b>	<b>(20)</b>	<b>(30)</b>	<b>(40)</b>

**(C) Cable Color**

(R)	(B)	(Y)
Red	Black	Yellow

**(D) Boot Type**



Alternator  
**(A)**



Marine  
**(M)**



Straight  
**(S)**

**(E) Lug Type**



#10  
**(10)**



1/4"  
**(14)**



5/16"  
**(56)**



3/8"  
**(38)**



1/2"  
**(12)**



Positive  
**(P)**

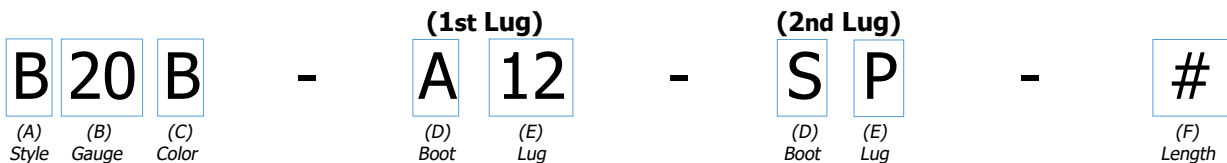


Negative  
**(N)**

**(F) Length**

(Length in Inches)

Battery Cable Assemblies are made to order and are non-returnable, non-refundable. Additional configurations available. Call customer service for additional options.



Pacer manufactures cable assemblies using a precision cut and strip machine for repeatable and accurate cuts. Our hydraulic-pneumatic crimper creates a superior gas tight crimp. We combine this process with epoxy lined heat shrink to give you a moisture and air tight connection.

**FEATURES:** \*Easy to bend and route. \*Excellent flexibility with the durable properties of PVC.

**COMPLIANCES (SAE):** \*SGT J1127 & J378 \*ABYC: E-11.14 \*Coast Guard: 33 CFR part 183.430

**CHARACTERISTICS (SAE): Conductor:** Soft Annealed Stranded Bare Copper **Insulation:** -20°C to 105°C Flexible, PVC

**Temperature Rating:** 105°C Dry **Voltage Rating:** 60V DC **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**COMPLIANCES (UL):** \*UL Standard 1426 BC-5W2 \*AWM 1232/1283 (6-2 AWG) \*AWM 1232/1284 (1-4/0 AWG) \*MTW \*CSA: TEW

\*ABYC: E-11.16 \*Coast Guard: 33 CFR part 183 Subpart 1

**CHARACTERISTICS (UL): Conductor:** Annealed Fine Stranded Tinned Copper ASTM B172 Class K **Insulation:** -20°C to 105°C Flexible, Color Coded PVC

**Temperature Rating:** 105°C Dry, 75°C Wet 60°C Oil **Voltage Rating:** 600V **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

# Wire & Cable

## MARINE SAE TINNED COPPER WIRE



PART NUMBER	NO.	CONDUCTOR STRANDING	NOM. INSULATION (IN.)	NOM. O.D. (IN.)	NOM. CIRCULAR MILS	NOM. MM <sup>2</sup>	STANDARD PUT-UPS	APPRX LB/M
WST16	16	24/0.0100	0.023	0.105	2400	1.22	C, TL, D, M	13
WST14	14	38/0.0100	0.023	0.120	3800	1.93	C, TL, D, M	18
WST12	12	60/0.0100	0.026	0.145	6000	3.04	C, TL, D, M	28
WST10	10	96/0.0100	0.031	0.173	9600	4.86	C, TL, D, M	43
WST8	8	96/0.0126	0.037	0.225	15240	7.72	C, TL, D, M	70
WST6	6	7x36/0.0100	0.060	0.335	25200	12.77	C, TL, D	107

### Marine SAE Tinned Copper Wire Ordering Information:

Build the part number. Select (A) Wire Gauge, (B) Jacket Color, (C) Wire Stripe Color, (D) Spool Size

#### (A) Select Wire Size

16 (WST16)	14 (WST14)	12 (WST12)	10 (WST10)	8 (WST8)	6 (WST6)
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#### (B) Select Jacket Color

	(BK)	(BR)	(RD)	(OR)	(YL)	(GN)	(LG)	(BL)	(LB)	(VI)	(GY)	(WH)	(TN)	(PK)
	Black	Brown	Red	Orange	Yellow	Green	Lt. Green	Blue	Lt. Blue	Violet	Grey	White	Tan	Pink
WST16														
WST14														
WST12														
WST10														
WST8														
WST6														

#### (C) Select Stripe Color: Optional\*

	(-0)	(-1)	(-2)	(-3)	(-4)	(-5)	(-15)	(-6)	(-16)	(-7)	(-8)	(-9)	(-11)	(-12)
	Black	Brown	Red	Orange	Yellow	Green	Lt Green	Blue	Lt Blue	Violet	Grey	White	Tan	Pink

\*Striped wire is non-returnable, non-refundable, requires a minimum order of 500 feet.

#### (D) Select Spool Size

Cut to Order (-B)	100 FT. (-C)	250 FT. (-TL)	500 FT. (-D)	1000 FT. (-M)
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Longer lengths available. Please call or email a Pacer expert.

**Example:** SAE No. 14, Violet, 250 ft = WST14VI-TL



**WEB ENHANCED** - Reel Measurements: Available at [PacerGroup.net/reel-measurement-table/](http://PacerGroup.net/reel-measurement-table/)



SAE flexible tinned copper wire provides an excellent cost effective alternative to traditional bare copper automotive wire. Its tinned copper, highly flexible stranding and premium insulation offer superior corrosion resistance. This highly flexible wire made to SAE specifications, fits all major connector systems, and is intended for use at potentials under 60V DC.

**COMPLIANCES:** \*GPT J1128 & J378 (No. 16-8) \*SGT J1127 & J378 (No. 6) \*ABYC: E-11.14 \*Coast Guard: 33 CFR part 183.430

**CHARACTERISTICS:** **Conductor:** No. 16 to No. 6 Soft Annealed Stranded Tinned Copper **Insulation:** -20°C to 105°C Flexible, PVC

**Temperature/Voltage Rating:** 105°C Dry / 60V DC **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

**PRINT:** PACER MARINE TINNED COPPER MARINE SAE No. \_TYPE GPT 105°C 60V J1128 AND J378

**Length of Print is 1 FT** PACER TO PACER = 1FT

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



# Wire & Cable

## TEFLON INSULATED PRIMARY WIRE



- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

PART NUMBER	AWG NO.	CONDUCTOR STRANDING	NOM. INSULATION (IN.)	NOM. O.D. (IN.)	APPRX LB/M
<b>NEMA HP-3, formerly "MIL-W 16878/4 TYPE E" 600V 200°C</b>					
WE-2419	24	19/36	0.010	0.045	2.9
WE-2219	22	19/34	0.010	0.051	3.6
WE-2019	20	19/32	0.010	0.058	4.9
WE-1819	18	19/30	0.010	0.069	7.3
WE-1619	16	19/29	0.010	0.080	10.7
WE-1419	14	19/27	0.010	0.095	14.4

**Ordering Information:** Order in multiples of 100 ft. Striped wire available in 250 ft reels.  
 Stocked Colors: Black, Red, White, Green. Other colors are available upon request.

Teflon insulated primary wire is widely regarded as the ultimate high performance wire insulation material for environments characterized by extreme thermal or chemical conditions. Teflon is rated for continuous operating temperatures from -55°C to 200°C. It is resistant to exposure from nearly all chemicals. Teflon wire also carries a low coefficient of friction and has outstanding electrical properties. Teflon wire is RoHS, VW-1 compliant.

### TEFLON WIRE

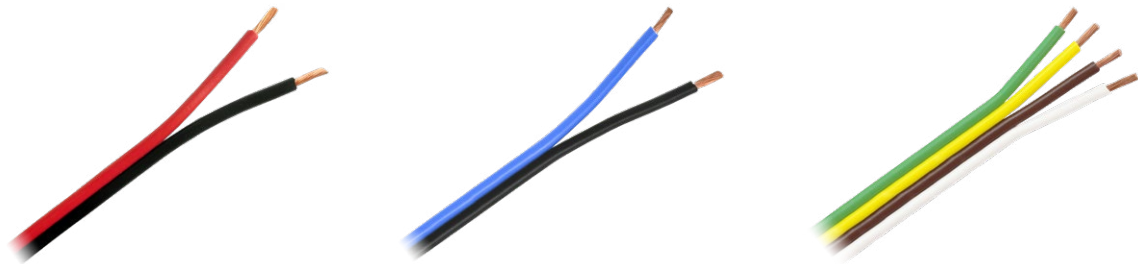
#### NEMA HP-3, formerly "MIL-W 16878/4 TYPE E" 600V 200°C

Thin wall, PTFE color coded insulation, silver plated copper conductors. Rated for 200°C 600V

**Applications Include:** M16878/4 has excellent thermal aging, solder damage, flame, & moisture resistance. Teflon is especially suitable for internal wiring-soldering applications where insulation melt back is a specific problem.

**COMPLIANCES:** \*RoHS, VW-1 Compliant

## ZIP CORD



PART NUMBER	AWG NO.	NO. OF COND.	CONDUCTOR STRANDING	CONDUCTOR COLORS	APPRX LB/M
WB16BK-RD	16	2	19/0.0112	Black, Red	25
WB16BK-DKBL	16	2	19/0.0112	Black, Dark Blue	25
WB16BK-GY	16	2	19/0.0112	Black, Grey	25
WB16BK-PK	16	2	19/0.0112	Black, Pink	25
WB16-3	16	3	19/0.0112	Brown, Yellow, Green	38
WB16-4	16	4	19/0.0141	Brown, Yellow, Green, White	50
WB14BK-RD	14	2	19/0.0141	Black, Red	35
WB14BK-BL	14	2	19/0.0141	Black, Blue	35
WB14BK-GY	14	2	19/0.0141	Black, Grey	35

**Ordering Information:** Sold by the foot. Minimum 25 ft.

An economical alternative to jacketed cable, low voltage lights trailer lights and DC circuits where multiple conductors need to be routed quickly and easily. Constructed from 105°C bare copper primary wire.

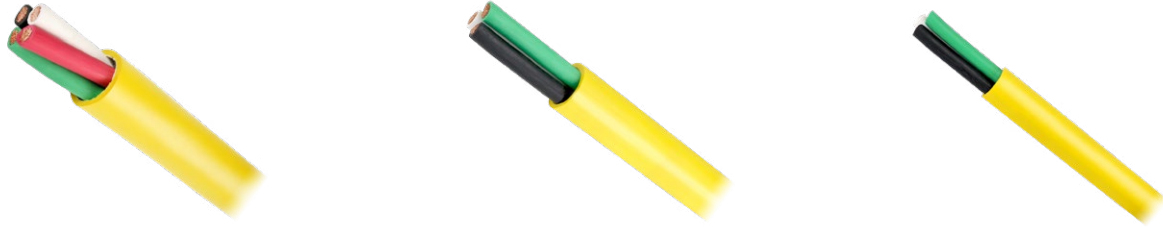
**APPLICATIONS:** Low voltage lights, Trailer lights, DC circuits

**FEATURES:** \*Annealed stranded bare copper (Type II) \*Color coded parallel bonded conductors

**CHARACTERISTICS: Temperature Rating:** -20°C to 105°C **Voltage Rating:** 60V DC

# Wire & Cable

## SEOOW "SHIP-TO-SHORE" FLEXIBLE CORD



PART NUMBER	AWG NO.	NO. OF CONDUCTORS	CONDUCTOR STRANDING	NOM. O.D. (IN.)	APPRX LB/M
MSTO10/3	10	3	105/30	0.661	260
MSTO6/3	6	3	266/30	0.818	452
MSTO6/4	6	4	266/30	0.892	575
MSTO2/4	2	4	665/30	1.260	1241

**Ordering Information:** Sold by the foot. No minimums, non-refundable, non-returnable.

SEOOW cords are ideal for custom or replacement shore power cords in harsh environments where the highest degree for oil resistance and extended service life are essential. These cables are lightweight and offer an Oil-resistant jacket. The jacket is also water-resistant as is the insulation and non-wicking plastic fibers. They are non-marking and offer very good flexibility with excellent molding characteristics.

**CHARACTERISTICS: Conductor:** Fully Annealed Stranded Bare Copper per ASTM B-174 **Insulation:** TPE, Color: Yellow

**Temp. Range:** -50°C to 105°C **Voltage Rating:** 600V

## SPEAKER WIRE



PART NUMBER	AWG NO.	CONDUCTOR STRANDING	NOM. O.D. (IN.)	APPRX LB/M
W18-2ACLR	18	16/0.0100	0.100 X 0.187	17
W16-2ACLR	16	26/0.0100	0.112 X 0.210	25
W14-2ACLR	14	41/0.0100	0.120 X 0.230	35
M12-2AWHT	12	65/0.0100	0.160 X 0.335	55

**Ordering Information:** Sold by the foot. Minimum 25 ft.

This speaker wire is for use with digital audio, stereo speakers, jukeboxes, and home theaters but is not rated for in-wall use. It is constructed from finely stranded tinned and bare copper wire and insulated with premium clear PVC.

**COMPLIANCES:** \*RoHS Compliant Directive 2002/95/EC

**CHARACTERISTICS: Conductor:** Fully annealed stranded one bare, one tinned copper per ASTM B-174 **Insulation:** Clear PVC or White (12 AWG Only)

**Temp. Range:** -20°C to 80°C **Voltage Rating:** 90V

## BUS BAR WIRE



PART NUMBER	AWG NO.	NOM. CMIL AREA	NOM. O.D. (IN.)	APPRX LB/M
WBB22	22	650	0.026	2
WBB20	20	1056	0.033	3.1
WBB18	18	1648	0.041	6
WBB16	16	2673	0.052	9
WBB14	14	4251	0.065	14
WBB12	12	6872	0.083	23

**Ordering Information:** Order in multiples of 100 ft.

Bus bar wire has one conductor. It is an uninsulated, unshielded and unjacketed solid tinned copper wire that is made in accordance to QQ-W-343-F.

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Multi-Conductor Cable

## SHIELDED MULTI-CONDUCTOR



WIRE & CABLE
<b>MULTI-CONDUCTOR</b>
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

	PART NUMBER	NO. OF COND.	COND. STRAND	NOM. CAP pF/ft**		NOM. INSULATION THICKNESS (IN.)	NOM. JACKET THICKNESS (IN.)	NOM. O.D. (IN.)
				A	B			
NETWORK CABLES	M22/2F	2	7/30	36.0	65.0	0.010	0.032	0.169
	M22/3F	3	7/30	36.0	65.0	0.010	0.032	0.177
	M22/4F	4	7/30	36.0	65.0	0.010	0.032	0.190
HEAT SHRINK	M22/6F	6	7/30	34.0	61.0	0.010	0.032	0.219
	M22/8F	8	7/30	34.0	61.0	0.010	0.032	0.235
	M22/10F	10	7/30	34.0	61.0	0.010	0.032	0.269
ROUTING & BUNDLING MATERIALS	M22/15F	15	7/30	34.0	61.0	0.010	0.032	0.304
	M20/2F	2	7/28	39.0	70.0	0.016	0.032	0.207
	M20/3F	3	7/28	39.0	70.0	0.016	0.032	0.217
CABLE TIES	M20/4F	4	7/28	39.0	70.0	0.016	0.032	0.236
	M20/6F	6	7/28	37.0	66.0	0.016	0.032	0.276
	M20/8F	8	7/28	37.0	66.0	0.016	0.032	0.297
TERMINALS	M20/10F	10	7/28	37.0	66.0	0.016	0.032	0.345
	M20/15F	15	7/28	37.0	66.0	0.016	0.032	0.393
	M18/2F*	2	16/30	54.5	98.0	0.013	0.037	0.221
DEUTSCH & DELPHI	M18/3F*	3	16/30	49.0	88.0	0.013	0.037	0.232
	M18/4F	4	16/30	N/A	N/A	0.010	0.032	0.238
	M18/6F	6	16/30	N/A	N/A	0.016	0.032	0.310
LUGS & BOOTS	M18/8F	8	16/30	N/A	N/A	0.016	0.032	0.330
	M18/10F	10	16/30	N/A	N/A	0.016	0.032	0.390
	M18/15F	15	16/30	N/A	N/A	0.016	0.032	0.450
ID PRODUCTS & LABELERS	M16/2F*	2	19/0.0117	64	115.5	0.013	0.037	0.243
	M16/3F*	3	19/0.0117	56.5	102.0	0.013	0.037	0.255
	M16/4F	4	19/0.0117	N/A	N/A	0.016	0.032	0.290
TOOLS	M16/6F	6	19/0.0117	N/A	N/A	0.016	0.032	0.350
	M16/8F	8	19/0.0117	N/A	N/A	0.016	0.032	0.380
	M14/2F*	2	19/0.0147	66.0	118.5	0.013	0.042	0.288
BREAKERS & FUSES	M14/3F*	3	19/0.0147	57.0	103.0	0.013	0.042	0.298
	M12/2F	2	19/0.0185	80.0	145.0	0.013	0.042	0.315

\*Compliances: NEC Art. 725 Power-Limited Tray Cable (UL: 105°C 300V) Passes UL 70,000 BTU Vertical Tray Flame Test, Sunlight resistant.

\*\*Nom. Capacitance: **A**-Between Conductors **B**-Between Conductor and Shield

**Ordering Information:** Sold by the foot. Minimum 25 ft.

**APPLICATIONS:** \*Consumer electronics \*Industrial process control equipment \*Suitable for EIA RS-232 applications

\*Advanced signal transmission in controlled environments

**FEATURES:** \*100% Flexfoil™ aluminum/polyester foil facing out \*Stranded tinned copper drain wire \*Fully annealed stranded tinned copper per ASTM B-33

\*Premium grade color coded PVC insulation \*Gray PVC jacket

**COMPLIANCES:** \*NEC Article 800 Type CM (UL:75°C) \*UL Style 2464 (UL:80°C, 300V, VW-1) \*CSA CMG (CSA: 60°C)

\*CE: Low Voltage Directive (LVD 2006/95/EC) \*RoHS compliant directive 2011/65/EU \*Vertical tray cable flame test per UL1581 and IEEE 383 (70,000 BTU)



# Multi-Conductor Cable

## UNSHIELDED MULTI-CONDUCTOR



PART NUMBER	NO. OF COND	COND. STRAND	NOM. CAP. pF/ft**	NOM. INSULATION THICKNESS (IN.)	NOM. JACKET THICKNESS (IN.)	NOM. O.D. (IN.)
M22/2	2	7/30	24.5	0.010	0.032	0.130
M22/3	3	7/30	24.5	0.010	0.032	0.176
M22/4	4	7/30	24.5	0.010	0.032	0.189
M22/5	5	7/30	24.5	0.010	0.032	0.203
M22/6	6	7/30	24.5	0.010	0.032	0.218
M22/7	7	7/30	24.5	0.010	0.032	0.218
M22/8	8	7/30	24.5	0.010	0.032	0.230
M22/10	10	7/30	24.5	0.010	0.032	0.249
M22/12	12	7/30	24.5	0.010	0.032	0.276
M22/15	15	7/30	24.5	0.010	0.032	0.303
M22/25	25	7/30	24.5	0.010	0.032	0.368
M20/2	2	7/28	28.0	0.016	0.032	0.192
M20/3	3	7/28	28.0	0.016	0.032	0.216
M20/4	4	7/28	28.0	0.016	0.032	0.235
M20/5	5	7/28	28.0	0.016	0.032	0.254
M20/7	7	7/28	28.0	0.016	0.032	0.275
M20/9	9	7/28	28.0	0.016	0.032	0.317
M20/15	15	7/28	28.0	0.016	0.032	0.392
M18/2*	2	16/30	32.5	0.013	0.037	0.216
M18/3*	3	16/30	32.5	0.013	0.037	0.227
M18/4*	4	16/30	N/A	0.013	0.037	0.245
M18/5	5	16/30	N/A	0.016	0.032	0.272
M18/6	6	16/30	N/A	0.016	0.032	0.290
M18/7	7	16/30	N/A	0.016	0.032	0.309
M18/8	8	16/30	N/A	0.016	0.032	0.306
M18/9	9	16/30	N/A	0.016	0.032	0.358
M18/12	12	16/30	N/A	0.016	0.032	0.401
M16/2*	2	19/0.0117	37.0	0.013	0.037	0.238
M16/3*	3	19/0.0117	37.0	0.013	0.037	0.250
M16/4	4	19/0.0117	N/A	0.021	0.032	0.306
M16/5	5	19/0.0117	N/A	0.021	0.032	0.334
M16/7	7	19/0.0117	N/A	0.021	0.032	0.363
M16/8	8	19/0.0117	N/A	0.021	0.032	0.393
M16/12	12	19/0.0117	N/A	0.021	0.032	0.476
M14/2*	2	19/0.0117	40.5	0.013	0.042	0.278
M14/4	4	19/0.0147	40.5	0.033	0.042	0.391


\*Power Limited Tray Cable, NEC Type PLTC, 105°C, Sunlight resistant. \*\*Capacitance between conductors

**Ordering Information:** Sold by the foot. Minimum 25 ft.

**APPLICATIONS:** \*Consumer electronics \*Industrial process control equipment \*Suitable for EIA RS-232 applications

\*Advanced signal transmission in controlled environments

**FEATURES:** \*Finely stranded tinned copper conductors \*Color coded PVC \*Gray PVC jacket

**COMPLIANCES:**   \*NEC Article 800 Type CM (UL:75°C) \*UL Style 2464 (UL:80°C, 300V, VW-1) \*CSA CMG (CSA: 60°C)

\*CE: Low Voltage Directive (LVD 2006/95/EC) \*RoHS compliant directive 2011/65/EU \*Vertical tray flame test (70,000 BTU)

WIRE & CABLE

**MULTI-CONDUCTOR**

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

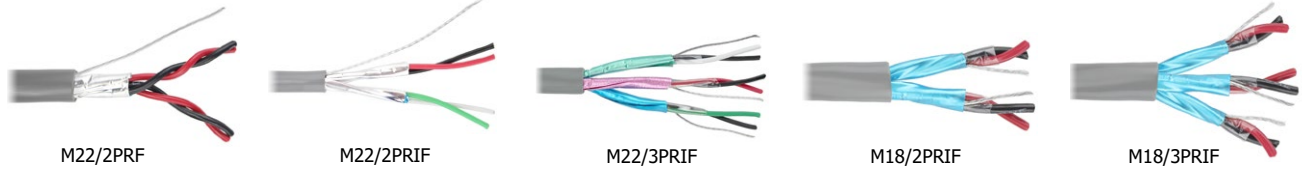
TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Multi-Conductor Cable

## MULTI & INDIVIDUALLY FOILED



- WIRE & CABLE
- MULTI-CONDUCTOR**
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

PART NUMBER	NO. OF PAIRS	COND. STRAND	NOM. CAP pF/ft*		NOM. INSULATION THICKNESS (IN.)	NOM. JACKET THICKNESS (IN.)	NOM. O.D. (IN.)
			A	B			

### MULTI-PAIR, OVERALL SHIELD

Applications: Computers, Industrial Equipment, Data Transmission, Control Circuits.  
Provides good flexibility and superior shielding where noise rejection is critical.

Compliances: NEC Art. 800 Type CM (UL 105°C, 300V), UL Style 2464, CSA CMG

M22/2PRF	2	7/30	32.0	57.0	0.015	0.042	0.294
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### MULTI-PAIR, INDIVIDUALLY SHIELDED

Applications: Computers, Industrial Equipment, Control Circuits where total isolation of signal is required.  
Provides excellent high frequency properties and mechanical durability.

Compliances: NEC Art. 800 Type CM (UL 75°C, 300V), UL Style 2835, CSA EMH

M22/2PRIF	2	7/30	30.0	45.0	0.007	0.020	0.160
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### MULTI-PAIR, INDIVIDUALLY SHIELDED, NO OVERALL SHIELD

Compliances: NEC Art. 800 Type CM, UL Style 2919, CSA CMH

M22/3PRIF	3	7/30	24.4	43.9	0.011	0.032	0.292
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### POWER-LIMITED TRAY CABLE, INDIVIDUALLY SHIELDED PAIRS

Applications: Burglar Alarms, Power Limited Circuits, Intercom Systems, Computer Interconnects

Provides superior temperature characteristics, shielded with a robust, highly durable, and sunlight resistant jacket.

Compliances: NEC Art. 725 (UL 105°C, 300V) UL Style 2464, CSA CMG

M18/2PRIF	2	16/30	50.5	91.0	0.016	0.042	0.380
M18/3PRIF	3	16/30	50.5	91.0	0.016	0.053	0.437

\*Nom. Capacitance: **A**-Between Conductors **B**-Between Conductor and Shield

**Ordering Information:** Sold by the foot, minimum 25 ft.

**FEATURES:** \*Finely stranded tinned copper conductors \*100% aluminum polyester foil with a stranded tinned copper drain wire with cables that have individually shielded pairs \*Color coded PVC insulation \*Grey PVC jacket

**COMPLIANCES:** \*RoHS compliant directive 2011/65/EU

**CHARACTERISTICS:** \*Voltage rating: 300V \*Temp rating: -20°C to 0°C

## FLAT BRAID



PART NUMBER	STRAND AWG	CONSTRUCTION	NOM. CIRCULAR MILS	APPROXIMATE AWG EQUIV.	*APPROXIMATE CURRENT CAPACITY (AMPS)
M.125FB	36	24x3x36	1800	18	16
M.25FB	36	24x7x36	4200	14	32
M.375FB	36	48x6x36	7200	12	46
M.5FB	36	48x8x36	9600	10	53
M.625FB	36	48x8x36	9600	10	53
M.75FB	36	48x11x36	13200	9	62
M1FB	36	48x18x36	21600	7	88
M1.5FB	30	48x11x30	52800	3	150

\*Values based on copper in free air at 65°F and intended as a guide only.

**Ordering Information:** Sold by the foot, minimum 5 ft.

Flat braided cable is a tight weave of soft drawn tinned copper wire. Originally constructed as a tube that is rolled flat creating a specific width. Excellent for use in shielding wire bundle short runs and is easily terminated. Also, flat braid is ideal for use as a low impedance ground path. The flexibility gained from the woven construction and the tinned copper conductors gives this material superb durability against harsh marine conditions.

**APPLICATIONS:** Useful as battery grounding bonding strap for aircraft, vehicles, marine equipment. Eliminates ignition interference.

**FEATURES:** \*Soft annealed tinned copper braid, tightly woven \*Low resistance way to create a point-to-point ground strap

# Coaxial Cables

## COAX & LMR CABLES



PART NUMBER	COND. AWG	INSULATION MATERIAL	SHIELD COVERAGE	JKT. MAT/ NOM. O.D. (IN.)	NOM. CAP		VELOCITY OF PROP. %	NOMINAL IMPEDANCE Ohms
					pF/ft	pF/m		
<b>50 OHM COAXIAL CABLES</b>								
MRG8U1154	13 (7x21) Bare Copper	Solid Polyethylene	95% Bare Copper Braid 1.2Ω/M	Blk. PVC 0.405	29.5	96.76	66	52
MRG8U1180	9 1/2 Bare Copper	Semi-solid Polyethylene	100% Bonded Foil +88% Tinned Copper Braid 1.8Ω/M	Blk. PVC 0.405	24.6	80.71	84	50
MRG8XW	16 (19x28) Tinned Copper	Solid Polyethylene	95% Bare Copper Braid 3.7Ω/M	Wht. PVC 0.242	28.0	91.84	78	50
MRG58AUW	20 (19x.0071) Tinned Copper	Solid Polyethylene	95% Tinned Copper Braid 4.1Ω/M	Wht. PVC 0.195	30.8	101.02	66	50
MRG213U	13 (7x21) Bare Copper	Solid Polyethylene	95% Bare Copper Braid 1.2Ω/M	Blk. PVC 0.405	30.8	101.02	66	50
MRG214U	13 (7x.0296) .089 Silver Coated Copper	Solid Polyethylene	98% 2 Silver Coated Copper Braid .70Ω/M	Blk. PVC 0.425	30.8	101.02	66	50
<b>75 OHM COAXIAL CABLES</b>								
MRG6U	18 Solid Clad Steel	Cellular Polyethylene	100% Flexfoil +61% Tinned Copper Braid 6.5Ω/M	Blk. PVC 0.275	16.2	53.15	78	75
MRG6UW-B	18 Solid Copper Clad Steel	Cellular Polyethylene	100% Flexfoil +95% Tinned Copper Braid 6.5Ω/M	Wht. PVC 0.275	16.2	53.15	78	75
MRG11U	14 Solid Bare Copper	Cellular Polyethylene	95% Bare Copper Braid 1.24Ω/M	Blk. Polyethylene 0.405	17.3	56.75	78	75
MRG59UW	22 Solid Copper Clad Steel	Solid Polyethylene	95% Tinned Copper Braid 2.6Ω/M	Wht. PVC 2.6Ω/M	20.5	N/A	66	73

**Ordering Information:** Sold by the foot. Minimum 25 ft.

Pacer stocks a wide variety of coaxial cables, including most standard configurations as well as specialized constructions for marine environments. Pacer stocks a range of 50 and 75 ohm cables. Let us help you find the proper cable for your application.

**APPLICATIONS: 50 OHM CABLES** \*Two-way communications \*CB radio \*WLAN \*Broadcast \*RG58 used for interconnecting electronic equipment \*RG8X used for VHF<50ft \*RG8U used for VHF>50ft \*RF connections

**FEATURES: 50 OHM CABLES** - Used for two-way communications, RF and microwave transmission and instrument control.

**APPLICATIONS: 75 OHM CABLES** \*RF connections \*Two-way communications \*CB radio \*WLAN \*Broadcast

**FEATURES: 75 OHM CABLES** - The broadcast use of coaxial cables is for video distribution. Broadcast CATV (or MATV) signals use RG-59 or RG-6 series. They are designed for use above 50MHz with high strengths, low weight and low cost being the primary factors.

## LMR CABLES



PART NUMBER	CONDUCTOR TYPE	INSULATION MATERIAL	SHIELD TYPE	NOM. O.D. (IN.)	NOM. CAP		VELOCITY OF PROP. %	NOMINAL IMPEDANCE Ohms
					Pf/ft	pF/m		
MLMR240	SOLID BC	FOAM PE	ALUM TAPE	0.240	24.2		84%	50
MLMR400	SOLID BCCAL	FOAM PE	TINNED COPPER	0.405	23.9		85%	50
MLMR400-75	SOLID BC	FOAM PE	TINNED COPPER	0.405	15.9		85%	75

**Ordering Information:** Order in multiples of 100 ft.

LMR (Land Mobile Radio) Cables have RF (Radio Frequency) performance comparable to traditional corrugated copper cables, but unlike corrugated cables, they are highly flexible and non-kinking. Compared to RG type braided cables, LMR Cables offer a far lower loss and better RF shielding. The polyethylene jacket, closed cell foam poly dielectric and bonded tape conductor contribute to the superior weather resistance of LMR cables.

**APPLICATIONS:** \*2 Way land mobile \*Cellular \*Wireless local loop \*Broadband wireless \*Telemetry

**FEATURES:** LMR has a UV resistant polyethylene jacketed cable designed for 20 years of service for outdoor use.

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES**
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



# Coaxial Cables

## COAX CONNECTORS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES**
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



EF59 & EF6



EF59TW & EF6TW



EF81



EPL258

PART NUMBER	CONNECTOR	FOR CABLE TYPE	PLATING TYPE
EF59	F-Connector Plug	RG 59	Nickel
EF6	F-Connector Plug	RG 6	Nickel
EF59TW	F-Connector Twist On	RG 59	Nickel
EF6TW	F-Connector Twist On	RG 6	Nickel
EF81	F-to-F Connector Coupler	-	Nickel
EPL258	Jack to Jack PL259 Coupler	-	Nickel

**Ordering Information:** Order by the piece.



EBNC-58 & EBNC-59



ETNC-58 & ETNC-59



EPL259 & EPL259S



EUG175 & EUG176

PART NUMBER	CONNECTOR	FOR CABLE TYPE	PLATING TYPE
EBNC-58	BNC Series 3 Pc	RG 58	Nickel
EBNC-59	BNC Series 3 Pc	RG 59, 62	Nickel
ETNC-58	TNC Series 3 Pc	RG 58	Nickel
ETNC-59	TNC Series 3 Pc	RG 59	Nickel
EPL259	UHF Series Plug	RG8, 11, 213, 214, LMR-400	Nickel
EPL259S	UHF Series Plug	RG8, 11, 213, 214, LMR-400	Silver
EUG175	PL259 Reducer	RG 58	Nickel
EUG175S	PL259S Reducer	RG 58	Silver
EUG176	PL259 Reducer	RG 59, 62, 8X, LMR-240	Nickel
EUG176S	PL259S Reducer	RG 59, 62, 8X, LMR-240	Silver

**Ordering Information:** Order by the piece.

# Coaxial Cables

## COMPRESSION SEAL CONNECTORS



ECF-6 & ECF-59



ECBNC-59 & ECBNC-6



ECRCA-59 & ECRCA-6

PART NUMBER	CONN. T YPE	CABLE DIAMETER (Inches)	CABLE TYPES	COMPRESSION TOOL
ECF-59	F	0.240	RG-59, LMR-240	VTCL-4040;4080
ECF-6	F	0.270	RG-6	VTCL-4040;4080
ECBNC-59	BNC	0.240	RG-59, LMR-240	VTCL-4080
ECBNC-6	BNC	0.270	RG-6	VTCL-4080
ECRCA-59	RCA	0.240	RG-59, LMR-240	VTCL-4080
ECRCA-6	RCA	0.270	RG-6	VTCL-4080

**Ordering Information:** Order by the piece.

These single-piece connectors make installation of RG6, RG6-Quad and RG59 cables go quickly and smoothly and create a high quality, permanent 360° connector-to-cable seal. The connectors are made of machined annealed brass with anti-corrosion nickel plated finish for maximum conductivity and reliability.

### Properly using coaxial compression seal connectors:



**Step 1:** Make sure that all coaxial cables are properly stripped to the correct length. For coaxial stripping tool, please refer to page 54.

**Step 2:** Using the release screw and adjusting screw on the side of the tool, set the tool to the proper setting based on the connector you intend to use.

**Step 3:** Insert the properly stripped coaxial cable into the connector making sure the center conductor is the correct length.

**Step 4:** Line up the center conductor of the coaxial cable into the alignment hole on the crimper. Slide the cable into the tool opening making sure it is parallel to the crimp head.

**Step 5:** Squeeze both handles engaging the ratcheting action and complete a full cycle.

**PART NUMBER:** VTCL-4080



For more information on this tool please refer to **page 56**.

Making sure that you have the proper crimping or compression tool is essential to achieving a high-quality, proper connection. If a connector on your cable has not been properly crimped or connected, the quality of the connection is reduced. This has the potential to compromise an entire electrical system. Using the proper tool guarantees the correct crimp each and every time. Regardless of the type of connector you are working with, Pacer Group has the tool you need. Each tool carried has been tested and retested to make sure it is of the highest quality. To see Pacer Group's selection of tools, refer to **pages 53 - 59**.

### **PACER PRO TIP:**

Compression seal connectors may not be what you're looking for. Pacer Group carries a wide range of terminals and connectors to handle any job. For a full list of options, please refer to **pages 33 - 49**.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

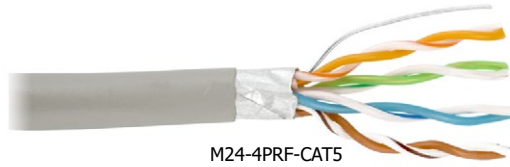
TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

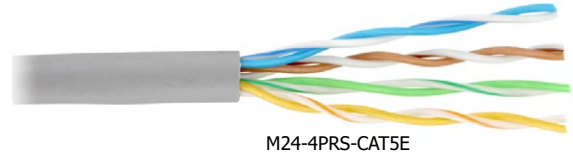
LIGHTS & METERS

# Network Cables

## CAT (CATEGORY) CABLES



M24-4PRF-CAT5



M24-4PRS-CAT5E

PART NUMBER	TYPE	PAIRS	AWG NO.	COLOR	NEC	SIZE	WEIGHT LB/M
M24/4PR-CAT5E	UNSHIELDED	4	24 (SOLID BARE)	GREY	CM	1000 FT	26
M24/4PRS-CAT5E*	UNSHIELDED	4	24 (7/32 TINNED)	GREY	CMR/CMG	1000 FT	26
M24/4PRF-CAT5	O/ALL SHIELD	4	24 (SOLID BARE)	GREY	CMR	1000 FT	26
M26/4PRFS-CAT5E*	O/ALL SHIELD	4	26 (7/32 TINNED)	BEIGE	CMR	1000 FT	26
M26/4PRFS-CAT6	O/ALL SHIELD	4	26 (SOLID BARE)	GREY	CM	1000 FT	26

\*ETL verified Category 5E

**Ordering Information:** Sold by the foot, minimum of 1000 ft.

Category 5 enhanced is a twisted pair cable used for carrying signals used on computer networks such as Ethernet. It is also commonly used to carry telephony and video signals. Cable standard provides performance up to 100 MHz.

## CAT 6 RJ-45 MODULAR PLUG



PART NUMBER	DESCRIPTION	PACKAGING
ERJ-45	IDC(Insulation Displacement Conn) 8 POS	25 PER PACK
ERJ-25	IDC(Insulation Displacement Conn) 6 POS	25 PER PACK

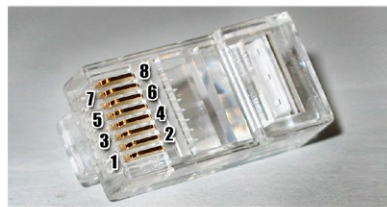
**Ordering Information:** Order by the pack.

RJ45 modular plugs support CAT 6 installations, meeting the TIA/EIA-568-B.2 requirements for NEXT (Near End Cross Talk) and Return Loss. Unique 3-piece design includes a conductor liner, allowing conductors to be ordered and held in position for insertion into the plug body. Plugs are crimped using standard RJ45 crimp nests, allowing existing installation tools to be used.

### How to wire a 10BaseT or 100BaseT connector with Category 5 cable and RJ45 connectors using USOC 568B Wiring Standards

EIA/TIA 568B Wiring Standard	
PIN	Wire Color
1	White w/ Orange Stripe
2	Orange w/ White Stripe
3	White w/ Green Stripe
4	Blue w/ White Stripe
5	White w/ Blue Stripe
6	Green w/ White Stripe
7	White w/ Brown Stripe
8	Brown w/ White Stripe
For Cross Over Cable Wiring Wire ONE end using 568B and one end as 568A (swap Orange and Green pairs)	

568A and 568B are the most widely used standard for ethernet cables. If you wire both ends of your cable using 568B, you'll have a straight-through cable usable for most ethernet applications. Wiring a cable with 568A on one end and 568B on the other will result in a Cross-Over cable for connecting two hubs, or two computers together.



EIA/TIA 568A Wiring Standard	
PIN	Wire Color
1	White w/ Green Stripe
2	Green w/ White Stripe
3	White w/ Orange Stripe
4	Blue w/ White Stripe
5	White w/ Blue Stripe
6	Orange w/ White Stripe
7	White w/ Brown Stripe
8	Brown w/ White Stripe
For Cross over Cable Wiring Wire ONE end using 568B and one end as 568A (swap Orange and Green Pairs)	

**STEP 1:** Cut the outer jacket of the wire about 1.5" to 2" from the end. This will give you room to work with the wire pairs. Separate the pairs and align them in the order shown above. Begin flattening the wires into a "ribbon" so that it will easily slip into the connector and into the individual channeled areas.

**STEP 2:** Once you have all the wires aligned and ready to insert, you must trim them to approximately 1/2" in order to have as little "untwisted" wire in the connection as possible. Category 5 specifications require a certain number of twists per inch and even the connector counts!

**STEP 3:** Insert the wires into the connector making sure that each wire goes into its appropriate "channel" and extends all the way to the end of the connector underneath the gold crimping connectors. Sometimes you can look at the end of the connector to see the copper wires if you are using solid copper cable. If the wires do not extend to the end of the connector, the crimp may not make contact.

**STEP 4:** Press the cable and the jacket into the connector firmly so that the jacket will be crimped by the plastic wedge near the rear of the connector, insert it into your crimping tool and crimp the cable. RE-CRIMP the cable to make sure all connections are made.

**STEP 5:** Repeat steps 1 thru 4 for the other end of the cable for a standard ethernet cable.



# Network Cables

## DEVICENET MICRO-C



### DEVICENET™ MICRO/EURO CABLE (MEETS AND EXCEEDS NMEA 2000 SPECIFICATIONS)

PART NUMBER: **MDN-MICRO**

AWG (Stranding) MAX DCR	NOM. MATERIAL (Color Code)	NOM. O.D. (Inches)	NOM. IMPED- ANCE (Ohms)	NOM. VEL OR PROP.	CAPACITANCE	APPROVALS
1 pr - #22 TC Stranded	Power Pair PVC  (black/red)	0.280	120.0		12.0 pF/ft	
1 pr - #22 TC Stranded	Data Pair Foam PE (blue/white)			Data Pair 75%		CL2 75°C NMEA 2000®

**Ordering Information:** Sold per roll, total footage of 328 feet.

### MICRO-CHANGE CORDSET

MALE/FEMALE EXTENSION PART NUMBER	FEMALE EXTENSION PIGTAIL PART NUMBER	MALE EXTENSION PIGTAILPART NUMBER	LENGTH OF DROP CABLE M (Feet)
N84854-6034	N84854-7021	N84854-8021	0.5 (1.64)
N84854-6035	N84854-7022	N84854-8022	1.0 (3.28)
N84854-6036	N84854-7023	N84854-8023	2.0 (6.56)
N84854-6037	N84854-7024	N84854-8024	3.0 (9.84)
N84854-6038	N84854-7025	N84854-8025	4.0 (13.12)
N84854-6039	N84854-7026	N84854-8026	5.0 (16.40)
N84854-6055	N84854-7027	N84854-8027	6.0 (19.69)

**Ordering Information:** Sold per cordset.

### MICRO-CHANGE POWER TAP, FEMALE LEFT TO FEMALE RIGHT TEE WITH PIGTAIL DROP

PART NUMBER	LENGTH OF DROP CABLE - M (Feet)
N84863-9001	1 (3.28)
N84863-9002	5 (16.40)
N84863-9003	10 (32.81)

**Ordering Information:** Order by the set.



N84586-0017



N84586-0019 & N84586-0018



N84584-9317 & N84854-9318

### ADAPTORS, CONNECTORS, RESISTORS, AND RECEPTACLES

PART NUMBER	DESCRIPTION
N84586-0017	T-ADAPTOR, FEMALE, FEMALE (DROP), MALE
N84587-0005	MICRO CHANGE, 6 PORT
N84586-0018	MALE TERMINATION RESISTOR
N84586-0019	FEMALE TERMINATION RESISTOR
N84854-9300	MICRO-C BULKHEAD FEED THROUGH RECEPTACLE
N84854-9317	MICRO-C FEMALE TRUNK FIELD ATTACHABLE CONNECTOR
N84854-9318	MICRO-C MALE TRUNK FIELD ATTACHABLE CONNECTOR
N84854-9319	MICRO C INLINE TERMINATOR

**Ordering Information:** Sold by the piece.

NMEA 2000 DeviceNet Cables and Connectors are a CAN (Controller Area Network) protocol used to create a network of electronic devices. NMEA 2000 was developed primarily for use with electronic components used in marine applications. In essence, the network allows instruments to work together since they share data.

**APPLICATIONS:** NMEA 2000 is a low-cost data network operating at 250 Kbps and utilizing the Controller Area Network (CAN) Integrated Circuit (IC). It allows multiple electronic devices to be connected together on a common channel for the purpose of easily sharing information.

**FEATURES:** \*Share data between NMEA 2000 devices \*Up to 4 AMPS \*Vibration resistance \*Ground circuit mates before other contacts

\*Superior strain relief

**COMPLIANCES:** IEC IP67 Standard

**CHARACTERISTICS:** \*Molded Connector: PVC Coupling Ring: Brass, Nickel \*Contacts: Brass Alloy, Gold Plated \*Cable: PVC Grey Jacket

WIRE  
& CABLE

MULTI-  
CONDUCTOR

COAX  
CABLES

**NETWORK  
CABLES**

HEAT  
SHRINK

ROUTING &  
BUNDLING  
MATERIALS

CABLE  
TIES

TERMINALS

DEUTSCH &  
DELPHI

LUGS  
& BOOTS

ID PRODUCTS  
& LABELERS

TOOLS

BREAKERS  
& FUSES

TERMINAL  
BLOCKS &  
BUS BARS

SWITCHES &  
ACTUATORS

LIGHTS &  
METERS

# Heat Shrink

## 3-TO-1 & HEAVY WALL HEAT SHRINK



- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK**
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

PART NUMBER	EXPANDED I.D. (Inches)	RECOVERED I.D. (Inches)	APPLICATION RANGE AWG*	RECOVERED WALL THICKNESS (Inches)	AVAILABLE COLORS
BEHS-1/8	0.125	0.0417	20, 18	0.038	BK, CL, RD
BEHS-3/16	0.188	0.0625	16, 14	0.045	BK, CL, RD, YL
BEHS-1/4	0.250	0.0830	12, 10	0.047	BK, CL, GN, WH, RD, YL
BEHS-3/8	0.375	0.1250	8, 6	0.050	BK, CL, GN, WH, RD, YL
BEHS-1/2	0.500	0.1670	4, 2	0.055	BK, CL, GN, WH, RD, YL
BEHS-3/4	0.750	0.2500	1, 1/0, 2/0	0.065	BK, CL, GN, WH, RD, YL
BEHS-1	1.000	0.4000	3/0, 4/0	0.075	BK, CL, GN, WH, RD, YL
BEHS-1.5	1.500	0.6000	N/A	0.120	BK, RD
BEHS-2.05	2.050	0.8000	N/A	0.150	BK

\* Insulation varies with different types of wires; different diameter of tubing may actually be required. When choosing a size, consider any components or connectors that may need to be covered.

### PRE-CUT ADHESIVE HEAT SHRINK TUBING FOR BATTERY CABLE ASSEMBLIES

**Ordering Information:** BK = Black, RD = Red, GN = Green, CL = Clear, YL = Yellow, WH = White  
Green and White available in 48" length only.

PART NUMBER	LENGTH (Inches)	AVAILABLE COLORS	PACKAGE SIZE
BEHS-1/2-1.5-10	1.500	BK, RD, YL	10 PCS
BEHS-3/4-1.5-10	1.500	BK, RD, YL	10 PCS
BEHS-1-1.5-10	1.500	BK, RD, YL	10 PCS

Combine part number, length & color for the 12 inch stick.  
**Example:** 3/4" diameter, 12" length, black = BEHS-3/4-12BK  
Combine part number & color for the 48 inch stick.  
**Example:** 3/4" diameter, black = BEHS-3/4BK

Three to one is a semi-flexible, cross linked polyolefin tube which possesses a meltable inner lining of adhesive that flows when heated to ensure complete sealing. In addition to insulation and mechanical protection, this tubing provides a moisture-proof seal for encapsulation of wires, splices, breakouts and components.

**APPLICATIONS:** \*Environment/moisture protection \*Sealing electrical connections \*Encapsulate splices \*Sealing cable ends \*Strain relief

\*Rugged abrasion/vibration protection \*Clear heat shrink is ideal for labeling

**FEATURES:** \*Shrink ratio 3:1 \*Semi-flexible \*Moisture sealing \*Flame retardant (except clear)

**COMPLIANCES:** MIL-I-23053/4 Class 3

**CHARACTERISTICS:** Operating Temperature: -55°C to 110°C

## 3-TO-1 HEAVY WALL TUBING



PART NUMBER	EXPANDED ID (Inches)	RECOVERED ID (Inches)	APPLICATION RANGE AWG*	RECOVERED WALL THICKNESS (Inches)
BHW3/4BK	0.750	0.250	6 - 1 (.25 - .65)	0.09
BHW3/4RD	0.750	0.250	6 - 1 (.25 - .65)	0.09
BHW1.1BK	1.100	0.367	1/0 - 4/0 (.40 - .95)	0.12
BHW1.1RD	1.100	0.367	1/0 - 4/0 (.40 - .95)	0.12

\* Insulation varies with different types of wires; different diameter of tubing may actually be required. When choosing a size, consider any components or connectors that may need to be covered.

**Ordering Information:** All sizes sold in 12" lengths. BK = Black RD = Red

3:1 BHW is coated internally with a dual purpose thermoplastic liner, which flows and encapsulates when heated. When cooled, the tubing offers the mechanical strength of a superior adhesive and the corrosion protection of a high quality mastic. When choosing a size, consider any components or connectors that may need to be covered.

**APPLICATIONS:** \*Splice sealing \*Primary insulation \*Cable/jacket repair \*Direct burial/submersible \*Strain relief

**FEATURES:** \*Highly abrasion and impact resistant \*Easy installation, shrinks when heated over 120°C \*Thermoplastic liner will adhere to PVC, neoprene and polyolefin, EPR, steel and aluminum

**COMPLIANCES:** MIL-I-23053/15 Class 2

# Heat Shrink

## 2-TO-1 & SEMI-RIGID HEAT SHRINK



PART NUMBER	EXPANDED I.D. (Inches)	RECOVERED I.D. (Inches)	APPLICATION RANGE AWG*	RECOVERED WALL THICKNESS (Inches)	AVAILABLE COLORS
BHS-1/16	0.062	0.031	24, 22, 20	0.018	BK, BL, CL, GN, RD, WH, YL
BHS-1/8	0.125	0.063	20, 18	0.020	BK, BL, CL, GN, RD, WH, YL
BHS-3/16	0.188	0.094	16, 14	0.020	BK, BL, CL, GN, RD, WH, YL
BHS-1/4	0.250	0.125	12, 10	0.025	BK, BL, CL, GN, RD, WH, YL
BHS-3/8	0.375	0.188	8, 6	0.025	BK, BL, CL, GN, GN/YL**, RD, WH, YL
BHS-1/2	0.500	0.250	4, 2	0.025	BK, BL, CL, GN, RD, WH, YL
BHS-3/4	0.750	0.375	1, 1/0, 2/0	0.030	BK, BL, CL, GN, RD, WH, YL
BHS-1	1.000	0.500	3/0, 4/0	0.035	BK, CL, RD
BHS-1.5	1.500	0.750	N/A	0.040	BK, CL, RD, WH, YL
BHS-2	2.000	1.000	N/A	0.045	BK
BHS-3	3.000	1.500	N/A	0.050	BK
BHS-4	4.000	2.000	N/A	0.055	BK

\* Insulation varies with different types of wires; different diameter of tubing may actually be required. When choosing a size, consider any components or connectors that may need to be covered.

\*\* GN/YL is a green tube with yellow tracer. To order, use part number BHS-3/8GN/YL.

**Ordering Information:** BK = Black, BL = Blue, CL = Clear, GN = Green, RD = Red, WH = White, YL = Yellow

Combine part number with color **Example:** 1/2" black = BHS-1/2BK All sizes sold in 48" lengths. Spools available upon special request.

Two to one heat shrink tubing slides easily over small inline splices and connectors, and shrinks down to 50% of its original diameter to fit snugly over any wire, hose or cable. Also, it is the ideal way to terminate the ends of your braided sleeving and to create a tight professional finish.

**APPLICATIONS:** \*Insulation \*Wire identification \*Wire bundling \*Mechanical protection \*Physical/electrical protection of components

**FEATURES:** \*2:1 shrink ratio \*Flexible \*High tensile strength \*Flame retardant (except clear)

**COMPLIANCES:** \*UL 224, 125°C \*CSA 125°C \*AMS-DTL 23053/5

**CHARACTERISTICS:** \*Oper. Temp.: -55°C to 135°C \*Min. Shrink Temp.: 100°C \*Dielectric Strength: 400V/mil

## 3-TO-1 SEMI-RIGID HEAT SHRINK TUBING

PART NUMBER	EXPANDED I.D. (Inches)	RECOVERED I.D. (Inches)	APPLICATION RANGE AWG*	RECOVERED WALL THICKNESS (Inches)	AVAILABLE COLORS
BSR-1/8	0.125	0.063	20, 18	0.020	BK
BSR-3/16	0.188	0.094	16, 14	0.020	BK
BSR-1/4	0.250	0.125	12, 10	0.025	BK
BSR-3/8	0.375	0.188	8, 6	0.025	BK
BSR-3/4	0.750	0.375	1, 1/0, 2/0	0.030	BK
BSR-1	1.000	0.500	3/0, 4/0	0.035	BK

\* Insulation varies with different types of wires; different diameter of tubing may actually be required. When choosing a size, consider any components or connectors that may need to be covered.

**Ordering Information:** All sizes sold in black 48" lengths.

BSR is a semi-rigid, dual wall, non-flame retarded polyolefin heat shrinkable tubing. Upon the application of heat, the inner liner melts and flows to encapsulate components or splices contained within. BSR meets or exceeds the requirements of AMS-DTL-23053/4, Class 1. It is also UL recognized 125°C, 600V. BSR provides good strain relief when recovered, but does not adhere to the substrate material; it can be removed for repair of the components.

### HEAT SHRINK SIZE SELECTOR GUIDE

#### FOR 2-TO-1 or 3-TO-1 TUBING

WIRE AWG	RECOMMENDED TUBING SIZE
24	1/16"
22	1/16"
20	3/32"
18	1/8"
16	3/16"
14	3/16"
12	3/16"
10	1/4"
8	1/4" or 3/8"
6	3/8" or 1/2"
4	1/2" or 3/4"
2	3/4" or 1"

**NOTE:** The chart above is only a general recommendation. Insulation varies with different types of wires, different diameter or tubing may actually be required. Also, when choosing a size, consider any components or connectors that may need to be covered.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Routing & Bundling Materials

## SPLIT CONDUIT & SPIRAL WRAP

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS**
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



PART NUMBER	SIZE (Inches)	INSIDE DIMENSION RANGE (Inches)	OUTSIDE DIMENSION RANGE (Inches)	STANDARD LENGTHS	
				Box	Bulk
BSC1/4	1/4	0.236 - 0.264	0.376 - 0.400	100	3200
BSC3/8	3/8	0.337 - 0.362	0.491 - 0.516	100	1800
BSC1/2	1/2	0.484 - 0.509	0.670 - 0.695	100	1100
BSC5/8	5/8	0.605 - 0.630	0.790 - 0.836	100	750
BSC3/4	3/4	0.730 - 0.755	0.960 - 0.985	100	500
BSC1	1	1.000 - 1.039	1.278 - 1.306	25, 50, 100	300
BSC1.25	1.25	1.250 - 1.276	1.437 - 1.484	25, 50	200
BSC1.5	1.5	1.500 - 1.528	1.858 - 1.925	25, 50	100
BSC2	2	1.980 - 2.035	2.343 - 2.409	25, 50	100

**Ordering Information:** Order by part number listed for black conduit. White conduit is available for special order, please contact one of Pacer's customer service experts.

Combine part numbers with standard length size. **Example:** 1/2" Black split conduit 100 feet = BSC1/2-100

Corrugated, split polyethylene conduit is an excellent general purpose cable and harness protector. Efficient to install and economical, convoluted slit tubing provides an ideal method for binding wire harness assemblies, providing abrasion and impact protection, while reducing wire insulation damage. Creates quality appearance in wiring systems. Ideal product for hose abrasion protection.

**APPLICATIONS:** For protecting wires and harnesses from heat, sunlight, salt and friction Can be installed on in-service wires

**FEATURES:** \*Lightweight & economical \*UV resistant \*Easy to install \*Provides impact and abrasion protection

**COMPLIANCES:** \*UL 94, UL flammability standard V-2 \*Meets ABYC standards

**CHARACTERISTICS:** \*Operating Temp: -40°C to 200°C

## SPIRAL WRAP



PART NUMBER	PART NUMBER		OUTSIDE DIAMETER (Inches)	BUNDLE DIAMETER (Inches)	PACKAGE Roll	WEIGHT LB/Roll
	NATURAL	BLACK				
BSW1/8C	BSW1/8B		0.125	1/16 to 1/2	100	0.61
BSW1/4C	BSW1/4B		0.250	3/16 to 2	100	1.93
BSW3/8C	BSW3/8B		0.350	5/16 to 3	100	4.29
BSW1/2C	BSW1/2B		0.500	3/8 to 4	100	5.45
BSW3/4C	BSW3/4B		0.750	5/8 to 5	100	10.01
BSW1C	BSW1B		1.000	7/8 to 6	100	12.80

**Ordering Information:** Quantity of 1 = 100 ft roll.

Spiral wrap provides abrasion protection for wire and cable insulation as well as hydraulic and pneumatic tubing. Spiral wrap is also handy for kink-proofing all types of tubing. The spiral cut allows for expandability, easy wire breakouts at any point and excellent flexibility. For maximum abrasion resistance, butt the edges together while installing; for flexibility leave a gap between the edges.

**APPLICATIONS:** Spiral wrap offers abrasion protection for wire, cables, hoses and tubing.

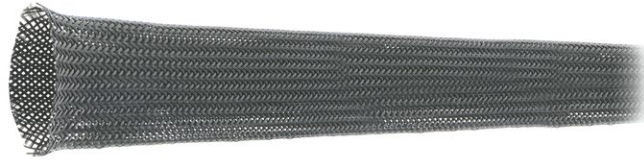
**FEATURES:** \*Flexible, neat and fast \*Easy wire breakouts \*Tool supplied with each package

**CHARACTERISTICS:** \*Operating Temp: -40°F to 122°F (-40°C to 50°C) \*Material: Polyethylene



# Routing & Bundling Materials

## EXPANDABLE SLEEVING & BRAIDED TUBE



PART NUMBER	NOM. INSIDE DIMENSION (Inches)	EXPANSION RANGE		STANDARD LENGTHS	
		Minimum (Inches)	Maximum (Inches)	Shop	Bulk
B1/8FLEX	1/8	3/32	1/4	225	1000
B1/4FLEX	1/4	1/8	7/16	200	1000
B3/8FLEX	3/8	3/16	1/2	125	500
B1/2FLEX	1/2	1/4	3/4	100	500
B3/4FLEX	3/4	1/2	1 1/4	75	250
B1.25FLEX	1 1/4	5/8	1 5/8	50	250
B1.50FLEX	1 1/2	3/4	1 3/4	40	200
B1.75FLEX	1 3/4	1	2 1/8	30	200

**Ordering Information:** Order by part number listed for Bulk Standard Length.

Combine part number with quantity for "Shop" Standard Length. **Example:** 1/2" Black Expandable Sleeve, 100 feet = B1/2FLEX-100

Flexo PET Flame Retardant (FR) sleeving is the perfect choice for electronic and high tech applications where flame retardant and durability are primary concerns. Ease of installation makes Flexo FR an efficient choice for long runs of wire or cable. It is ideal for a limitless number of electronic, automotive and industrial wire management and bundling applications wherever flame spread is a primary safety consideration.

**APPLICATIONS:** \*Engine compartment dress-up \*Home theater wire management \*Computer case wiring \*Office wire management \*Automotive harnesses

**FEATURES:** \*Economical and easy to install \*Cut and abrasion resistant \*Expands up to 150% \*Resists gasoline and engine chemicals

**COMPLIANCES:** \*UL \*CSA \*RoHS \*VW-1 \*ABYC

**CHARACTERISTICS: Operating Temperature:** \*(Min Continuous) -94°F / -70°C \*(Max Continuous) 257°F / 125°C \*(Melt) 482°F / 250°C

\*Flammability Rating: UL-94

## WRAPPABLE BRAIDED TUBE



PART NUMBER	NOM. SIZE (Inches)	EXPANSION RANGE		STANDARD LENGTH		AVAILABLE COLORS	WEIGHT LB/BULK
		Minimum (Inches)	Maximum (Inches)	Shop	Bulk		
BF6-1/4	1/4	1/8	7/16	20	100	B, CW	1.60
BF6-3/8	3/8	3/16	1/2	12	75	B, CW	1.75
BF6-1/2	1/2	1/4	3/4	10	75	B, CW	2.00
BF6-3/4	3/4	1/2	1 1/4	8	50	B, CW	2.00
BF6-1	1	5/8	1 5/8	8	50	B, CW	3.00
BF6-1.5	1.5	1	2 1/8	-	25	B, CW	2.00

**Ordering Information:** Colors: B = Black CW = Clear

Combine part numbers with color abbreviation and standard length. **Example:** 3/4" Clear Wrappable Braided Tube, 50 feet = BF6-3/4CW-50

F6's unique split, semi-rigid braided construction makes it the ideal solution for situations where ease of installation is of primary importance. The lateral split allows the tube to open up to accommodate a wide variety of bundling requirements, and the semi-rigid braid configuration simply closes around the entire installation without the need for any additional fasteners. F6 is more flexible than split conduit or spiral wrap.

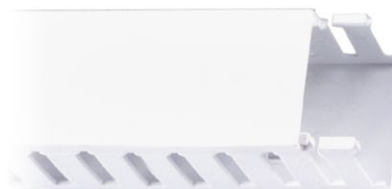
**APPLICATIONS:** \*Engine compartment dress-up \*Home theater wire management \*Customizing computer case wiring \*Office wire management \*Automotive harnesses

**FEATURES:** \*F6 is specifically designed to protect previously installed wires and hose \*Cut & abrasion resistant \*Easily cut with hot knife

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS**
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Routing & Bundling Materials

## WIRING DUCT



- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS**
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

	PART NUMBER	NOM. DUCT SIZES		SLOT WIDTH (Inches)	MAX NUMBER OF 14 AWG WIRES	*COVER PART NUMBER
		WIDTH (Inches)	HEIGHT (Inches)			
<b>WHITE DUCT</b>						
	BG1X1WH6	1.00	1.00	0.31	26	BDC1WH
	BG1X2WH6	1.00	2.00	0.31	52	BDC1WH
	BG1X3WH6	1.00	3.00	0.31	52	BDC1WH
	BG2X1WH6	2.00	1.00	0.31	76	BDC2WH
	BG2X2WH6	2.00	2.00	0.31	104	BDC2WH
	BG2X3WH6	2.00	3.00	0.31	147	BDC2WH
	BG3X2WH6	3.00	2.00	0.31	147	BDC3WH
	BG3X3WH6	3.00	3.00	0.31	233	BDC3WH
	BG4X2WH6	4.00	2.00	0.31	201	BDC4WH
	BG4X3WH6	4.00	3.00	0.31	310	BDC4WH
	BG4X4WH6	4.00	4.00	0.31	414	BDC4WH
<b>LIGHT GREY DUCT</b>						
	BG1X1LG6	1.00	1.00	0.31	26	BDC1LG
	BG1X2LG6	1.00	2.00	0.31	52	BDC1LG
	BG1X3LG6	1.00	3.00	0.31	52	BDC1LG
	BG2X1LG6	2.00	1.00	0.31	76	BDC2LG
	BG2X2LG6	2.00	2.00	0.31	104	BDC2LG
	BG2X3LG6	2.00	3.00	0.31	147	BDC2LG
	BG3X2LG6	3.00	2.00	0.31	147	BDC3LG
	BG3X3LG6	3.00	3.00	0.31	233	BDC3LG
	BG4X2LG6	4.00	2.00	0.31	201	BDC4LG
	BG4X3LG6	4.00	3.00	0.31	310	BDC4LG
	BG4X4LG6	4.00	4.00	0.31	414	BDC4LG

**Ordering Information:**

Order in multiples of 6 ft. \*Duct and Cover are sold separately. Due to the 6 ft. length, additional shipping charges may apply. Other sizes are available, please contact a Pacer Group Customer Service Expert for pricing.

**Duct Example:** 2" by 2" white duct, 6 ft. = BG2X2WH6      **Cover Example:** 2" white cover, 6ft. = BDC2WH

**For Optimal Use:**

Follow the formula below to determine the maximum number of wires used in various sizes of wiring duct. Formula based upon a 50% fill capacity.

$$\text{Number of wires} = \frac{\text{Duct Width} \times \text{Height}}{2 \times (\text{Wire O.D.})^2}$$

Wiring Duct is unique in that wires can easily be added and removed at any time. The cover is flush with the base for mounting in tight areas. Our wide finger, slotted wiring duct is made from lead-free PVC. Bases and covers are sold separately. Cutting wiring duct is easily achieved by using a fine tooth hand saw for small quantities.

**APPLICATIONS:** The preferred product for organizing large numbers of wires. Ideal for frequent breakouts or individual wire removal.

**FEATURES:** \*Rigid, non-flammable lead-free PVC \*Available in white or light grey \*Cover mounts flush to sides \*Slotted for easy wire breakouts \*Non-slip cover design \*Provided with mounting holes \*Rounded edges to protect from abrasion

**COMPLIANCES:** \*UL Recognized continuous use temperature: 122°F (50°C) \*UL94 Flammability Rating of V-0 \*Conforms with NFPA 79-2007 section 13.3.1 requirement for flame retardant material \*UL, CSA, RoHS compliant

**CHARACTERISTICS:** \*Resistant to Acids, Alkali, Fuels and Oils \*Lead-free PVC

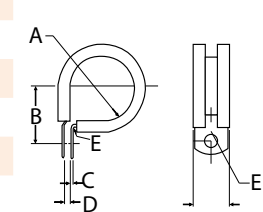
**PACER PRO TIP:**

Cutting wiring duct is easy. Use a fine tooth hand saw for small quantities. For large quantities use a fine tooth band-saw or circular saw.

# Routing & Bundling Materials

## STAINLESS STEEL CUSHION CLAMPS

PART NUMBER	SIZE	A (Inches)	B (Inches)	C (Inches)	D (Inches)	E (Inches)	WIDTH (Inches)	PACKAGE SIZE
BSSC04	1/4"	0.250	0.529	0.032	0.062	0.062	0.500	10, 25, 100, 2500
BSSC06	3/8"	0.375	0.592	0.032	0.062	0.062	0.500	10, 25, 100, 1700
BSSC08	1/2"	0.500	0.654	0.032	0.062	0.062	0.500	10, 25, 100, 1200
BSSC10	5/8"	0.625	0.780	0.032	0.062	0.109	0.500	10, 25, 100, 1000
BSSC12	3/4"	0.750	0.842	0.032	0.062	0.109	0.500	10, 25, 100, 1500
BSSC14	7/8"	0.875	0.889	0.032	0.062	0.109	0.500	10, 25, 100, 1200
BSSC16	1"	1.000	0.951	0.032	0.062	0.109	0.500	10, 25, 100, 1000
BSSC18	1 1/8"	1.125	1.062	0.032	0.062	0.125	0.500	10, 25, 100, 500
BSSC20	1 1/4"	1.250	1.093	0.032	0.094	0.125	0.500	10, 25, 100, 700
BSSC22	1 3/8"	1.375	1.187	0.032	0.094	0.125	0.500	10, 25, 100, 600
BSSC24	1 1/2"	1.500	1.217	0.032	0.094	0.125	0.500	10, 25, 100, 500
BSSC28	1 3/4"	1.750	1.342	0.032	0.094	0.125	0.500	10, 25, 100, 450
BSSC32	2"	2.000	1.475	0.040	0.125	0.125	0.500	10, 25, 100, 350
BSSC36	2 1/4"	2.250	1.598	0.040	0.125	0.125	0.500	5, 10, 25, 300
BSSC40	2 1/2"	2.500	1.728	0.040	0.125	0.125	0.500	5, 10, 250
BSSC44	2 3/4"	2.750	1.851	0.040	0.125	0.125	0.500	5, 10, 200
BSSC48	3"	3.000	1.976	0.040	0.125	0.125	0.500	5, 10, 175
BSSC56	3 1/2"	3.500	2.226	0.040	0.125	0.125	0.500	5, 10, 300
BSSC64	4"	4.000	2.476	0.040	0.125	0.125	0.500	5, 10, 250



**Ordering Information:** Combine part number and package size. **Example:** 1/4" diameter, 100 pieces = BSSC04-100.

BSSC are composed of 321 stainless steel with black EPDM cushions for protection of wire & hoses. The EPDM cushions serve to dampen vibrations. The strength and corrosion resistance of stainless steel combined with the protection of EPDM provide a long term, reliable mounting solution.

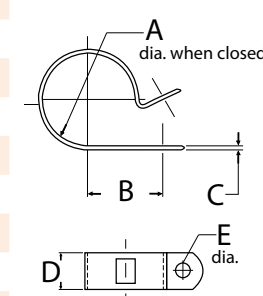
**APPLICATIONS:** Stainless steel clamps are used for mounting wire, cable or hoses where weight and vibration are a factor.

**FEATURES:** \*1/4" mounting hole \*1/2" width for strength \*Sizes from 1/4" to 4"

**COMPLIANCES:** \*304/321 Stainless steel meets MIL-S-5059 AMS5510 \*General purpose EPDM per SAE J200BC715

## NYLON CLAMPS

NATURAL	SIZE (Inches)	A (Inches)	B (Inches)	C (Inches)	D (Inches)	E (Inches)	PACKAGE SIZE
BCCH02	1/8	0.120	0.500	0.360	0.203	0.100	100 1000
BCCH03	3/16	0.190	0.500	0.420	0.203	0.100	100 1000
BCCH04	1/4	0.250	0.500	0.460	0.203	0.100	100 1000
BCCH05	5/16	0.310	0.500	0.500	0.203	0.100	100 1000
BCCH06	3/8	0.380	0.500	0.530	0.203	0.100	100 1000
BCCH07	7/16	0.440	0.500	0.560	0.203	0.100	100 1000
BCCH08	1/2	0.500	0.500	0.590	0.203	0.100	100 1000
BCCH09	9/16	0.560	0.500	0.610	0.203	0.100	100 1000
BCCH10	5/8	0.620	0.500	0.650	0.203	0.100	100 1000
BCCH11	11/16	0.690	0.500	0.750	0.203	0.100	100 -
BCCH12	3/4	0.750	0.500	0.780	0.203	0.100	100 500
BCCH13	13/16	0.810	0.500	0.810	0.203	0.100	100 -
BCCH14	7/8	0.870	0.500	0.840	0.203	0.100	100 500
BCCH16	1	1.000	0.500	0.910	0.203	0.100	100 500
BCCH20	1 1/4	1.250	0.500	1.060	0.203	0.100	100 -
BCCH24	1 1/2	1.500	0.500	1.190	0.203	0.100	100 -



**Ordering Information:** Order by package size. For Black nylon clamps, add BK to the end of the part number.

Combine part numbers with package size. **Example:** 1/8" Black Nylon Clamp, 1000 pieces = BCCH02-1000BK

**APPLICATIONS:** BCCH (Battery Cable Clamp Hulls) are an economical, fast and efficient mounting system for a wide variety of materials including cables, hoses and harnesses.

**FEATURES:** \*Stocked in natural and black heat/UV stabilized 6/6 nylon \*1/2" width for strength \*Sizes from 1/8" to 1 1/2"

\*Mounts with a #10 screw

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS**
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Cable Ties

## CABLE TIES & DOME TOP TIES

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
<b>CABLE TIES</b>
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

**PACER PRO TIP:**  
Cable Tie Cutting Tools can be found on page 56.



PART NUMBER SYSTEM											
CTMR		2		S		-		C		0	
CABLE TIE TYPE		APPROX. BUNDLE DIA.		LOOP TENSILE STR.		PACKAGE SIZE		Designates Black UV Resistant Cable Ties			
CT=Standard		1 = 1"		M = Mini (18 Lbs.)		L = 50					
CTB=Barb Ty		3 = 3"		I = Intermediate (40 Lbs.)		C = 100					
CTMR=Mounting Ring		1.5 = 1.5"		S = Standard (50 Lbs.)		TL = 250					
CMLT=Stainless Steel		2 = 2"		LH = Heavy Duty (120 Lbs.)		D = 500					
		4 = 4"				M = 1000					
STANDARD PKG PART NUMBER			PKG SIZE	BULK PKG PART NUMBER		PKG SIZE	LENGTH (IN.)	BUNDLE DIA (IN.)	MAX TENSILE STRENGTH LB(TYPE)		
NATURAL	BLACK	NATURAL		BLACK							

**STANDARD CABLE TIES**

CT1M-C	CT1M-C0	100	CT1M-M	CT1M-M0	1000	3.9	0.87	18 (M)
-	CT1.5I-C0	100	CT1.5I-M	CT1.5I-M0	1000	5.6	1.38	40 (I)
CT2S-C	CT2S-C0	100	CT2S-M	CT2S-M0	1000	7.4	1.88	50 (S)
CT3S-C	CT3S-C0	100	CT3S-M	CT3S-M0	1000	11.5	3.00	50 (S)
CT3H-L	CT3H-L0	50	CT3H-TL	CT3H-TL0	250	11.4	3.00	120 (LH)
CT4S-C	CT4S-C0	100	CT4S-M	CT4S-M0	1000	14.5	4.00	50 (S)
CT4H-L	CT4H-L0	50	CT4H-TL	CT4H-TL0	250	14.5	4.00	120 (LH)
CT7LH-L	CT7LH-L0	50	-	-	-	24.7	7.00	120 (LH)
CT9LH-L	CT9LH-L0	50	-	-	-	30.5	9.00	120 (LH)

**CABLE TIES WITH MOUNTING RING**

CTMR1M-C	CTMR1M-C0	100	CTMR1M-M	CTMR1M-M0	1000	4.3	0.75	18 (M)
CTMR1.5I-C	CTMR1.5I-C0	100	CTMR1.5I-M	CTMR1.5I-M0	1000	6.1	1.25	40 (I)
CTMR2S-C	CTMR2S-C0	100	-	CTMR2S-M0	1000	7.9	1.84	50 (S)
CTMR4S-C	CTMR4S-C0	100	CTMR4S-M	CTMR4S-M0	1000	15.0	4.00	50 (S)
CTMR4H-L	CTMR4H-L0	50	CTMR4H-TL	CTMR4H-TL0	250	15.1	4.00	120 (LH)

**Ordering Information:** Order by standard or bulk packages.

**APPLICATIONS:** Cable ties are the most widely used and versatile bundling and harnessing material available. Used to secure a cable bundle to another surface such as a control panel, communication rack, wall or ceiling

**FEATURES:** \*For indoor use \*Curved tip is easy to pick up off flat surfaces & allows faster initial threading to speed installation

**COMPLIANCES:** \*UL Compliant \*Flammability UL 94V-2 \*RoHS & CE compliant

**CHARACTERISTICS:** \*6/6 Nylon (Nat. & UV res. Blk) \*Max. Cont. Temp. 185°F (85°C) \*Min. Cont. Temp. -20°F (85°C)

## DOME-TOP® BARB TY - CABLE TIES

STANDARD PKG PART NUMBER			PKG SIZE	BULK PKG PART NUMBER		PKG SIZE	LENGTH (IN.)	BUNDLE DIA (IN.)	MAX TENSILE STRENGTH LB(TYPE)		
NATURAL	BLACK	NATURAL		BLACK							

**DOME TOP CABLE TIES**

CTB1M-C	CTB1M-C0	100	CTB1M-M	CTB1M-M0	1000	4.0	0.90	18 (M)
CTB1.5I-C	CTB1.5I-C0	100	CTB1.5I-M	CTB1.5I-M0	1000	6.1	1.50	40 (I)
CTB2S-C	CTB2S-C0	100	CTB2S-M	CTB2S-M0	1000	8.0	2.00	50 (S)
CTB3S-C	CTB3S-C0	100	CTB3S-M	CTB3S-M0	1000	12.0	3.00	50 (S)
CTB4S-C	CTB4S-C0	100	CTB4S-M	CTB4S-M0	1000	15.1	4.00	50 (S)
CTB4LH-L	CTB4LH-L0	50	CTB4LH-TL	CTB4LH-TL0	250	14.9	4.00	120 (LH)
CTB7LH-L	CTB7LH-L0	50	-	-	-	24.4	7.00	120 (LH)
CTB9LH-L	CTB9LH-L0	50	-	-	-	30.7	9.00	120 (LH)

**DOME TOP CABLE TIES WITH MOUNTING RING**

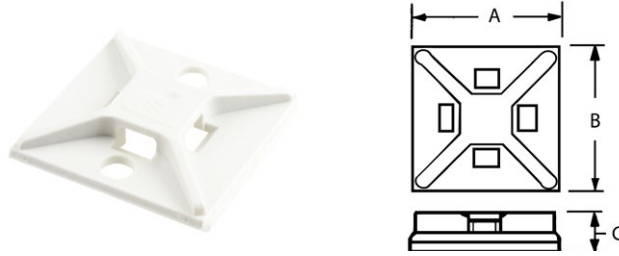
-	-	-	-	CTBMR1M-M0	1000	4.0	0.90	18 (M)
-	-	-	-	CTBMR1.5I-M0	1000	6.1	1.50	40 (I)
-	CTBMR2S-C0	100	CTBMR2S-D	-	500	8.0	2.00	50 (S)
-	CTBMR4S-C0	100	CTBMR4S-D	-	500	15.1	4.00	50 (S)
-	CTBMR4LH-L0	50	-	CTBMR4LH-TL0	250	15.1	4.00	120 (LH)

**Ordering Information:** Order by standard or bulk packages.

**FEATURES:** \*Stainless steel locking barb provides consistent performance, reliability, and infinite adjustability through the entire bundle. \*High strength low tread force \*Dome-top head features unique patented design with round smooth edges.

\*Maintains the same compliances and characteristics as standard cable ties.

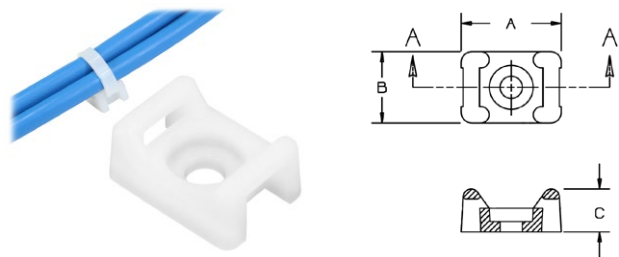




ADHESIVE BACKED MOUNTS							
PART NUMBER NATURAL	PART NUMBER BLACK	A (IN.)	B (IN.)	C (IN.)	USE WITH CABLE TIE TYPE	MAX STATIC LOAD LB	PACKAGE SIZE
CABM.5	-	0.50	0.50	0.16	M	0.13	100
CABM.75	CABM.75BK	0.75	0.75	0.18	M, I	0.30	100
CABM1	CABM1BK	1.00	1.00	0.16	M, I, S	0.50	100

**Ordering Information:** Order by package.

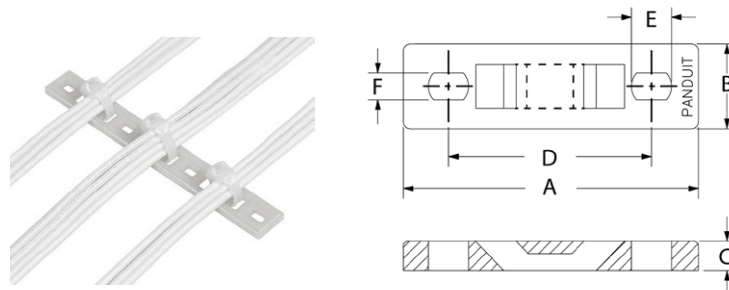
**FEATURES:** \*Superior adhesive for long term reliability use, applies to any clean, dry, smooth, grease-free surface \*4-way cable tie entry \*Available in multiple sizes to match application load \*Fast and easy to use, applies to any clean, dry, smooth, grease-free surface \*Available in white or UV resistant black



SCREW DOWN MOUNTS							
PART NUMBER NATURAL	PART NUMBER BLACK	A (IN.)	B (IN.)	C (IN.)	USE WITH CABLE TIE TYPE	MOUNT METHOD	PACKAGE SIZE
CTM1S6	CTM1S6BK	0.51	0.32	0.23	M	#6 Screw	100, 1000
CTM2S8	CTM2S8BK	0.63	0.43	0.28	M, I, S	#8 Screw	100, 1000
CTM3S10	CTM3S10BK-100	0.86	0.61	0.37	M, I, S, LH	#10 Screw	100, 1000
-	CTMEH25BK	1.62	0.72	0.61	I, S, LH	1/4" Screw	25

**Ordering Information:** Order by package.

**FEATURES:** \*Screw fastened nylon cradles \*Low profile \*Excellent stability and rigidity \*Available in natural or UV resistant black



MULTIPLE TIE MOUNTING PLATES									
PART NUMBER	A (IN.)	B (IN.)	C (IN.)	D (IN.)	E (IN.)	F (IN.)	USE WITH CABLE TIE TYPE	MOUNT METHOD	PACKAGE SIZE
CTMTP3-10	4.25	0.50	0.13	1.25	0.30	0.20	M, I, S	#10 Screw	PC
CTMTP6-10	9.59	0.63	0.20	1.50	0.30	0.20	M, I, S, LH	#10 Screw	PC

**Ordering Information:** Order by the piece. CTMTP3-10 holds 3 cable ties. CTMTP6-10 holds 6 cable ties.

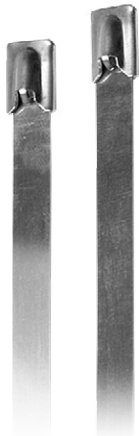
**FEATURES:** \*Uniformly anchors parallel wire bundles, cables and tubing \*Reduces the number of fasteners

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
<b>CABLE TIES</b>
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

# Cable Ties

## STAINLESS STEEL TIES & BUSHINGS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES**
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



### STAINLESS STEEL CABLE TIES

PART NUMBER	LENGTH (Inches)	WIDTH (Inches)	MAX BUNDLE	MIN. LOOP TENSILE STRENGTH	PACKAGE SIZE
CMLT1S-CP316	5.00	0.18	1.00	200	100
CMLT2S-CP316	7.90	0.18	2.00	200	100
CMLT2.7S-CP316	10.2	0.18	2.70	200	100
CMLT4S-CP316	14.3	0.18	4.00	200	100
CMLT4H-LP316	14.3	0.31	4.00	450	50
CMLT6S-CP316	20.5	0.18	6.00	200	100

**Ordering Information:** Order by standard package.

**FEATURES:** \*Self-locking head design speeds installation \*Provides a strong and durable method of cable bundling  
 \*Smooth surface and rounded edges assures cable protection and worker safety \*AISI 316 stainless steel for the most corrosive environments

### STAINLESS STEEL CABLE TIE SLEEVES

PART NUMBER	FOR USE WITH TIE WIDTH (Inches)	SLEEVE WIDTH (Inches)	PACKAGE SIZE
CM-PCSS	0.18	0.33	100 FT REEL
CM-PCSH	0.31	0.47	100 FT REEL

**Ordering Information:** Order by standard package.

High quality, black cushion sleeve series is used with stainless steel cable ties. It is used in applications requiring improved gripping, separation of dissimilar metals and added bundle protection. It has excellent ultraviolet resistance.

**COMPLIANCES:** AISI 316 stainless steel

### SNAP BUSHINGS

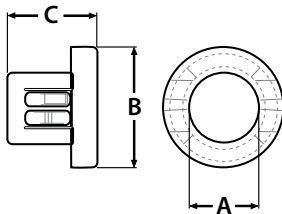
PART NUMBER	MOUNTING HOLE DIA. (Inches)	(A) INSIDE DIAMETER (Inches)	(B) HEAD DIAMETER (Inches)	(C) OVERALL HEIGHT (Inches)	MAX. PANEL THICKNESS (Inches)	PACKAGE SIZE
BSB-1/4	1/4	0.125	0.312	0.312	0.062	10, 25, 100
BSB-3/8	3/8	0.250	0.468	0.406	0.125	10, 25, 100
BSB-1/2	1/2	0.391	0.570	0.406	0.125	10, 25, 100
BSB-5/8	5/8	0.500	0.718	0.406	0.125	10, 25, 100
BSB-3/4	3/4	0.609	0.850	0.406	0.125	10, 25, 100
BSB-7/8	7/8	0.687	0.953	0.453	0.125	10, 25, 100
BSB-1	1	0.766	1.125	0.453	0.125	10, 25, 100
BSB-1.125	1 1/8	0.875	1.218	0.453	0.125	10, 25, 100
BSB-1.25	1 1/4	0.937	1.359	0.453	0.125	10, 25, 100
BSB-1.375	1 3/8	1.000	1.490	0.453	0.125	10, 25, 100
BSB-1.5	1 1/2	1.125	1.609	0.453	0.125	10, 25, 100
BSB-1.75	1 3/4	1.375	1.875	0.453	0.125	10, 25, 100
BSB-2	2	1.640	2.125	0.453	0.125	10, 25, 100
BSB-2.5	2 1/2	1.970	2.660	0.720	0.250	10, 25, 100

**Ordering Information:** Combine part number and package size.

**Example:** 3/8" diameter, 25 pieces = BSB-3/8-25.

Snap bushings are used to eliminate sharp edges and to protect wires when passing through holes. Designed to accommodate a variety of panel or box thickness, snap bushings will easily snap into place and resist up to 35 pounds of pull.

**FEATURES:** \*Converts raw edge holes into smooth, neat insulated holes \*Locking fingers snap into holes with fingertip pressure \*Withstands a push back force of 35 lb



# Cable Ties

## CABLE GLANDS - LIQUID TIGHT CONNECTORS



### NPT THREAD (\*LOCKING NUTS SOLD SEPARATELY)

PART NUMBER	DIAMETER RANGE (Inches)	MOUNTING HOLE (Inches)	MAX LENGTH (Inches)	THREAD LENGTH (Inches)	*NPT LOCKING NUTS	
					PART NUMBER	THREAD SIZE (Inches)
BSLC-3/8	0.157 - 0.313	0.657	1.692	0.563	BSLN-3/8	3/8
BSLC-1/2	0.236 - 0.476	0.825	1.734	0.465	BSLN-1/2	1/2
BSLC-3/4	0.545 - 0.709	1.050	1.969	0.563	BSLN-3/4	3/4
BSLC-1	0.708 - 0.984	1.303	2.283	0.563	BSLN-1	1

**Ordering Information:** Order by the package. 5, 10 or 25 pieces.



### PG THREAD (\*LOCKING NUTS SOLD SEPARATELY)

PART NUMBER	DIAMETER RANGE (Inches)	MOUNTING HOLE (Inches)	MAX LENGTH (Inches)	THREAD LENGTH (Inches)	*PG LOCKING NUTS	
					PART NUMBER	THREAD SIZE (mm)
BSLC-36	0.866 - 1.259	1.850	2.519	0.512	BSLN-36	36
BSLC-42	1.259 - 1.496	2.126	2.638	0.512	BSLN-42	42
BSLC-48	1.456 - 1.172	2.335	2.717	0.512	BSLN-48	48

**Ordering Information:** Order by the piece.

**FEATURES:** \*For use in areas where cables and wires need to be safely inserted into housings through bulkheads Protection up to 70 PSI

\*Seal: IP 68 (International protection highest rating, comparable to NEMA 6)

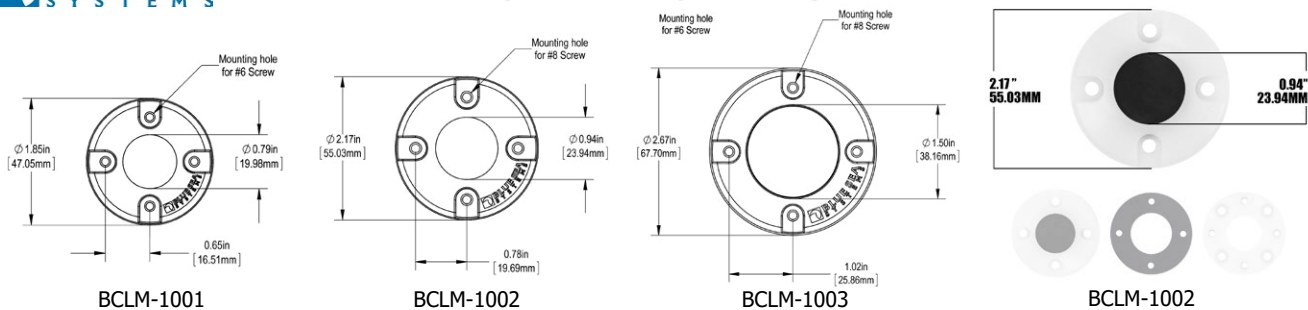
**COMPLIANCES:** \*International Approvals: UL, CSA, VDE, SEV \*Seal IP 68 \*UL Flammability 94 V-2

**CHARACTERISTICS:** \*Material: Polyamide - flame retardant and self-extinguishing nylon with neoprene bushing \*Operating Temperature: -20°C to 80°C

\*Max. Temp Rating: 125°C \*Resistant to common fluids and solvents



## CABLE CLAMS



PART NUMBER	DESCRIPTION
BCLM-1001	Cable Clam 0.68" Connector Opening
BCLM-1002	Cable Clam 0.83" Connector Opening
BCLM-1003	Cable Clam 1.40" Connector Opening

**Ordering Information:** Order by the piece.

**FEATURES:** \*Waterproof co-axial installation without removing connectors \*Save the expense of removing and replacing

\*Avoid poor connections from removing factory connectors

**CHARACTERISTICS:** \*Body Material: Acetate \*Seal Material: UV Stabilized Buna-N rubber \*Screws: Stainless steel

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES**
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES**
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



### 3M Dual Lock

This product is a 1" wide, self-adhering, reclosable fastening system. 3M Stem Type 400/170 locking system is five times stronger than conventional hook and loop fasteners. The adhesive backing will adhere instantly to many surfaces.

**Part Number: BDLCK-BK**

2 - 1" wide rolls, 1 @ 170 stems, 1@ 400 stems. 4.9 yards each

**Ordering Information:** Order in mini packs of 4.9 yards.



### Super 33+

Scotch Brand Super 33+ is a premium grade, 7-mil tape that applies well at temperatures as low as -18°C/0°F and has an operating temperature range up to 105°C/220°F. Use Super 33+ as a primary insulation for wire and cable splices up to 600V and for fixture and wire splices up to 1kV.

**Part Number: ETBLK105**

**Ordering Information:** Order by the roll.



### Scotch 35

3M Scotch 35 are color coded, American made electrical tapes that are general purpose insulating tapes. They are economical and durable with excellent resistance to a wide range of contaminants and weather conditions.

PART NUMBER	COLOR	PART NUMBER	COLOR	PART NUMBER	COLOR
ETBRN80	BROWN	ETYEL80	YELLOW	ETVIO80	VIOLET
ETRED80	RED	ETGRN80	GREEN	ETGRY80	GREY
ETORG80	ORANGE	ETBLU80	BLUE	ETWHT80	WHITE

**Ordering Information:** Order by the roll.

**FEATURES:** \*UL Listed 80°C 600V, CSA Certified 105°C \*3/4" x 66 feet \*Resists: abrasion, UV rays, moisture, alkalis and solvents



### Temflex

3M Temflex is an economical, general purpose tape for indoor or outdoor use.

**Ordering Information:** Order by the roll.

**Part Number: ETBLK80**



### 130C Linerless Rubber Splicing Tape

3M 130C is a highly conformable linerless rubber (EPR), high-voltage insulating tape formulated to provide excellent thermal dissipation of splice heat. It is designed for use in splicing and terminating wires and cables, moisture sealing electrical connections, bus bar insulating and end-sealing cables.

PART NUMBER	DESCRIPTION
ET130C-1	1.0" X 30'
ET130C-1.5	1.5" X 30'

**Ordering Information:** Order by the roll.

**FEATURES:** \*Indoor/Outdoor Use \*Flame Retardant \*Rated for use up to 90°C continuous, short term overload service to 130°C



# Terminals

## SEALANTS, COATINGS & KITS

PART NUMBER	DESCRIPTION	SIZE
<b>3M™ SCOTCHKOTE</b>		
ESCOTCHKOTE	3M Scotchkote™ electrical fast dry coating provides a tough, oil-resistant outer seal on electrical insulation subjected to abnormal weathering, oil or moisture conditions. The brush applied coating provides additional oil and moisture protection when used over an application of Scotch™ Vinyl electrical tapes.	15 fl oz. (443 ml)
<b>3M™ INSULATING SEALERS</b>		
E1601CLR (Clear)	3M™ 1601 and 1602 Sealers insulate, refinish and protect. They are used to overcoat outdoor electrical splices and cases to impede the effects of weather, moisture, acids, alkalis and oils.	15.13 fl oz. (447 ml)
E1602RD (Red)		



**Ordering Information:** Order by the piece.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

## TERMINAL KITS

PART NUMBER	DESCRIPTION	CASE SIZE
<b>HEAT SHRINK TERMINAL KIT</b>		
TE-KIT	A durable, portable plastic case filled with 180 heat shrink terminals. Each compartment contains 10 butt splices or ring terminals. Ring terminals come with stud sizes: #8, #10, 1/4", 5/16" and 3/8".	Outside: L=10 7/8" W=6 3/4" H=1 3/4"
	Kit Contains: (60) Red terminals for 22-18 AWG wire (10) butt splices and (50) rings (60) Blue terminals for 16-14 AWG wire (10) butt splices and (50) rings (60) Yellow terminals for 12-10 AWG wire (10) butt splices and (50) rings	Compartments: L=1 11/16" W=2" H=1 1/2"
<b>NYLON TERMINAL KIT</b>		
TNF-KIT	A durable, portable plastic case filled with 450 nylon insulated terminals. Each compartment contains 25 butt splices or ring terminals. Ring terminals come with stud sizes: #8, #10, 1/4", 5/16" and 3/8".	Outside: L=10 7/8" W=6 3/4" H=1 3/4"
	Kit Contains: (150) Red terminals for 22-18 AWG wire (25) butt splices and (125) rings (150) Blue terminals for 16-14 AWG wire (25) butt splices and (125) rings (150) Yellow terminals for 12-10 AWG wire (25) butt splices and (125) rings	Compartments: L=1 11/16" W=2" H=1 1/2"



For terminal details and compliances see pages 34-36.

**Ordering Information:** Order by the kit. For empty cases see page 50.

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Terminals

## HEAT SHRINK SPLICES & DISCONNECTS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
<b>TERMINALS</b>
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

Heat shrink terminals and splices provide a rugged, environmentally sealed connection for wire sizes 22 to 8 AWG. They insulate, seal and protect joints from physical abuse and abrasion, water, salt and other corrosive compounds. The NiAc insulation material shrinks up to 40% faster than comparable nylon or polyolefin products, saving time in new wiring or for repairs. Shrinking at 90°C, half that of nylon, polyolefin prevents wire insulation damage or degradation due to overheating.



Heat Shrink Butt Splices



Step Down Butt Splices



Step Down Butt Splices



Fully Insulated (Female)



Partially Insulated (Male)



Bullet Terminals (Recp.)



Closed-End Connectors

PART NUMBER	WIRE RANGE	INSULATION COLOR	MAX WIRE INSULATION O.D. (IN.)	PACKAGE SIZE
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### BUTT SPLICES

TBSE18	#22-18 AWG	RED	0.19	10, 25, 100, 500
TBSE14	#16-14 AWG	BLUE	0.21	10, 25, 100, 500
TBSE10	#12-10 AWG	YELLOW	0.28	10, 25, 100, 500
TBSE8	#8 AWG	PINK	0.35	4, 10, 50, 500

### STEP DOWN BUTT SPLICES - COLORED HEAT SHRINK

TBSDE14-18	#18-14 AWG	BLUE	0.21	10, 25, 100, 500
TBSDE10-14	#14-10 AWG	YELLOW	0.28	10, 25, 100, 250

PART NUMBER	SIDE ONE COLOR STRIPE / WIRE (AWG)	SIDE TWO COLOR STRIPE / WIRE (AWG)	INSULATION COLOR	PACKAGE SIZE
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### STEP DOWN BUTT SPLICES - CLEAR HEAT SHRINK

TSDE118-218	RED/1@20-18	BLUE/2@20-18	CLEAR/RED DASHES	5
TSDE114-214	BLUE/1@16-14	YELLOW/2@16-14	CLEAR/BLUE DASHES	5
TSDE110-210	YELLOW/1@12-10	RED/2@12-10	CLEAR/YELLOW DASHES	5

Step down butt connectors join two wires to one. Color dash on the tubing indicates the wire AWG for the connector. Color strips on the terminal indicate which crimp die to use.

PART NUMBER FEMALE	PART NUMBER MALE	INSULATION COLOR	DISC./BULLET SIZE (IN.)	PACKAGE SIZE
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### FULLY INSULATED DISCONNECT TERMINALS

TDE18-250FI	TDE18-250FIM	RED	0.250	10, 25, 100, 500
TDE14-250FI	TDE14-250FIM	BLUE	0.250	10, 25, 100, 500
TDE10-250FI	TDE10-250FIM	YELLOW	0.250	10, 25, 100, 500

### PARTIALLY INSULATED DISCONNECT TERMINALS

TDE18-250	TDE18-250M	RED	0.250	10, 25, 100, 500
TDE14-250	TDE14-250M	BLUE	0.250	10, 25, 100, 500
TDE10-250	TDE10-250M	YELLOW	0.250	10, 25, 100, 500

### BULLET TERMINALS

TBRE18-156	TBPE18-156	RED	0.156	10, 25, 100, 500
TBRE14-156	TBPE14-156	BLUE	0.156	10, 25, 100, 500

PART NUMBER	WIRE RANGE (MIN/MAX)	INSULATION COLOR	PACKAGE SIZE
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### CLOSED-END CONNECTORS (WIRE JOINTS) WITH HEAT SHRINK

TJE422-216	4@22/2@16	CLEAR/BLUE DASH	5
TJE418-212	4@18/2@12	CLEAR/YELLOW DASH	5

Closed-end connectors (wire-joints), join two to four wires. In an environment where corrosion and/or vibration are a problem, closed-end connectors can be used to replace wire nuts.

**Ordering Information:** Combine part number and package size.

**Example:** Step down butt splices, 10 AWG to 14 AWG, 25 pieces = TBSDE10-14-25.

# Terminals

## HEAT SHRINK RINGS & FORKS

PART NUMBER	STUD SIZE	TERMINAL PAD WIDTH (Inches)	PACKAGE SIZE
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### 22 AWG - 18 AWG HEAT SHRINK RING TERMINALS - RED

TE18-6R	#6	0.32	10, 25, 100, 500
TE18-8R	#8	0.32	10, 25, 100, 500
TE18-10R	#10	0.32	10, 25, 100, 500
TE18-14R	1/4"	0.48	10, 25, 100, 500
TE18-56R	5/16"	0.48	10, 25, 100, 500
TE18-38R	3/8"	0.54	10, 25, 100, 500



### 16 AWG - 14 AWG HEAT SHRINK RING TERMINALS - BLUE

TE14-6R	#6	0.32	10, 25, 100, 500
TE14-8R	#8	0.32	10, 25, 100, 500
TE14-10R	#10	0.32	10, 25, 100, 500
TE14-14R	1/4"	0.48	10, 25, 100, 500
TE14-56R	5/16"	0.48	10, 25, 100, 500
TE14-38R	3/8"	0.55	10, 25, 100, 500
TE14-12R	1/2"	0.75	10, 25, 100, 500



### 12 AWG - 10 AWG HEAT SHRINK RING TERMINALS - YELLOW

TE10-6R	#6	0.39	10, 25, 100, 500
TE10-8R	#8	0.39	10, 25, 100, 500
TE10-10R	#10	0.39	10, 25, 100, 500
TE10-14R	1/4"	0.54	10, 25, 100, 500
TE10-56R	5/16"	0.54	10, 25, 100, 500
TE10-38R	3/8"	0.60	10, 25, 100, 500
TE10-12R	1/2"	0.76	10, 25, 100, 500



### 8 AWG HEAT SHRINK RING TERMINALS - PINK

TE8-10R	#10	0.39	4, 10, 50, 250
TE8-14R	1/4"	0.60	4, 10, 50, 100
TE8-56R	5/16"	0.60	4, 10, 50, 250
TE8-38R	3/8"	0.82	4, 10, 50, 250
TE8-12R	1/2"	0.82	4, 10, 50, 250



PART NUMBER	STUD SIZE	TERMINAL PAD WIDTH (Inches)	PACKAGE SIZE
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### 22 AWG - 18 AWG LOCKING FORK TERMINALS - RED

TE18-6SLF	#6	0.32	10, 25, 100, 500
TE18-8SLF	#8	0.32	10, 25, 100, 500
TE18-10SLF	#10	0.32	10, 25, 100, 500



### 16 AWG - 14 AWG LOCKING FORK TERMINALS - BLUE

TE14-6SLF	#6	0.32	10, 25, 100, 500
TE14-8SLF	#8	0.32	10, 25, 100, 500
TE14-10SLF	#10	0.32	10, 25, 100, 500
TE14-14SLF	1/4"	0.48	10, 25, 100, 500



### 12 AWG - 10 AWG LOCKING FORK TERMINALS - YELLOW

TE10-6SLF	#6	0.39	10, 25, 100, 500
TE10-8SLF	#8	0.39	10, 25, 100, 500
TE10-10SLF	#10	0.39	10, 25, 100, 500



**Ordering Information:** Combine part number and package size.

**Example:** Heat shrink ring terminals, 8 AWG, 1/4" stud size, 50 pieces = TE8-14R-50.

**APPLICATIONS:** For use in wire connection where moisture, salt spray, or other corrosive compounds are a concern.

**FEATURES:** \*Protects terminations from water, condensation, salt spray and corrosion \*Vibration protection in rugged environments \*Provides strain relief

**COMPLIANCES:** \*UL \*CSA \*RoHS

**CHARACTERISTICS:** \*Shrink Ratio: Approx. 3:1 at 135°C \*Operating Temp.: -55°C/110°C

\*Vol. Resistivity: 10<sup>15</sup> Ohm-cm \*Dielectric Strength: 900V/mil \*Voltage Rating: 600V

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

**TERMINALS**

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Terminals

## BUTT SPLICES & RING TERMINALS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
<b>TERMINALS</b>
DEUTSCH & DELPHI
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SWITCHES & ACTUATORS
LIGHTS & METERS



Nylon Butt Splice



Vinyl Butt Splice



Non-Insulated Butt Splice

WIRE RANGE	NYLON INSUL. P/N	VINYL INSUL. P/N	NON INSUL. P/N	INSULATION COLOR	SEAMLESS BARREL I.D. (IN.)	PACKAGE SIZE
<b>SEAMLESS BARREL BUTT SPLICES</b>						
22 - 18	TBSN18	TBSV18	TBS18	RED	0.059	25, 100, 1000
16 - 14	TBSN14	TBSV14	TBS14	BLUE	0.091	25, 100, 1000
12 - 10	TBSN10	TBSV10	TBS10	YELLOW	0.138	25, 100, 500

**Ordering Information:** Combine part number and package size. **Example:** 16 AWG, nylon insulated, 100 pieces = TBSN14-100

**FEATURES:** \*Available in nylon insulated, vinyl insulated or non-insulated \*Tin plated ETP copper for corrosion resistance

**COMPLIANCES:** \*UL \*CSA \*ELV \*RoHS compliant

**CHARACTERISTICS:** \*Base Material: C11000 electrolytic tough pitch (ETP) copper \*Plating: Electrodeposited tin



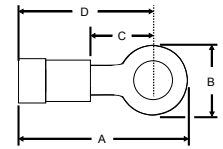
Nylon Ring Terminal



Vinyl Ring Terminal



Non-Insulated Ring Terminal



Ring Terminals

STUD SIZE	NYLON INSUL. P/N	VINYL INSUL. P/N	NON INSUL. P/N	A* (IN.)	B (IN.)	C (IN.)	D* (IN.)	PACKAGE SIZE
<b>22 AWG - 18 AWG RING TERMINALS - RED</b>								
#6	TNF18-6R	TV18-6R	T18-6R	0.81	0.25	0.24	0.65	25, 100, 1000
#8	TNF18-8R	TV18-8R	T18-8R	0.88	0.31	0.27	0.67	25, 100, 1000
#10	TNF18-10R	TV18-10R	T18-10R	0.87	0.31	0.27	0.67	25, 100, 1000
1/4"	TNF18-14R	TV18-14R	T18-14R	1.06	0.47	0.39	0.79	25, 100, 1000
5/16"	TNF18-56R	TV18-56R	T18-56R	1.06	0.47	0.39	0.79	25, 100, 1000
3/8"	TNF18-38R	TV18-38R	T18-38R	1.26	0.54	0.55	0.95	25, 100, 1000
<b>16 AWG - 14 AWG RING TERMINALS - BLUE</b>								
#6	TNF14-6R	TV14-6R	T14-6R	0.89	0.32	0.29	0.70	25, 100, 1000
#8	TNF14-8R	TV14-8R	T14-8R	0.89	0.32	0.29	0.70	25, 100, 1000
#10	TNF14-10R	TV14-10R	T14-10R	0.89	0.32	0.29	0.70	25, 100, 1000
1/4"	TNF14-14R	TV14-14R	T14-14R	1.08	0.48	0.39	0.97	25, 100, 1000
5/16"	TNF14-56R	TV14-56R	T14-56R	1.08	0.48	0.39	0.97	25, 100, 1000
3/8"	TNF14-38R	TV14-38R	T14-38R	1.23	0.54	0.55	0.97	25, 100, 1000
1/2"	TNF14-12R**	-	T14-12R	1.59	0.75	0.61	1.18	25, 100, 1000
<b>12 AWG - 10 AWG RING TERMINALS - YELLOW</b>								
#6	TNF10-6R	TV10-6R	T10-6R	1.09	0.39	0.30	0.87	25, 100, 500
#8	TNF10-8R	TV10-8R	T10-8R	1.09	0.39	0.30	0.87	25, 100, 500
#10	TNF10-10R	TV10-10R	T10-10R	1.09	0.31	0.30	0.87	25, 100, 500
1/4"	TNF10-14R	TV10-14R	T10-14R	1.26	0.54	0.40	1.03	25, 100, 500
5/16"	TNF10-56R	TV10-56R	T10-56R	1.26	0.54	0.40	1.03	25, 100, 500
3/8"	TNF10-38R	TV10-38R	T10-38R	1.36	0.60	0.47	1.03	25, 100, 500
1/2"	TNF10-12R	TV10-12R	T10-12R	1.58	0.76	0.61	1.18	25, 100, 500

\*A and D dimensions apply to insulated terminals only. \*\*In some instances this terminal insulation may be yellow

**Ordering Information:** Combine part number and package size. **Example:** 22 AWG, #8 stud size, vinyl insulated, 1000 pieces = TV18-8R-1000.

**PACER PRO TIP:**

See some of our storage solutions.  
Storage Boxes are on page 50.





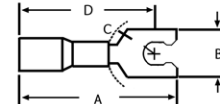
Nylon Locking Fork



Vinyl Locking Fork



Non-Insulated Locking Fork



Locking Forks

STUD SIZE (IN.)	NYLON INSUL. P/N	VINYL INSUL. P/N	NON INSUL. P/N	A* (IN.)	B (IN.)	C (IN.)	D* (IN.)	PACKAGE SIZE
<b>22 AWG - 18 AWG LOCKING FORK TERMINALS - RED</b>								
#6	TNF18-6SLF	TV18-6SLF	T18-6SLF	0.81	0.26	0.23	0.64	25, 100, 1000
#8	TNF18-8SLF	TV18-8SLF	T18-8SLF	0.88	0.31	0.26	0.67	25, 100, 1000
#10	TNF18-10SLF	TV18-10SLF	T18-10SLF	0.92	0.33	0.26	0.67	25, 100, 1000
<b>16 AWG - 14 AWG LOCKING FORK TERMINALS - BLUE</b>								
#6	TNF14-6SLF	TV14-6SLF	T14-6SLF	0.83	0.25	0.23	1.32	25, 100, 1000
#8	TNF14-8SLF	TV14-8SLF	T14-8SLF	0.89	0.31	0.26	0.68	25, 100, 1000
#10	TNF14-10SLF	TV14-10SLF	T14-10SLF	0.94	0.33	0.26	1.35	25, 100, 1000
1/4"	TNF14-14SLF	-	-	1.05	0.44	0.35	0.80	25
<b>12 AWG - 10 AWG LOCKING FORK TERMINALS - YELLOW</b>								
#6	TNF10-6SLF	TV10-6SLF	T10-6SLF	0.97	0.25	0.23	0.79	25, 100, 500
#8	TNF10-8SLF	TV10-8SLF	T10-8SLF	1.04	0.31	0.27	0.83	25, 100, 500
#10	TNF10-10SLF	TV10-10SLF	T10-10SLF	1.08	0.33	0.27	0.83	25, 100, 500
1/4"	TNF10-14SLF	-	T10-14SLF	1.04	0.49	0.32	0.89	25, 100, 500

\*A and D dimensions apply to insulated terminals only

**Ordering Information:** Combine part number and package size. **Example:** 12 AWG, #10 stud size, non insulated, 500 pieces = T10-10SLF-500

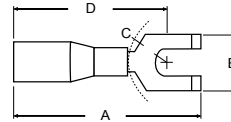
**FEATURES:** \*Available in nylon insulated, vinyl insulated or non-insulated \*Tin plated ETP copper for corrosion resistance

**COMPLIANCES:** \*UL \*CSA \*ELV \*RoHS Compliant

**CHARACTERISTICS:** \*Base Material: C11000 electrolytic-tough pitch (ETP) copper \*Plating: Electrodeposited tin



Nylon Flanged Fork



Flanged Forks

STUD SIZE	NYLON INSUL. P/N	A (IN.)	B (IN.)	C (IN.)	D (IN.)	PACKAGE SIZE
<b>22 AWG - 18 AWG FLANGED FORK TERMINALS - RED</b>						
#6	TN18-6FF	0.93	0.31	0.21	0.75	25, 100, 1000
#8	TN18-8FF	0.93	0.31	0.21	0.75	25, 100, 1000
#10	TN18-10FF	0.93	0.31	0.21	0.75	25, 100, 1000
<b>16 AWG - 14 AWG FLANGED FORK TERMINALS - BLUE</b>						
#6	TN14-6FF	0.81	0.31	0.21	0.61	25, 100, 1000
#8	TN14-8FF	0.81	0.31	0.21	0.61	25, 100, 1000
#10	TN14-10FF	0.81	0.31	0.21	0.61	25, 100, 1000
<b>12 AWG - 10 AWG FLANGED FORK TERMINALS - YELLOW</b>						
#8	TN10-8FF	1.03	0.39	0.27	0.83	25, 100, 500
#10	TN10-10FF	1.03	0.39	0.27	0.83	25, 100, 500

**Ordering Information:** Combine part number and package size.

**Example:** 14 AWG, #8 stud size, nylon insulated, 500 pieces = TN14-8FF-500

**FEATURES:** \*Nylon insulated

**COMPLIANCES:** \*UL \*CSA \*ELV \*RoHS compliant

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

**TERMINALS**

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Terminals

## DISCONNECTS

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

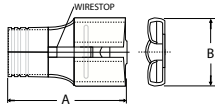
TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS



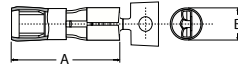
Non-Insulated Disconnect



Non-Insulated Disconnect



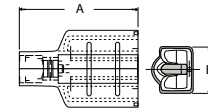
Nylon Partially Insulated Disconnect



Nylon Partially Insulated Disconnect



Nylon Fully-Insulated Disconnect

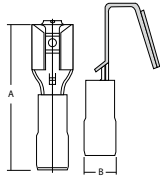


Nylon Fully-Insulated Disconnect

WIRE RANGE	TAB SIZE (IN.)	FEMALE P/N	MALE P/N	INSUL. COLOR	A* (IN.)	B* (IN.)	PACKAGE SIZE
<b>NON-INSULATED FEMALE/MALE DISCONNECTS</b>							
# 22 - 18 AWG	0.250 X 0.032	TD18-250	TD18-250M	N/A	0.66	0.30	25, 100, 1000
# 16 - 14 AWG	0.187 X 0.032	TD14-187	-	N/A	0.59	0.23	25, 100, 1000
# 16 - 14 AWG	0.250 X 0.032	TD14-250	TD14-250M	N/A	0.66	0.30	25, 100, 1000
# 12 - 10 AWG	0.250 X 0.032	TD10-250	TD10-250M	N/A	0.76	0.30	25, 100, 500
<b>NYLON PARTIALLY INSULATED DISCONNECTS</b>							
# 22 - 18 AWG	0.250 X 0.032	TDNF18-250	TDNF18-250M	RED	0.87	0.30	25, 100, 1000
# 16 - 14 AWG	0.250 X 0.032	TDNF14-250	TDNF14-250M	BLUE	0.87	0.30	25, 100, 1000
# 12 - 10 AWG	0.250 X 0.032	TDNF10-250	TDNF10-250M	YELLOW	1.01	0.30	25, 100, 500
<b>NYLON FULLY INSULATED DISCONNECTS</b>							
# 22 - 18 AWG	0.250 X 0.032	TDNF18-250FI	TDNF18-250FIM	RED	0.89	0.38	25, 100, 1000
# 16 - 14 AWG	0.250 X 0.032	TDNF14-250FI	TDNF14-250FIM	BLUE	0.89	0.38	25, 100, 1000
# 12 - 10 AWG	0.250 X 0.032	TDNF10-250FI	TDNF10-250FIM	YELLOW	1.04	0.38	25, 100, 500

\*Dimensions A and B refer to female disconnects only.

**Ordering Information:** Combine part number and package size. **Example:** Nylon disconnect, 14 AWG, female, 100 pieces = TDNF14-250FI-100



Vinyl Insulated Piggyback Disconnect



Vinyl Insulated Piggyback



Adaptor TD250FMF



Adaptor TD250A

WIRE RANGE	TAB SIZE (IN.)	VINYL INSUL P/N	NYLON INSUL P/N	INSULATION COLOR	A (IN.)	B (IN.)	PACKAGE SIZE
<b>PIGGYBACK DISCONNECTS AND DISCONNECT ADAPTORS</b>							
# 22 - 18 AWG	0.250 X 0.032	TDV18-250PB	-	RED	0.87	0.30	25, 100, 1000
# 16 - 14 AWG	0.250 X 0.032	TDV14-250PB	TDNF14-250PB	BLUE	0.87	0.30	25, 100, 1000
# 12 - 10 AWG	0.250 X 0.032	TDV10-250PB	TDNF10-250PB	YELLOW	0.30	0.25	25, 100, 500
N/A	0.250 X 0.032	TD250FMF	-	N/A	N/A	N/A	25, 100, 1000
N/A	0.250 X 0.032	TD250A	-	N/A	N/A	N/A	25, 100, 500

**Ordering Information:** Combine part number and package size. **Example:** Vinyl piggyback disconnect, 12 AWG, 500 pieces = TDV10-250PB-500



Bullet - Plug TBPV18-156



Bullet - Receptacle TBRV18-180



Bullet - Plug TBPV14-180



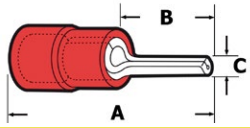
Bullet - Receptacle TBRV14-180

WIRE RANGE	BULLET SIZE (IN.)	PLUG PART NUMBER	RECEPTACLE PART NUMBER	INSULATION COLOR	PACKAGE SIZE
<b>BULLET CONNECTORS</b>					
# 22 - 18 AWG	0.156	TBPV18-156	TBRV18-156	RED	25, 100, 1000
	0.180	TBPV18-180	TBRV18-180	RED	25, 100, 1000
# 16 - 14 AWG	0.156	TBPV14-156	TBRV14-156	BLUE	25, 100, 1000
	0.180	TBPV14-180	TBRV14-180	BLUE	25, 100, 1000

**Ordering Information:** Combine part number and package size. **Example:** 0.156 bullet connector, 16 AWG, receptacle, 100 pieces = TBRV14-156-100

# Terminals

## SPECIALTY TERMINALS



WIRE RANGE	PART NUMBER	INSULATION COLOR	A (IN.)	B (IN.)	C (IN.)	PACKAGE SIZE
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### PIN TERMINALS

22 - 18 AWG	TV18-47P	RED	0.93	0.52	0.08	25, 100, 1000
16 - 14 AWG	TV14-47P	BLUE	0.93	0.52	0.08	25, 100, 1000
12 - 10 AWG	TV10-55P	YELLOW	1.12	0.56	0.11	25, 100, 500

Pin terminals are primarily designed for compression type terminal blocks and are available in vinyl insulation only.



WIRE RANGE	3-WAY PART NUMBER	4-WAY PART NUMBER	INSULATION COLOR	PACKAGE SIZE
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### 3-WAY and 4-WAY CONNECTORS

# 22 - 18 AWG	TV18-3W	TV18-4W	RED	10
# 16 - 14 AWG	TV14-3W	TV14-4W	BLUE	10
# 12 - 10 AWG	TV10-3W	TV10-4W	YELLOW	10

3-Way and 4-Way connectors have a center hole diameter of 0.160" and are available in vinyl insulation only.

MIN/MAX WIRE RANGE	PART NUMBER	INSULATION COLOR	PACKAGE SIZE
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### CRIMPABLE CLOSED END CONNECTORS (WIRE JOINTS)

2@24 - 3@18 AWG	TJN224-318	CLEAR	25, 100, 1000
2@18 - 2@16 AWG	TJN218-216	CLEAR	25, 100, 1000
4@18 - 2@12 AWG	TJN418-212	CLEAR	25, 100, 500
3@14 - 4@12 AWG	TJN314-412	CLEAR	25, 100, 500

Closed end connectors can be used as a splice, wire butt, parallel or dead-end cap. Each size has a minimum and maximum range of wires it will accept. These are available in nylon insulation only.

PART NUMBER	WIRE AWG (mm <sup>2</sup> )	FERRULE LENGTH mm (Inches)	STRIPPING LENGTH mm (Inches)	INSULATION COLOR	PACKAGE SIZE
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### WIRE FERRULES

TFRL24-6MM	24-22 (0.34)	6 (0.24)	8 (0.31)	TURQUOISE	25, 100, 500
TFRL22-6MM	22-20 (0.50)	6 (0.24)	8 (0.31)	ORANGE	25, 100, 500
TFRL20-6MM	20-18 (0.75)	6 (0.24)	8 (0.31)	WHITE	25, 100, 500
TFRL18-6MM	18 (1.0)	6 (0.24)	8 (0.31)	YELLOW	25, 100, 500
TFRL16-8MM	16 (1.5)	8 (0.31)	10 (0.39)	RED	25, 100, 500
TFRL14-8MM	14 (2.5)	8 (0.31)	10 (0.39)	BLUE	25, 100, 500
TFRL12-10MM	12 (4.0)	10 (0.39)	12 (0.47)	GREY	25, 100, 500
TFRL10-12MM	10 (6.0)	12 (0.47)	14 (0.59)	BLACK	25, 50, 100
TFRL8-12MM	8 (10.0)	12 (0.47)	14 (0.59)	IVORY	10, 25, 100
TFRL6-12MM	6 (16.0)	12 (0.47)	14 (0.59)	GREEN	10, 25, 100
TFRL4-16MM	4 (25.0)	16 (0.63)	18 (0.75)	BROWN	4, 10, 50
TFRL2-16MM	2 (35.0)	16 (0.63)	18 (0.75)	BEIGE	4, 10, 50

### WIRE FERRULES KITS

TFRL-CC1	(50)20 AWG WHITE, (100)18 AWG GREY, (100)18 AWG RED, (100)16 AWG BLACK, (50)14 AWG BLUE
TFRL-CC2	(50) 12 AWG GREY, (20) 10 AWG BLACK, (20) 8 AWG IVORY, (10) 6 AWG GREEN

Wire ferrules are typically used on wires being inserted into IEC (European) style terminal blocks. They prevent fraying when compressed. Ferrules add additional electrical insulation.

**Ordering Information:** Combine part number and package size. **Example:** 3-way connectors, 18 AWG, 10 pieces = TV18-3W-10

**FEATURES:** \*Prevent strand separation while minimizing strand breakage \*Insulated ferrules provide additional electrical insulation \*Increases connection reliability when terminating stranded wire in terminal blocks

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Sealed Connectors

## DEUTSCH & MOLEX REPAIR PACKS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI**
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

**DTM, DT and DTP Series** of environmentally-sealed connectors are built for cable to cable applications, where signal-level circuits must withstand harsh conditions. DTM and DT series connectors will provide reliability and performance at low cost. DTP Series connectors deliver environmentally sealed performance for power applications. *DTM kits and DTP kits contain Ladd Distribution (Deutsch) connectors. DT kits contain Molex connectors.*



Pacer Group assembled repair packs have all the parts you require to fix a connection to an existing device. You can also combine a receptacle and plug to create an environmentally sealed point of disconnect. Packs contain a housing, secondary wedge lock, contacts with one or two extra contacts and a few cavity plugs.



### Repair Packs Contain:

- \* A Housing
- \* A Wedgeloek
- \* Contacts
- \* Cavity Plugs

**DTM Series** connectors are designed for smaller wire gauge applications. The DTM series offers electrical designers the ability to use multiple size 20 contacts (22-16 AWG), each with 7.5 amp continuous capacity, within a single shell. Pacer Group's DTM repair kits use the larger size 20 contacts (Deutsch Pin P/N 0460-202-20141, Socket P/N 0462-201-20141) for applications using 20 AWG wire.



### DTM RECEPTACLE REPAIR PACKS (20 AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER RECEPTACLES	CONTENTS
2	TDTM04-2RP	(1) 2 POS. RECEPTACLE, (1) 2 POS. WEDGE LOCK, (3) PINS
3	TDTM04-3RP	(1) 3 POS. RECEPTACLE, (1) 3 POS. WEDGE LOCK, (4) PINS, (1) RED CAVITY PLUG
4	TDTM04-4RP	(1) 4 POS. RECEPTACLE, (1) 4 POS. WEDGE LOCK, (5) PINS, (2) RED CAVITY PLUGS
6	TDTM04-6RP	(1) 6 POS. RECEPTACLE, (1) 6 POS. WEDGE LOCK, (8) PINS, (3) RED CAVITY PLUGS
8	TDTM04-8RP	(1) 8 POS. RECEPTACLE, (1) 8 POS. WEDGE LOCK, (10) PINS, (4) RED CAVITY PLUGS
12	TDTM04-12RP	(1) 12 POS. RECEPTACLE, (1) 12 POS. WEDGE LOCK, (14) PINS, (6) RED CAVITY PLUGS

**Ordering Information:** Order by the pack. For individual item details, See page 42.



### DTM PLUG REPAIR PACKS (20 AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER PLUGS	CONTENTS
2	TDTM06-2RS	(1) 2 POS. PLUG, (1) 2 POS. WEDGE LOCK, (3) SOCKETS
3	TDTM06-3RS	(1) 3 POS. PLUG, (1) 3 POS. WEDGE LOCK, (4) SOCKETS, (1) RED CAVITY PLUG
4	TDTM06-4RS	(1) 4 POS. PLUG, (1) 4 POS. WEDGE LOCK, (5) SOCKETS, (2) RED CAVITY PLUGS
6	TDTM06-6RS	(1) 6 POS. PLUG, (1) 6 POS. WEDGE LOCK, (8) SOCKETS, (3) RED CAVITY PLUGS
8	TDTM06-8RS	(1) 8 POS. PLUG, (1) 8 POS. WEDGE LOCK, (10) SOCKETS, (4) RED CAVITY PLUGS
12	TDTM06-12RS	(1) 12 POS. PLUG, (1) 12 POS. WEDGE LOCK, (14) SOCKETS, (6) RED CAVITY PLUGS

**Ordering Information:** Order by the pack. For individual item details, See page 42.

**APPLICATIONS:** Deutsch environmentally sealed connectors are designed for cable to cable applications, where signal-level or power circuits must withstand harsh conditions.

**FEATURES:** \*Packs include all parts needed to assemble a connector \*One to two extra terminals  
\*Cavity plugs to seal open circuits

### PACER PRO TIP:

Deutsch Contact Crimp Tool part numbers are listed on pg. 42 within the Machined Contact chart.



# Sealed Connectors

## DEUTSCH & MOLEX REPAIR PACKS

**DT Series** connectors are designed for 20-14 wire gauge applications. The DT series offers electrical designers the ability to use multiple size 16 contacts (20-14 AWG), each with 13 amp continuous capacity, within a single shell. Pacer Group's DT repair kits use the larger size 16 contacts (Deutsch Pin P/N 0460-215-16141, Socket P/N 0462-209-16141) for applications using 14 AWG wire.

### DT RECEPTACLE REPAIR PACKS (14 AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER RECEPTACLES	CONTENTS
2	TDT04-2RP	(1) 2 POS. RECEPTACLE, (1) 2 POS. WEDGE LOCK, (3) PINS
3	TDT04-3RP	(1) 3 POS. RECEPTACLE, (1) 3 POS. WEDGE LOCK, (4) PINS, (1) CAVITY PLUG
4	TDT04-4RP	(1) 4 POS. RECEPTACLE, (1) 4 POS. WEDGE LOCK, (5) PINS, (2) CAVITY PLUGS
6	TDT04-6RP	(1) 6 POS. RECEPTACLE, (1) 6 POS. WEDGE LOCK, (8) PINS, (3) CAVITY PLUGS
8	TDT04-8RP	(1) 8 POS. RECEPTACLE, (1) 8 POS. WEDGE LOCK, (10) PINS, (4) CAVITY PLUGS
12	TDT04-12RP	(1) 12 POS. RECEPTACLE, (1) 12 POS. WEDGE LOCK, (14) PINS, (6) CAVITY PLUGS



### DT PLUG REPAIR PACKS (14 AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER PLUGS	CONTENTS
2	TDT06-2RS	(1) 2 POS. PLUG, (1) 2 POS. WEDGE LOCK, (3) SOCKETS
3	TDT06-3RS	(1) 3 POS. PLUG, (1) 3 POS. WEDGE LOCK, (4) SOCKETS, (1) CAVITY PLUG
4	TDT06-4RS	(1) 4 POS. PLUG, (1) 4 POS. WEDGE LOCK, (5) SOCKETS, (2) CAVITY PLUGS
6	TDT06-6RS	(1) 6 POS. PLUG, (1) 6 POS. WEDGE LOCK, (8) SOCKETS, (3) CAVITY PLUGS
8	TDT06-8RS	(1) 8 POS. PLUG, (1) 8 POS. WEDGE LOCK, (10) SOCKETS, (4) CAVITY PLUGS
12	TDT06-12RS	(1) 12 POS. PLUG, (1) 12 POS. WEDGE LOCK, (14) SOCKETS, (6) CAVITY PLUGS



**Ordering Information:** Order by the pack. For individual item details, See page 42.

**FEATURES:** \*All parts needed to assemble a connector \*One to two extra terminals \*Cavity plugs seal off open circuits

**CHARACTERISTICS:** \*See page 42 for complete performance characteristics

**DTP Series** connectors are the solution for power application requirements. The DTP line was developed to fill the need for higher amperage, multi-pin economical connectors. Each circuit, capable of continuous 25 amp service. Both Deutsch solid contacts (14-12 AWG) and Deutsch stamp and formed contacts (12-10 AWG) are included in the packs.

### DTP RECEPTACLE REPAIR PACKS (14-10\* AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER RECEPTACLES	CONTENTS
2	TDTP04-2RP	(1) 2 POS. RECEPTACLE, (1) 2 POS. WEDGE LOCK, (3) SOLID CONTACT PINS, (3) STAMPED AND FORMED PINS*
4	TDTP04-4RP	(1) 4 POS. RECEPTACLE, (1) 4 POS. WEDGE LOCK, (5) SOLID CONTACT PINS, (5) STAMPED AND FORMED PINS*, (2) CAVITY PLUGS



### DTP PLUG REPAIR PACKS (14-10\* AWG APPLICATIONS)

# OF CAVITIES	PART NUMBER PLUGS	CONTENTS
2	TDTP06-2RS	(1) 2 POS. PLUG, (1) 2 POS. WEDGE LOCK, (3) SOLID CONTACT SOCKETS, (3) STAMPED AND FORMED CONTACTS*
4	TDTP06-4RS	(1) 4 POS. PLUG, (1) 4 POS. WEDGE LOCK, (5) SOLID CONTACT SOCKETS, (5) STAMPED AND FORMED CONTACTS*, (2) CAVITY PLUGS



**Ordering Information:** Order by the pack. For individual item details, See page 42.

\*Deutsch #12 solid contact supports 14-12 AWG (Deutsch Pin P/N 0460-204-12141, Socket P/N 0462-203-12141), 10 AWG can only be used with Deutsch stamped and formed contacts (Deutsch Pin P/N 1060-12-0222, Socket P/N 1062-12-0222). Both solid contacts and stamped and formed contacts have been provided in the pack. Stamped and formed contacts require a crimping tool that supports open barrel terminals.

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
<b>DEUTSCH &amp; DELPHI</b>
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

# Sealed Connectors

## DEUTSCH & MOLEX KITS & PARTS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



TDTM06-12S-10



TDT06-3S-10



Machined Contact  
T14DT-S

**PACER PRO TIP:**  
Receptacles require pins.  
Plugs require sockets.



Cavity Plugs



Boots  
TDT12P-BT

NO. OF CAVITIES	DTM KIT (22-16AWG)		DT KIT (20-14AWG)		PKG	DTP KIT (14-10AWG)		PKG
	RECP. (PIN)	PLUG (SOCKET)	RECP. (PIN)	PLUG (SOCKET)		RECP. (PIN)	PLUG (SOCKET)	
2	TDTM04-2P-10	TDTM06-2S-10	TDT04-2P-10	TDT06-2S-10	10	TDTP04-2P-5	TDTP06-2S-5	5
3	TDTM04-3P-10	TDTM06-3S-10	TDT04-3P-10	TDT06-3S-10	10	-	-	-
4	TDTM04-4P-10	TDTM06-4S-10	TDT04-4P-10	TDT06-4S-10	10	TDTP04-4P-5	TDTP06-4S-5	5
6	TDTM04-6P-5	TDTM06-6S-5	TDT04-6P-5	TDT06-6S-5	5	-	-	-
8	TDTM04-8P-5	TDTM06-8S-5	TDT04-8P-5	TDT06-8S-5	5	-	-	-
12	TDTM04-12P-5	TDTM06-12S-5	TDT04-12P-5	TDT06-12S-5	5	-	-	-

DTM kits and DTP kits contain Ladd Distribution (Deutsch) connectors. DT kits contain Molex connectors. Kits contain housing and wedgelock only. Pins and sockets sold separately. See table below.

**Ordering Information:** Order by standard package.

**FEATURES:** \*Economical harsh environment protection \*Protects against corrosion and lengthens the serviceable life of wire \*Common contact system \*Increased socket-terminal performance \*Hand insertable/removable contacts \*Redundant silicone seals \*High-performance molded shells

**COMPLIANCES:** \*UL recognized \*RoHS \*IP 6K9K (DT, DTM) \*J1939/11, J1939/13 and J1939/15

**CHARACTERISTICS:** \*Oper. Temp.: -55°C to 125°C \*Durability: No defects after 100 cycles of engagement/disengagement

### MACHINED CONTACTS - PINS & SOCKETS

WIRE AWG	CONNECTOR TYPE	PINS	SOCKETS	CURRENT RATING	PKG	PRODUCTION TOOL p.55	FIELD SERVICE TOOL p.55
20	DTM	T20DTM-P	T20DTM-S	7.5	25, 100	VT-HDT-48	VT-HDT-1561
20 - 16	DT	T16DT-P	T16DT-S	7.5	25, 100	VT-HDT-48	VT-HDT-1561
14	DT	T14DT-P	T14DT-S	13	25, 100	VT-HDT-48	VT-HDT-1561
14 - 12	DTP	T12DTP-P	T12DTP-S	25	10, 25	VT-HDT-48	VT-HDT-1561
10	DTP	T10DTP-P*	T10DTP-S*	25	10, 25	-	-

\* T10DTP-S and T10DTP-P are open barrel, stamped and formed terminals. Crimp Tools for this contact are readily available.

**Ordering Information:** Combine part number and package size. **Example:** 20 AWG, DTM, pins, 100 pieces = T20DTM-P-100

### CAVITY PLUGS

CONTACT SIZE	PART NUMBER	CONNECTOR SERIES	PKG SIZE
20	T041320	DTM	25, 100
16 & 12	T114017	DT, DTP	25, 100

**Ordering Information:** Combine part number and package size. **Example:** Contact size 16, 25 pieces = T114017-25

### DEUTSCH BOOTS - DT SERIES

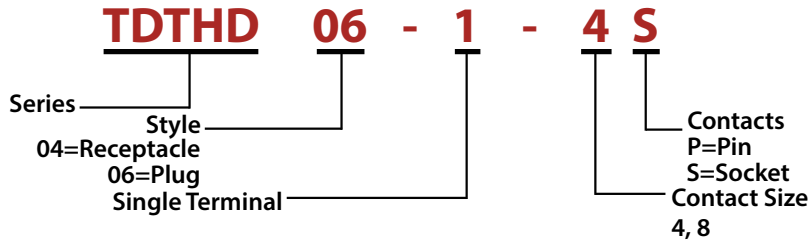
PART NUMBER	DESCRIPTION	COLOR
TDT2P-BT	2 WAY RECEPTACLE	GREY
TDT2S-BT	2 WAY PLUG	GREY
TDT3P-BT	3 WAY RECEPTACLE	GREY
TDT3S-BT	3 WAY PLUG	GREY
TDT4P-BT	4 WAY RECEPTACLE	GREY
TDT4S-BT	4 WAY PLUG	GREY
TDT6P-BT	6 WAY RECEPTACLE	GREY
TDT6S-BT	6 WAY PLUG	GREY
TDT8P-BT	8 WAY RECEPTACLE	GREY
TDT8S-BT	8 WAY PLUG	GREY
TDT12P-BT	12 WAY RECEPTACLE	GREY
TDT12S-BT	12 WAY PLUG	GREY

**Ordering Information:** Order by the piece.

# Sealed Connectors

## DEUTSCH DTHD POWER PLUGS

**DTHD connectors** are single terminal connectors for heavy duty applications. Easy to install, environmentally sealed and compact in size they are a simple, field serviceable alternative to a splice. Pacer assembled power connector kits that contain a plug & socket with a receptacle & pin to create a sealed disconnectable power connection for wire gauges 10 through 6 AWG.



### DEUTSCH POWER PLUG CONNECTION KITS (RECP., PLUG & CONTACTS INCL.)

WIRE AWG	KIT PART NUMBER	CONTENTS
10 - 8	TDTHD-1-8KT	(1) DTHD PLUG, (1) SIZE 8 SOCKET, (1) DTHD RECEPTACLE, (1) SIZE 8 PIN
6	TDTHD-1-4KT	(1) DTHD PLUG, (1) SIZE 4 SOCKET, (1) DTHD RECEPTACLE, (1) SIZE 4 PIN, (2) REDUCER CRIMP SLEEVES FOR 10 OR 8 AWG

**Ordering Information:** Order by the kit.

**FEATURES:** \*Environmentally sealed disconnectable power wire splicing \*10-6 AWG wires \*60-100 Amps at 125 °C  
\*Easy to install \*Field serviceable

### DEUTSCH POWER PLUGS & RECEPTACLES

WIRE AWG	PLUG PART NUMBER	RECEPTACLE PART NUMBER	MAX RATED AMPS @ 125 °C	PKG SIZE
10 - 8	TDTHD06-1-8S	TDTHD04-1-8P	60	1
6	TDTHD06-1-4S	TDTHD04-1-4P	100	1

**Ordering Information:** Order by the piece.

**FEATURES:** \*Environmentally sealed disconnectable power wire splicing \*10-6 AWG wires \*60-100 Amps at 125 °C  
\*Easy to install \*Field serviceable

### DEUTSCH DTHD MACHINED CONTACTS

WIRE AWG	CONNECTOR TYPE	SOCKETS	PINS	CURRENT RATING	PKG SIZE	PRODUCTION TOOL pg. 55
10 - 8	DTHD	T8DTHD-S	T8DTHD-P	60	1, 5	VT-HDT-04-08
6	DTHD	T6DTHD-S	T6DTHD-P	100	1, 5	VT-HDT-04-08

**Ordering Information:** Combine part number and package size. **Example:** Wire 6 AWG, pins, 5 pieces = T6DTHD-P-5

### DEUTSCH INDUSTRIAL CONTACT REMOVAL TOOLS

PART NUMBER	CONTACT SIZE	WIRE AWG RANGE	COLOR
VT20-24RT	20	22-20	RED
VT16-18RT	16	18-16	LIGHT BLUE
VT14-16RT	16	16-14	GREEN
VT12RT	12	12	YELLOW
VT8-10RT	8	10-8	DARK GREEN
VT6RT	4	6	WHITE
VT4RT	4	4	BLACK

**Ordering Information:** Order by the piece.

Deutsch industrial removal tools are designed to simplify contact removal and field service repair for the DTM, DT, DTP, and DTHD series. They can also be used for HD10, HDP20, HD30, DRC, AEC, and WT series.

#### PACER PRO TIP:

Contact removal tools are optional for DTM, DT or DTP connector series. Additional contact and wedgelock removal tools can be found on **page 55**.



TDTHD-1-4KT



TDTHD04-1-8P and TDTHD06-1-8S



T6DTHD-S / T6DTHD-P



VT20-24RT



VT8-10RT

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI**
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Sealed Connectors

## DELPHI PRODUCTS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
<b>DEUTSCH &amp; DELPHI</b>
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



TOWER ASSEMBLY



SHROUD ASSEMBLY



T12015791



T1201996



MALE TERMINAL



FEMALE TERMINAL



CABLE SEALS



CAVITY PLUG

### WEATHER PACK CONNECTION KITS (16-14 AWG APPLICATIONS)

CAVITIES	PART NUMBER	CONTENTS
2	TWP-2POS	(1) 2 POS. TOWER, (1) 2 POS. SHROUD, (3) MALE TERMINALS, (3) FEMALE TERMINALS, (6) LT. GREY 16-14 SEALS
3	TWP-3POS	(1) 3 POS. TOWER, (1) 3 POS. SHROUD, (4) MALE TERMINALS, (4) FEMALE TERMINALS, (8) LT. GREY 16-14 SEALS
4	TWP-4POS	(1) 4 POS. TOWER, (1) 4 POS. SHROUD, (5) MALE TERMINALS, (5) FEMALE TERMINALS, (10) LT. GREY 16-14 SEALS
6	TWP-6POS	(1) 6 POS. TOWER, (1) 6 POS. SHROUD, (8) MALE TERMINALS, (8) FEMALE TERMINALS, (14) LT. GREY 16-14 SEALS, (2) LT. GREEN CAVITY PLUGS

**Ordering Information:** Order by the kit.

Pacer's assembled weather pack connection kits have all the parts required to create an environmentally sealed, disconnectable, in-line connection. Kits contain a Tower and Shroud housing, male terminals and female terminals with one or two extras and wire seals for 16-14 AWG wire (Light Grey).

**FEATURES:** \*Sealed system specifically designed to withstand exposure to extreme temperatures, chemicals and fluid  
 \*Pin and sleeve configuration to alleviate stress relaxation \*Secondary lock and Connector Position Assurance (CPA) for improved system design \*Dual-locking tangs on terminals help prevent backing out \*Terminal plugging requires no orientation \*Positive locking indexing prevents mismatching of connectors \*Low energy, low voltage capability for vehicle electronics

### WEATHER PACK HOUSING

NO. OF CAVITIES	SHROUD HOUSING CONNECTOR	TOWER HOUSING CONNECTOR	COLOR	PACKAGE SIZE
1	T12010996	T12015791	BLACK	5
2	T12010973	T12015792	BLACK	5
3	T12010717	T12015793	BLACK	5
4	T12020830	T12020832	BLACK	5
6	T12010975	T12015799	BLACK	5

### WEATHER PACK TERMINALS

MALE TERMINALS (Shroud Housing)	FEMALE TERMINALS (Tower Housing)	WIRE AWG	PACKAGE SIZE	FIELD SERVICE CRIMP TOOL
T12089040	T12089188	20 - 18	25	VT12014254
T12124582	T12124580	16 - 14	25	VT12155975
T12124587	T12124581	12	25	VT12155975

### WEATHER PACK CABLE SEALS & CAVITY PLUG

SEAL PART NUMBER	WIRE RANGE	WIRE O.D. RANGE mm (inches)	COLOR	PACKAGE SIZE
T15324983	22-20	1.70-1.29 (.066-.050)	RED	25
T15324985	22-18	2.15-1.60 (.084-.063)	PURPLE	25
T15324984	20-18	2.42-2.03 (.095-.079)	TAN	25
T15324982	18-16	2.85-2.03 (.112-.080)	GREEN	25
T15324980	16-14	3.49-2.81 (.137-.111)	LT. GREY	25
T15324981	14-12	4.30-3.45 (.169-.136)	BLUE	25

### CAVITY PLUG PART NUMBER

T12010300	LT. GREEN	25
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**Ordering Information:** Order by package.

Weather pack crimp tools and terminal removal tools can be found on page 55.



# Lugs & Boots

## TINNED CLOSED END LUGS



WIRE AWG	STUD SIZE	PART NUMBER	LENGTH (Inches)	WIDTH (Inches)	CLEARANCE (Inches)	PACKAGE SIZE
8 AWG	#10	TAE8-10R	1.187	0.438	0.344	4, 25, 100, 250
	1/4"	TAE8-14R	1.187	0.438	0.344	4, 25, 100, 250
	5/16"	TAE8-56R	1.187	0.438	0.344	4, 25, 100, 250
	3/8"	TAE8-38R	1.344	0.609	0.406	4, 25, 100, 250
	1/2"	TAE8-12R	1.484	0.766	0.469	4, 25, 100, 200
6 AWG	#10	TAE6-10R	1.266	0.438	0.344	4, 25, 100, 250
	1/4"	TAE6-14R	1.266	0.438	0.344	4, 25, 100, 250
	5/16"	TAE6-56R	1.266	0.438	0.344	4, 25, 100, 250
	3/8"	TAE6-38R	1.406	0.609	0.406	4, 25, 100, 250
	1/2"	TAE6-12R	1.688	0.766	0.469	4, 25, 100, 200
4 AWG	#10	TAE4-10R	1.500	0.531	0.406	4, 10, 50, 200
	1/4"	TAE4-14R	1.500	0.531	0.406	4, 10, 50, 200
	5/16"	TAE4-56R	1.500	0.531	0.406	4, 10, 50, 200
	3/8"	TAE4-38R	1.688	0.531	0.406	4, 10, 50, 200, (800 <b>WIRE+</b> )
	1/2"	TAE4-12R	1.625	0.766	0.469	4, 10, 25, 100
2 AWG	1/4"	TAE2-14R	1.625	0.609	0.406	4, 10, 25, 100
	5/16"	TAE2-56R	1.625	0.609	0.406	4, 10, 25, 100
	3/8"	TAE2-38R	1.625	0.609	0.406	4, 10, 25, 100, (400 <b>WIRE+</b> )
	1/2"	TAE2-12R	1.750	0.766	0.406	4, 10, 25, 100
1 AWG	1/4"	TAE1-14R	1.719	0.692	0.406	4, 10, 25, 100
	5/16"	TAE1-56R	1.719	0.692	0.406	4, 10, 25, 100
	3/8"	TAE1-38R	1.719	0.692	0.406	4, 10, 25, 100
	1/2"	TAE1-12R	1.719	0.692	0.469	4, 10, 25, 100
1/0 AWG	1/4"	TAE1/0-14R	1.844	0.734	0.406	4, 10, 25, 100
	5/16"	TAE1/0-56R	1.844	0.734	0.406	4, 10, 25, 100
	3/8"	TAE1/0-38R	1.844	0.734	0.406	4, 10, 25, 100, (400 <b>WIRE+</b> )
2/0 AWG	1/2"	TAE1/0-12R	1.844	0.734	0.469	4, 10, 25, 100
	1/4"	TAE2/0-14R	2.063	0.813	0.500	4, 10, 25, 50
	5/16"	TAE2/0-56R	2.063	0.813	0.500	4, 10, 25, 50
	3/8"	TAE2/0-38R	2.063	0.813	0.500	4, 10, 25, 50, (200 <b>WIRE+</b> )
3/0 AWG	1/2"	TAE2/0-12R	2.063	0.813	0.500	4, 10, 25, 50
	1/4"	TAE3/0-14R	2.172	0.906	0.500	4, 10, 25
	5/16"	TAE3/0-56R	2.172	0.906	0.500	4, 10, 25, 50
	3/8"	TAE3/0-38R	2.172	0.906	0.500	4, 10, 25, 50
4/0 AWG	1/2"	TAE3/0-12R	2.172	0.906	0.500	4, 10, 50
	1/4"	TAE4/0-14R	2.344	0.984	0.547	4, 10, 25
	5/16"	TAE4/0-56R	2.344	0.984	0.547	4, 10, 25
	3/8"	TAE4/0-38R	2.344	0.984	0.547	4, 10, 25
	1/2"	TAE4/0-12R	2.344	0.984	0.547	4, 10, 25

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS**
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

**Ordering Information:** Combine part number and package size. **Example:** 6 AWG, 1/2" stud, 4 pieces = TAE6-12R-4

**FEATURES:** \*Tin plated \*No exposed seams

**COMPLIANCES:** \*E.T.P. (Electrolytic Tough Pitch)CDA-110 \*ASTM-B-152 copper rated at 100% conductivity

\*UL & CSA approved \*RoHS compliant

# Lugs & Boots

## SEAMLESS, STEP DOWN & NYLON BUTT SPLICES

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



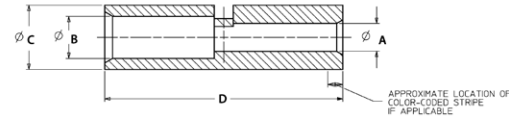
WIRE AWG	PART NUMBER	I.D. MAX (Inches)	O.D. MAX (Inches)	LENGTH (Inches)	PACKAGE SIZE
8	TBS8	0.165	0.295	0.864	4, 25, 250
6	TBS6	0.230	0.374	1.045	4, 25, 250
4	TBS4	0.277	0.457	1.155	4, 10, 100
2	TBS2	0.357	0.538	1.280	100
1/0	TBS1/0	0.439	0.620	1.440	50
2/0	TBS2/0	0.496	0.697	1.440	50
4/0	TBS4/0	0.621	0.860	1.540	50

**Ordering Information:** Combine part number and package size. **Example:** 4/0 AWG splices, 50 pieces = TBS4/0-50

**FEATURES:** \*Tin plated \*Seamless

**COMPLIANCES:** \*E.T.P. (Electrolytic Tough Pitch)CDA-110 \*ASTM-B-152 copper rated at 100% conductivity \*UL & CSA approved \*RoHS compliant

## STEP DOWN TINNED BUTT SPLICES



WIRE AWG	PART NUMBER	(A) SM I.D. MAX (Inches)	(B) LG I.D. MAX (Inches)	(C) O.D. MAX (Inches)	(D) LENGTH (Inches)	PACKAGE SIZE
22-18 to 16-14	TBSD14-18	0.071	0.088	0.160	0.675	10, 25, 100, 1000
16-14 to 12-10	TBSD10-14	0.097	0.137	0.223	0.827	10, 25, 100, 500
12-10 to 8	TBSD8-10	0.139	0.172	0.291	0.854	1, 250
8-6	TBSD6-8	0.182	0.237	0.375	1.045	1, 250

**Ordering Information:** Combine part number and package size.

**Example:** 10 AWG to 14 AWG wire splice, 25 pieces = TBSD10-14-25

**FEATURES:** \*Tin plated \*Barrel Type: Closed

**COMPLIANCES:** \*E.T.P. (Electrolytic Tough Pitch)CDA-110 \*ASTM-B-152 copper rated at 100% conductivity \*UL & CSA approved \*RoHS compliant

## NYLON BUTT SPLICES



WIRE AWG	PART NUMBER	COLOR	MAX WIRE INSUL. DIA. (Inches)	O.D. MAX (Inches)	LENGTH (Inches)	PACKAGE SIZE
8	TBSN8	RED	0.265	0.395	1.473	4, 25, 250
6	TBSN6	BLUE	0.342	0.480	1.785	4, 25, 100
4	TBSN4	YELLOW	0.429	0.579	2.035	4, 10, 25, 100

**Ordering Information:** Combine part number and package size. **Example:** 4 AWG splice, 25 pieces = TBSN4-25

**FEATURES:** \*Tin plated \*Insulation: Nylon \*Barrel Type: Closed - Brazed \*Seamless

**COMPLIANCES:** \*E.T.P. (Electrolytic Tough Pitch)CDA-110 \*ASTM-B-152 copper rated at 100% conductivity \*UL & CSA approved \*RoHS compliant

# Lugs & Boots

## BRAZED SEAM TINNED LUGS



WIRE AWG	STUD SIZE	NON-INSUL. P/N	NYLON INSUL. P/N	COLOR	LENGTH (Inches)	PAD WIDTH (Inches)	PACKAGE SIZE
8 AWG	#10	TL8-10R	TLNF8-10R	RED	0.960	0.374	4, 25, 100, 250
	1/4"	TL8-14R	TLNF8-14R	RED	0.960	0.374	4, 25, 100, 250
	5/16"	TL8-56R	TLNF8-56R	RED	1.007	0.374	4, 25, 100, 250
	3/8"	TL8-38R	TLNF8-38R	RED	1.136	0.583	4, 25, 100, 250
6 AWG	1/2"	TL8-12R	TLNF8-12R	RED	1.432	0.810	4, 25, 100, 250
	#10	TL6-10R	TLNF6-10R	BLUE	1.215	0.480	4, 25, 100, 250
	1/4"	TL6-14R	TLNF6-14R	BLUE	1.215	0.480	4, 25, 100, 250
	5/16"	TL6-56R	TLNF6-56R	BLUE	1.215	0.480	4, 25, 100, 250
4 AWG	3/8"	TL6-38R	TLNF6-38R	BLUE	1.296	0.643	4, 25, 100, 250
	1/2"	TL6-12R	TLNF6-12R	BLUE	1.479	0.825	4, 25, 100, 250
	#10	TL4-10R	TLNF4-10R	YELLOW	1.288	0.475	4, 10, 50, 100
	1/4"	TL4-14R	TLNF4-14R	YELLOW	1.288	0.475	4, 10, 50, 100
2 AWG	5/16"	TL4-56R	TLNF4-56R	YELLOW	1.288	0.475	4, 10, 50, 100
	3/8"	TL4-38R	TLNF4-38R	YELLOW	1.385	0.665	4, 10, 50, 100
	1/2"	TL4-12R	TLNF4-12R	YELLOW	1.385	0.665	4, 10, 50, 100
	1/4"	TL2-14R	-	-	1.578	0.630	4, 10, 25, 100
1/0 AWG	5/16"	TL2-56R	-	-	1.578	0.630	4, 10, 25, 100
	3/8"	TL2-38R	-	-	1.578	0.630	4, 10, 25, 100
	1/2"	TL2-12R	-	-	1.695	0.864	4, 10, 25, 100
	1/4"	TL1/0-14R	-	-	1.949	0.820	4, 10, 25, 50
2/0 AWG	5/16"	TL1/0-56R	-	-	1.949	0.820	4, 10, 25, 50
	3/8"	TL1/0-38R	-	-	1.949	0.820	4, 10, 25, 50
	1/2"	TL1/0-12R	-	-	1.980	0.864	4, 10, 50
	1/4"	TL2/0-14R	-	-	2.180	0.928	4, 10, 50
3/0 AWG	5/16"	TL2/0-56R	-	-	2.180	0.928	4, 10, 25, 50
	3/8"	TL2/0-38R	-	-	2.180	0.928	4, 10, 25, 50
	1/2"	TL2/0-12R	-	-	2.180	0.928	4, 10, 50
	1/4"	TL3/0-14R	-	-	2.180	1.047	4, 10, 25
4/0 AWG	5/16"	TL3/0-56R	-	-	2.180	1.047	4, 10, 25
	3/8"	TL3/0-38R	-	-	2.180	1.047	4, 10, 25
	1/2"	TL3/0-12R	-	-	2.180	1.047	4, 10, 25
	1/4"	TL4/0-14R	-	-	2.242	1.115	4, 10, 25
TL4/0-38R	5/16"	TL4/0-56R	-	-	2.242	1.115	4, 10, 25
	3/8"	TL4/0-38R	-	-	2.242	1.115	4, 10, 25
	1/2"	TL4/0-12R	-	-	2.242	1.115	4, 10, 25

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
<b>LUGS &amp; BOOTS</b>
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

**Ordering Information:** Combine part number and package size. **Example:** Nylon insulated lug, 8 AWG, 1/4" stud, 25 pieces = TLNF8-14R-25

**FEATURES:** \*Tin plated \*Silver alloy brazed seams

**COMPLIANCES:** \*E.T.P. (Electrolytic Tough Pitch)CDA-110 \*STM-B-152 copper rated at 100% conductivity \*UL & CSA approved \*RoHS compliant

# Lugs & Boots

## BATTERY POST TERMINALS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



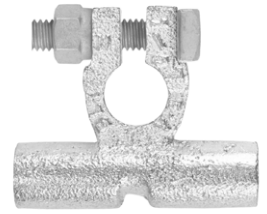
STRAIGHT POST TERMINAL



LEFT POST TERMINAL



RIGHT POST TERMINAL



FLAG POST TERMINAL

BATTERY POST TERMINALS						
WIRE AWG	PART NUMBER				DESCRIPTION	
	STRAIGHT	LEFT ELBOW	RIGHT ELBOW	FLAG		
6	TC-6-U	-	-	-	UNIVERSAL	
4	TC-4-P	-	-	-	POSITIVE	
	TC-4-N	-	-	-	NEGATIVE	
1-2	-	TL-2-U	TR-2-U	-	UNIVERSAL	
	TC-1-P	-	-	TF-2-P	POSITIVE	
	TC-1-N	-	-	TF-2-N	NEGATIVE	
1/0	TC-10-P	TL-10-P	TR-10-P	TF-10-P	POSITIVE	
	TC-10-N	TL-10-N	TR-10-N	TF-10-N	NEGATIVE	
2/0	TC-20-P	TL-20-P	TR-20-P	TF-20-P	POSITIVE	
	TC-20-N	TL-20-N	TR-20-N	TF-20-N	NEGATIVE	
4/0	TC-40-P	TL-40-P	TR-40-P	TF-40-P	POSITIVE	
	TC-40-N	TL-40-N	TR-40-N	TF-40-N	NEGATIVE	

**Ordering Information:** Order by the piece.

All battery terminals are cast with 131 contact copper which is 93% to 95% copper. They are electro-plated with a bright tin finish. Each terminal has raised letters indicating wire size and post type. A deep chamber entry promotes ease of cable installation. For corrosion protection, a thin layer of epoxy is applied to the surface of the nuts and bolts. This thin layer does not affect the ease of assembly and will maintain consistent torque and galvanic protection.

**FEATURES:** \*Tin plated, 131 contact copper \*3.6 times more conductive than lead lugs \*High corrosion resistant ultra plating \*Chamfered entry  
\*Anti-corrosion applied on all nuts and bolts

**COMPLIANCES:** \*RoHS Compliant



MARINE TYPE TOP POST TERMINALS		
PART NUMBER	DESCRIPTION	STUD SIZE (Inches)
TC-200-P	POSITIVE	3/8
TC-200-N	NEGATIVE	5/16
TC-210-U	UNIVERSAL	-

**Ordering Information:** Order by the piece.

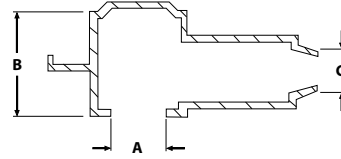
**FEATURES:** \*Tin plated, 131 contact brass \*High corrosion resistant ultra plating \*Converts top terminal battery post to accept ring lugs.

**COMPLIANCES:** \*RoHS compliant



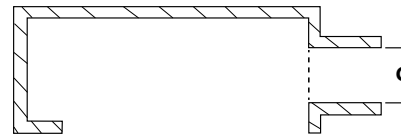
# Lugs & Boots

## INSULATOR BOOTS



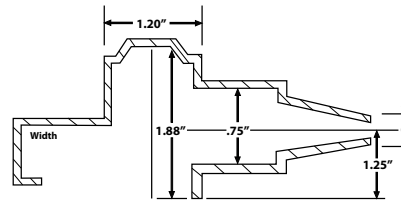
ALTERNATOR TYPE					
WIRE RANGE	PART NUMBER	(A) TERMINAL O.D. (Inches)	(B) POST HEIGHT (Inches)	(C) CABLE ENTRY MIN/ MAX (Inches)	COLOR
10-6 AWG	TBCA6-R	0.48	0.75	0.30/0.50	RED
	TBCA6-B	0.48	0.75	0.30/0.50	BLACK
6-2 AWG	TBCA2-R	0.87	1.05	0.30/0.50	RED
	TBCA2-B	0.87	1.05	0.30/0.50	BLACK
1-2/0 AWG	TBCA20-R	0.87	1.05	0.50/0.70	RED
	TBCA20-B	0.87	1.05	0.50/0.70	BLACK
3/0-4/0 AWG	TBCA40-R	1.37	1.60	0.70/0.90	RED
	TBCA40-B	1.37	1.60	0.70/0.90	BLACK

**Ordering Information:** Order by the piece.



STRAIGHT TYPE			
WIRE RANGE	PART NUMBER	(C) CABLE ENTRY (Inches)	COLOR
6-4 AWG	TBCS2-R	0.500	RED
	TBCS2-B	0.500	BLACK
1-2/0 AWG	TBCS20-R	0.625	RED
	TBCS20-B	0.625	BLACK
3/0-4/0 AWG	TBCS40-R	0.700	RED
	TBCS40-B	0.700	BLACK

**Ordering Information:** Order by the piece.



MARINE TYPE			
WIRE RANGE	PART NUMBER	(C) CABLE ENTRY MIN/MAX (Inches)	COLOR
6-2 AWG	TBCM2-R	0.30/0.50	RED
	TBCM2-B	0.30/0.50	BLACK
1-2/0 AWG	TBCM20-R	0.50/0.70	RED
	TBCM20-B	0.50/0.70	BLACK

**Ordering Information:** Order by the piece.

Battery terminal insulator boots increase product safety by preventing electrical shorts and shock, avoiding injury and potential liability. Protective boots and caps extend battery life by protecting against corrosion. It is constructed from durable, heavy-duty PVC and is available in straight, alternator and marine types.

**APPLICATIONS:** Used for the protection of continuously energized parts, such as positive battery terminals and both ends of wires connected to continuously energized sources. **ALTERNATOR TYPE:** Can be used to cover a power or ground on an alternator or starter.

**STRAIGHT TYPE:** Commonly used to connect to a post on a battery. **MARINE TYPE:** Can be used with secondary power or ground.

**FEATURES:** \*Helps prevent electrical shorts and shock \*Recommended per ABYC E-10.6(1) \*PVC 105°C

**COMPLIANCES:** \*Meets Coast Guard 33 CFR Part 183 Subpart 1 \*Meets S.A.E. J378 and J1128 (low voltage caps) \*Meets UL 94 V2 Rated 105°C

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
<b>ID PRODUCTS &amp; LABELERS</b>
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



VBOX-MS



VBOX-PL

### STORAGE BOXES

#### PART NUMBER

#### DESCRIPTION

VBOX-MS

Small metal box. Ideal for holding small pieces such as terminals.  
Box outside dimensions: Height=2", Width=13 3/8", Depth=9 1/4"  
Number of compartments=21, Overall Weight=4 lbs.

VBOX-ML

Large metal box. Efficient storage and organization for a variety of parts and components.  
Box outside dimensions: Height=3", Width=18", Depth=12"  
Number of compartments=21, Overall Weight=8 lbs.

VBOX-PL

Small plastic box. Ideal for holding small pieces such as terminals. Lightweight and easy to use.  
Box outside dimensions: Height=1 3/4", Width=11", Depth=6 3/4"  
Number of compartments=18, Overall Weight=0.7 lbs.

**Ordering Information:** Order by the piece. Terminals and/or wire NOT included.



VBOXRK-L



VWIRE-RK4

### RACKS & CABINETS

#### PART NUMBER

#### DESCRIPTION

VBOXRK-SM

This cabinet is designed for use with VBOX-MS (see above). Rugged steel, all-welded cabinets are reinforced for rigidity. Easy glide slide racks hold up to 40 lbs. per cradle.  
Dimensions: Height=11 1/4", Width=15 1/4", Depth=11 3/4", Overall Weight=22 lbs.

VBOXRK-L

This larger cabinet is designed specifically for use with VBOX-ML (see above). Use on the workbench, counter, or the job site with convenient access to storage boxes.  
Dimensions: Height=15", Width=20 1/4", Depth=12 1/2", Overall Weight=30 lbs.

VWIRE-RK4

Simplify wire access by utilizing four separate rods to hold spools. This wire rack can support multiple spools per rod. Durable, yet small enough for transport, this wire rack is ideal for workshops or job sites.  
Dimensions: Height=37", Width=26 1/8", Depth=6", Overall Weight=16 lbs.

**Ordering Information:** Order by the piece. Terminals and/or wire NOT included.

# I.D. Products & Labelers

## RHINO® DYMO LABELERS



VT-4200

- KIT INCLUDES:**
- Soft Carrying Case
  - Rhino 4200 Printer
  - One White Vinyl Tape
  - Lithium-Ion Battery/Charger
  - Quick Reference Guide



VT-5200

- KIT INCLUDES:**
- Durable Hard Carry Case
  - Rhino 5200 Printer
  - One White Nylon Tape
  - One White Vinyl Tape
  - Lithium-Ion Battery/Charger
  - User Manual/CD Rom

## RHINO LABEL CARTRIDGES



White Flexible Vinyl Tape



White Heat Shrink Tubing



Yellow Heat Shrink Tubing

PART NUMBER	WIDTH (IN.)	LENGTH (FT)	DESCRIPTION	4200	5200
VTM18443	3/8	18	White Vinyl	X	X
VTM1805437	3/8	18	Black Vinyl	X	X
VTM18444	1/2	18	White Vinyl	X	X
VTM1805435	1/2	18	Black Vinyl	X	X
VTM18445	3/4	18	White Vinyl	X	X
VTM1734821	1	18	White Vinyl Self-Laminating	X	
VTM18488	1/2	11.5	White Flexible Nylon Tape	X	X
VTM18490	1/2	11.5	Yellow Flexible Nylon Tape	X	X
VTM18489	3/4	11.5	White Flexible Nylon Tape	X	X
VTM18491	3/4	11.5	Yellow Flexible Nylon Tape	X	X
VTM1734524	1	11.5	White Flexible Nylon Tape		
VTM1734525	1	11.5	Yellow Flexible Nylon Tape		
VTM18051	1/4	5	White Heat Shrink Tubing*	X	X
VTM18052	1/4	5	Yellow Heat Shrink Tubing*	X	X
VTM18053	3/8	5	White Heat Shrink Tubing*	X	X
VTM18054	3/8	5	Yellow Heat Shrink Tubing*	X	X
VTM18055	1/2	5	White Heat Shrink Tubing*	X	X
VTM18056	1/2	5	Yellow Heat Shrink Tubing*	X	X
VTM18057	3/4	5	White Heat Shrink Tubing*	X	X
VTM18058	3/4	5	Yellow Heat Shrink Tubing*	X	X
VTM1805443	1	5	White Heat Shrink Tubing*		
VTM1805444	1	5	Yellow Heat Shrink Tubing*		
VT-4200P	-	-	Printer Only		

\*Heat Shrink Tubing carries a shrink ratio of 3:1.

**Ordering Information:** Order by the piece.

**FEATURES:**

**RHINO 4200** \*QWERTY keyboard \*One-Touch "Hot Keys" \*Code 39 and Code 128 bar codes \*Can print directly on heat shrink tubing

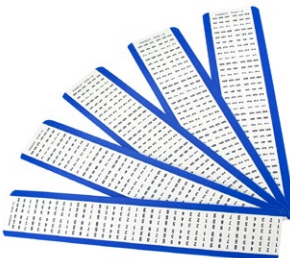
**RHINO 5200** \*One-Touch "Hot Keys" \*Code 39 and Code 128 bar codes \*Ideal for asset management \*Meets all ANSI and TIA/EIA-606-B industry labeling standards

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS**
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# I.D. Products & Labelers

## MARKER BOOKS & KITS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



### MARKER BOOKS

PART NUMBER	LEGEND				NO. OF LEGENDS
	ALPHA	NUMERIC	SYMBOLS	CODES	
VPCMB-1		0 - 9			45 each
VPCMB-2	A - Z	0 - 15	+ - /		10 each
VPCMB-3		1 - 45			10 each
VPCMB-4		1 - 3			150 each
VPCMB-5	A - C				150 each
VPCMB-6				T1, T2, T3	10 each
VPCMB-8	A - Z	1 - 15, 16 - 90	+ - /		2, 6, 4
VPCMB-9	A - C	1 - 3		L1-3, T1-3	45, 45, 30
VPCMB-11		1 - 30			15 each
VPCMB-12	A - Z		+ -	Blanks	15, 8, 7, 21
VPCMB-13			+ -	AC, DC, POS, NEG, GND, NEUT, SPARE	45, 33, 27, 21
VPCMB-14		46 - 90			10 each
VPCMB-16	A - C	0 - 33	+ -	L1-3, T1-3	10 each

**Ordering Information:** Order by the book.

**FEATURES:** \*Convenient, pocket-sized books \*Pre-printed black on white vinyl-cloth, adhesive back markers  
\*Temp. Range -50° to 170°F \*Indoor/Outdoor rated \*Durable, temperature resistant and stable for rough surfaces  
\*Resists oil and abrasion

**COMPLIANCES:** \*RoHS compliant

### DISPENSER KITS

PART NUMBER	DESCRIPTION	MARKERS PER ROLL	WRITE-ON AREA (Inches)	TOTAL AREA (Inches)	PACKAGE SIZE
VPLD-1	Kit (Disp, Tape, Pen)	200	0.375 X 1	1.25 X 1	1
VPLD-2	Kit (Disp, Tape, Pen)	100	0.75 X 1	3.00 X 1	1

**Ordering Information:** Order by standard package.

**FEATURES:** \*Quick drying & non-smearing \*Great for nylon & other glossy surfaces

### WRITE ON MARKERS & MARKER CARDS

PART NUMBER	DESCRIPTION	LEGEND OR COLOR	PACKAGE SIZE
VPX-0	Regular Tip	Black	1
VPX-2	Regular Tip	Red	1
VPX-10	Regular Tip	White	1
VPCM- 'enter #'	Cloth	Choose: 0,1,2,3,4 5,6,7,8,9	5, 25 Cards
VPCM-1-9	Markers	1 - 9	5, 25 Cards
VPMD	Empty Dispenser		1
VPMD-0-9	Filled Dispenser	0 - 9	1
VPMDR- 'enter #'	Flexible Polyester	Choose: 0,1,2,3,4 5,6,7,8,9	1

**Ordering Information:** Order by standard package.

**FEATURES:** \*Vinyl cloth \*White background, black legend \*Temp. Range -50°F to 170°F

**COMPLIANCES:** \*RoHS compliant



# Tools

## MULTI-PURPOSE & CRIMP TOOLS

MULTI-PURPOSE TOOLS	
PART NUMBER	DESCRIPTION
VT1000	SOUTHWIRE® 6-IN-1 MULTI-PURPOSE TOOL. Stainless steel construction is durable and rust-proof. Strips and cuts 22-8 AWG solid and 24-10 AWG stranded wire. Crimps insulated and non-insulated terminals and connectors. Shears and rethreads 24-10, 32-10, 32-8, 32-6 and 40-4 screws. Cuts bolts, strips 22-8 AWG solid and 24-10 AWG stranded wire.
VT1010	SOUTHWIRE® 8' LONG NOSE MULTI-PURPOSE TOOL. Stainless steel construction is durable and rust-proof. Strips and cuts 20-10 AWG solid and 22-12 AWG stranded wire. Crimps insulated and non-insulated terminals and connectors. Long nose design is for forming and looping wire and handling small parts. Shears 24-10, 32-10, 32-8, 32-6, 40-5 and 40-4 screws.
CRIMP TOOLS	
VT1007	SOUTHWIRE® 9" CRIMPING/CUTTING PLIERS. 22-10 AWG solderless terminals and connectors. Crimps insulated and non-insulated terminals and connectors. Specially hardened wire cutter in nose. Tapered nose for working in confined spaces.
VT3120CT	SARGENT CONTROLLED CYCLE CRIMP TOOL. Simple, trouble-free cycle mechanism assures consistent terminations. All cavities are fully machined in high carbon steel then heat treated. The VT3120CT crimps the conductor portion of insulated terminals, crimp cavities are color coded: Red 22-18 AWG, Blue 16-14 AWG, Yellow 12-10 AWG. Excellent for use with crimping heat shrink terminals.
VTR-490	3M RATCHET CRIMP TOOL. Ruggedly built, this tool crimps the barrel and the insulation grip independently for 22-10 AWG insulated and non-insulated terminals and connectors.
VTTR50	RATCHET CRIMP TOOL. Ensures uniform crimp termination regardless of user. Release switch if terminal or wire is inserted improperly. High quality, economical tool. Alignment guide dies won't slip during crimping. Four (4) crimp nests - 22-18, 16-14, 12-10, 8
VT30-500	IDEAL® CRIMPMASTER CRIMP TOOL. High quality ratchet-type crimp tool for electricians, contractors and installers. The ratcheted crimp action provides repeatability and reliability. Interchangeable dies provide versatility. Cushioned comfort grip handles. Crimps 22-10 AWG (.324 mm <sup>2</sup> - 5.261 mm <sup>2</sup> ) insulated ring tongue terminals and splices.
VT30-506	IDEAL® CRIMPMASTER CRIMP TOOL - FRAME ONLY. Frame is constructed from high grade, stamp-hardened steel and put together with steel pins that will not stretch with use. The tool is full cycle, compound leverage, and triple ratcheted to give exact precision to every crimp.
VT30-577	IDEAL® CRIMPMASTER DIE SET ONLY for RG-8/11, RG-213, RG-216 Ethernet thick-wire, N-series plugs and jacks
VT30-579	IDEAL® CRIMPMASTER DIE SET ONLY. For 22-10 AWG insulated ring & fork terminals and splices
VT30-580	IDEAL® CRIMPMASTER DIE SET ONLY. For 22-8 AWG non-insulated terminals and splices
VT30-581	IDEAL® CRIMPMASTER DIE SET ONLY. For RG-58, RG-59/62AU, BNC/TNC 3-piece hex connectors
VT30-582	IDEAL® CRIMPMASTER DIE SET ONLY. For CATV RG-59 and RG-6 captive ring F-connectors
VT30-586	IDEAL® CRIMPMASTER DIE SET ONLY. For 22-12 AWG Non-insulated open barrel crimp style conn.
VT30-594	IDEAL® CRIMPMASTER DIE SET ONLY. For 22-10 AWG fully insulated slide-on connectors



VT1000



VT1010



VT1007



VTR-490



VTTR50



VT30-500



VT30-506



VT30-580

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
<b>TOOLS</b>
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

**Ordering Information:** Order by the tool.

# Tools

## CABLE CUTTERS & WIRE STRIPPERS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

### CABLE CUTTERS

PART NUMBER	DESCRIPTION
-------------	-------------



VT63055	SOUTHWIRE® COMPACT CABLE CUTTER. Precise, one-hand shearing action cuts 24 AWG copper, aluminum multi-strand cable and wire, and 100-pair telephone cable. Heat treated, high-carbon steel shearing edges for long life. Not designed for cutting steel or ACSR.
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VT63050	SOUTHWIRE® HIGH-LEVERAGE CABLE CUTTER. High-leverage design for exceptional cutting capability. Thoroughly hardened for longer-lasting cutting surfaces. Maximum cable cutting capacity: 4/0 aluminum, 100-pair 24 AWG cable, 2/0 soft copper. This item is not designed for cutting steel or ACSR. Length:
---------	---

### RATCHET CABLE CUTTER



VT63060	SOUTHWIRE® RATCHETING CABLE CUTTER. Patented two-step ratchet mechanism requires fewer strokes per cut. Quick release lever opens blades easily in every cutting position (allows removal of the cable before completion of the cut.) Maximum cable cutting capacity: 750 MCM copper and aluminum (Max. jaw opening 1 1/8"). This item is not designed for cutting steel or ACSR. Length: 10-1/4".
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VT35-053	IDEAL® RATCHETING CABLE CUTTER. Designed to cut 750 KCMIL (MCM) and smaller hard-drawn copper and aluminum cables. Hardened steel blades ensure long term durability. Quick release mechanism simplifies blade back-out. Max. jaw opening 2". Not designed for cutting steel or ACSR. Length: 14 1/2".
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### CABLE SWIVEL/SPLIT BLADE STRIPPERS



VT45-128	IDEAL® SWIVEL BLADE STRIPPER. For 3/4" and smaller outside diameter cables. Single or Multi-Conductor Cables, blade adjusts for jacket thicknesses up to 1/8 inch. <b>Replacement Blades: VTL-7486</b>
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VT45-605	IDEAL® Multi-Strip Coax/UTP Cable Stripper. Strips UTP, RG-59 and RG-6 coax cable. Provides a 1/4 in (minimum) x 1/4 in. strip on coax. Spare cartridge compartment provided. Push-on ring for easy connector termination. Features a primary and secondary strip cartridge.
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VT45-144	IDEAL® SWIVEL BLADE/ROUND CABLE SLITTING TOOL Single or Multi-Conductor Cables up to 1.75" O.D. Blade adjusts for jacket thickness up to 1/8". Spare blade in handle base. <b>Replacement Blades: VTLB-1748</b>
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### WIRE & CABLE STRIPPERS & CUTTERS



VT45-121	SOUTHWIRE® COMPACT STRANDED WIRE STRIPPER. Specially designed stainless steel cutting blades provide fast and easy wire stripping. Strips, cuts, and loops 26-16 AWG stranded cable. Spring loaded for self-opening action. Not intended for cutting bolts or steel cable. <b>Wire range: Stranded 26-16 AWG.</b>
----------	--



VT45-124	SOUTHWIRE® 6" COMPACT WIRE STRIPPER. Specially designed stainless steel cutting blades provide fast and easy wire stripping. Serrated nose holds cable for easy twisting and pulling. Spring loaded for self-opening action. Not intended for cutting bolts or steel cable. <b>Wire range: Solid 10-8 AWG, Stranded 20-12 AWG.</b>
----------	---

### WIRE STRIPPERS



VT45-292	IDEAL® STRIPMASTER. Wire stripper for 22-10 AWG stranded wire. Cleanly strips wire up to 7/8" removal of insulation. Eliminates nicking, cutting and fraying of commercial wire. Wire gripper will hold wire centered in stripping hole. <b>Replacement Blades: VTL-4421</b>
----------	--



VT45-671	IDEAL® STRIPMASTER LITE. Wire stripper for 22-16 AWG stranded wire. Cleanly strips wire up to 7/8" removal of insulation. Eliminates nicking, cutting and fraying of commercial wire. Wire gripper will hold wire centered in stripping hole. <b>Replacement Blades: VTLB-1001</b>
----------	--

VT45-262 & VT45-265

VT45-265	IDEAL® COAX STRIPMASTER. Stripper for RG-59. One-step stripping enhances productivity. Spring-action motion increases leverage and reduces operator fatigue. Wire gripper will hold wire centered in stripping hole. <b>Replacement Blades: VTLB-743</b>
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VT45-262	IDEAL® COAX STRIPMASTER. Stripper for RG-6. One-step stripping enhances productivity. Spring-action motion increases leverage and reduces operator fatigue. Wire gripper will hold wire centered in stripping hole. <b>Replacement Blades: VTLB-740</b>
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**Ordering Information:** Order by the tool.

### LARGE GAUGE CRIMPING TOOLS

PART NUMBER	DESCRIPTION
VT0280C	CRIMP-MASTER COMPACT BATTERY LUG CRIMPER. Universal, adjustable crimping tool 1/0 - 8 AWG. Characteristics: High-Leverage Handles, Compound-Action Mechanism, Adjustment Screw Allows User To Control Crimp Depth, Application For Crimping Lugs and Terminals, Function Crimps 1/0 - 8 AWG Battery Lugs And Terminals. Length: 16".
VT0280	CRIMP-MASTER BATTERY LUG CRIMPER. Universal, adjustable crimping tool 4/0 - 6 AWG. Characteristics: High-Leverage Handles, Compound-Action Mechanism, Adjustment Screw Allows User To Control Crimp Depth, Application For Crimping Lugs and Terminals, Function Crimps 4/0 - 6 AWG Battery Lugs And Terminals. Length: 25".
VTK05-SYNCRO	GREENLEE® ROTATING DIE CABLE CRIMPER. 1/0 - 8 AWG crimps smaller copper connectors. New design eliminates crimping errors from mismatched dies. It's laser cut dies are more dimensionally accurate than stamped dies. 50% reduced set up time when changing dies. Allows for rotating dies with one hand. Length: 15.75".
VTK092SPGL	GREENLEE® ROTATING DIE CABLE CRIMPER. Long length results in low handle efforts. For 4/0 - 1 AWG cable. Color-coded, hexagonal rotating dies, the full cycle mechanism releases only after full crimp cycle is completed. Length: 25.5".



### DEUTSCH TOOLS *Additional Deutsch Removal Tools on page 43.*

VT-HDT-48	DEUTSCH PRODUCTION CRIMP TOOL. Crimps solid style pins and sockets only. Provides eight-indent, mil-spec type crimp. For use with 22-12 AWG wire, size 20-12 Solid Pins and Sockets in DT, DTM, DTP and size 12 DTHD Series connectors.
VT-HDT-1561	DEUTSCH FIELD SERVICE CRIMP TOOL. Crimps solid style pins and sockets. Two-indent crimp. For use with 24-12 AWG wire, size 20-12 Solid Pins and Sockets in DT, DTM, DTP and size 12 DTHD Series connectors.
VT-DT/RT	DEUTSCH CONTACT/WEDGELOCK REMOVAL TOOL. A multi-use tool with a small hook on one end to remove the wedgelock, and a small screwdriver on the other end to push back the locking fingers and release the contact. The VT-DT/RT is a helpful tool for the DT, DTM, and DTP series connectors.



### DELPHI WEATHER PACK TOOLS

VT12014254	DELPHI WEATHER PACK CRIMPING TOOL Crimp terminals and seals in a single motion with this ratchet style crimper. Works with: Weather-Pack Series, 20-14 gauge. Metri-Pack 280 Series, sealed, 20-14 gauge (must remove terminal locator). Length: 11.5" Made in the USA.
VT12155975	Designed to crimp the core and insulation wings in a separate motion. 22-14 AWG for metri-pack 150 & 280 series terminals. Length: 9". Made in the USA.
VT12014012	DELPHI WEATHER PACK TERMINAL REMOVAL TOOL Weather Pack terminal release tool. This tool depresses the terminal retention barbs so the terminals can be removed from the housing connector. Works with all three sizes of Weather Pack Terminals 22-18, 16-14 & 12-10 AWG.



**Ordering Information:** Order by the tool.

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
<b>TOOLS</b>
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

# Tools

## SPECIALTY TOOLS CONT.

	FERRULE CRIMPING TOOLS	
	PART NUMBER	DESCRIPTION
WIRE & CABLE		
MULTI-CONDUCTOR	 VT-PZUS	CONTA-CLIP SIDE WIRE ENTRY FERRULE CRIMPING TOOL. For 26 - 10 AWG wire. Ratcheted controlled crimp action provides repeatability and reliability. Multiple cavity die crimps wires from 26-10 AWG (mm <sup>2</sup> ferrule size 0.14 - 6.0).
COAX CABLES	 VT-PZU16E	CONTA-CLIP SIDE WIRE ENTRY FERRULE CRIMPING TOOL. For 20 - 6 AWG wire. Ratcheted controlled crimp action provides repeatability and reliability. Multiple cavity die crimps wires from 20 - 6 AWG (mm <sup>2</sup> ferrule size 0.5 - 16.0).
NETWORK CABLES	 VT-PZU35	CONTA-CLIP SIDE WIRE ENTRY FERRULE CRIMPING TOOL. For 4 - 2 AWG wire. The ratcheted controlled crimp action provides repeatability and reliability. Multiple cavity die crimps wires 4 - 2 AWG (mm <sup>2</sup> ferrule size 25 & 35).
HEAT SHRINK		
TELEPHONE/DATA CABLE CRIMPERS		
ROUTING & BUNDLING MATERIALS	 VT30-496	IDEAL® TELEMMASTER CRIMP TOOL. For RJ-11/12/14 (6 position-1,2,3 pair) and RJ-45 (8 position-4 pair) modular plugs. Multi-function tool for round voice/data cables. Cuts, strips and crimps for easy on-the-job, one-tool application. Round cable stripping chamber for CAT5E/6 cables. Length: 13"
CABLE TIES		
TERMINALS	 VT33-750	IDEAL® ECONOMY 10BASE-T TELEMMASTER KIT. Basic termination kit for 10Base-T. Kit includes, UTP/Coax Stripper Telemaster RJ-11/RJ-45 Tool, 50 8-Position RJ-45, Non-Keyed, Solid Plugs. Durable hard case.
COAX CABLE COMPRESSION CRIMP TOOL		
DEUTSCH & DELPHI	 VTCL-4080	PROFESSIONAL COMPRESSION TOOL. Ratchet controlled, adjustments for crimping R/A, F and RCA length connectors.
LUGS & BOOTS		
CABLE TIE TOOLS		
ID PRODUCTS & LABELERS	 VTGTS	PANDUIT CABLE TIE INSTALLATION TOOL. Body Width Range 0.070 to 0.225 inch , Tool Code E, For 18 to 50 lb Tensile Strength Cable Ties, Impact Resistant Resin Housing, Narrow Nose and Cushion Handle, Installs Cable Ties To Correct Tension and Trims Tails Flush, Tension Locking Mechanism, Easy Tension Knob Adjustment Wheel. Use with subminiature, miniature, intermediate, and standard ties.
TOOLS		
BREAKERS & FUSES	 VT-HTMT	PANDUIT STAINLESS STEEL TENSIONING AND COILING TOOL. Installation tool for use with the following stainless steel cross section ties: Type MLT (Pacer CMLT): Standard, light-heavy, and heavy. Coil tie end remaining after tensioning for safe end. Installs parallel to the bundle.
TERMINAL BLOCKS & BUS BARS	 VT-ST2MT	PANDUIT STAINLESS STEEL INSTALLATION TOOL. Cable tie side entry for immediate positioning of tie, one hand operation, lightweight, easy removal of excess tie, tool tension is controlled by installer, twist action cut-off, rugged, lightweight, easy-to-operate pliers-type tool that provides mechanical advantage over standard installation tools. Dimensions: 7.8" x 5.8"
SWITCHES & ACTUATORS		
LIGHTS & METERS		

**Ordering Information:** Order by the tool.

STAINLESS STEEL FISH TAPES					
PART NUMBER	LENGTH (FT)	HEIGHT X WIDTH (IN.)	DIAMETER (IN.)	WEIGHT	REPL. TAPE
VT31-066	125	17 x 13	0.177"	2.50 LBS	VT31-073

VT31-067	240	17 x 13	0.118"	3.00 LBS	VT31-074
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PART NUMBER	DESCRIPTION
VT31-388	IDEAL CLEAR GUIDE™. Wire Pulling Lubricant. Clear and colorless for quick and easy clean up. Exceptional lubricity for super-fast pulls. Polymer based formula perfect for all electrical and data-com applications. Safe to use with all cable types. 1 Qt. Squeeze bottle.

### CIRCUIT AND VOLTAGE TESTERS

VT61-051	GFCI RECEPTACLE CIRCUIT TESTER. No-slip ergonomic design maximizes comfort and premium neon lamps prevents false readings. Constructed with a tough, impact-resistant case. This tool tests GFCI receptacles for proper operation, correct wiring, open ground, open neutral, open hot, reverse hot/ground and reverse hot/neutral in 3-wire 125 VAC circuits.
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VT61-063	VOLT SENSOR POCKET TESTER. Checks non-contact voltage from 40 - 600 VAC, CAT III - 600V, audible and visual indication, tests for energized circuits, over-molded rubber cushion grip, compact rugged housing and covered by a manufacturer 1-year warranty.
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### MULTIMETERS

VT61-484	AUTO-RANGING MULTIMETER. True RMS, auto AC/DC voltage. Has the ability to detect with low impedance. Efficient for capacitance, frequency, with an analog bar graph, smart data hold, min/max. IP67, dustproof and waterproof for demanding applications. Easy to read backlit 4,000-count display with bargraph. Low battery indication, auto power off. INCLUDES: Test Leads and Carrying Case.	Case included
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### CLAMP METERS

VT61-775	MaintenancePRO™ Smart 1000A CLAMP METER. Utilize Bluetooth® connectivity with this rugged high end clamp meter. Used with the MApp™ mobile app, the VT61-775 lets electricians safely get the measurements they need even in hostile environments. INCLUDES: Test leads, Type K temperature probe with banana plug adapter, Carrying case & 9-volt battery.	Case included
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VT-8110	Mini Clamp Multimeter - AC/DC. Clamp allows measurement of AC and DC current in wires without disturbing the circuits or contacting live terminals. Auto range simplifies operation: 0.01-400A, 0.01-600V. True RMS - required for accurate measurement of inverter output. Test leads included with meter.	Case included
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### Micro Torch

VMT-4F	This small, lightweight, self igniting micro torch heat tool is perfect for heat shrink terminals, tubing and soldering. This product requires butane to operate. (Not included) Outer body measurement: 71mm (H) x 20mm (W) x 35mm (L)
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**Ordering Information:** Order by the tool.



WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS



# Tools

## MASTER® ULTRATORCH

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
<b>TOOLS</b>
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



**VUT100SI**



**VUT100SIK (KIT)**

### SELF-IGNITING, BUTANE-POWERED SOLDERING IRON AND HEAT TOOL

- Light weight for easy handling & extended use
- Built-in fuel filter for consistent fuel ignition
- Adjustable temperature up to 1200°F
- Built-in window indicates fuel level
- UL & GS/TUV Listed for user safety
- Use to pinpoint heat, remove surface mount components, repair vinyl, shrink heat shrink tubing, solder and repair solders and spot dry.
- Kit contains unit, solder tip, heat tip, shrink attachment, spanner and open end wrench, sponge and stand packed in a metal storage/carrying case

### SPECIFICATIONS:

- Dimensions: 10.3" L (260 mm)
- Equivalent to Electric Iron: 20 to 80 Watt
- Recommended Fuel: Master Ultratane® Butane
- Gas Tank Capacity: 1 fl. oz. (28 cc)
- Approx. Operating Time: 2hr.
- Net Weight: 5.5 oz. (100 g)
- Approx. Heat Tip Temp.: 1202°F (650°C)
- Approx. Solder Tip Temp.: 482°F to 932°F (250°C to 500°C)
- Shipping Weight: 1 lb.
- Shipped empty



PART NUMBER	DESCRIPTION
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V70-01-01	1 mm Tapered Needle Soldering Tip
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V70-01-02	3.3 mm Chisel Soldering Tip (Standard)
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V70-01-03	2 mm Spade Soldering Tip
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V70-01-04	3 mm Spade Soldering Tip
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V70-01-05	0.5 mm Tapered Needle Soldering Tip
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V70-01-06	2 mm Micro Spade Soldering Tip
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V70-01-08	2 mm Spade Soldering Tip 35 degree
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V70-01-10	Offset tapered needle, 1 mm diameter
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V70-01-11	8 mm High Powered Chisel Soldering Tip
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V70-01-12	Round head, High Powered 3 mm diameter
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V70-01-14	Adaptor, 8.4 (4mm diameter x 0.7 mm pitch)
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V70-01-16	5.7 O.D. Hot Knife Tip
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V70-01-52	Heat Tip
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V70-01-55	Heat Shrink Attachment
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V70-40U	Metal Storage Box
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V90-02	Protective Cap for VUT-100SI
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V80-04U*	Replacement Burner
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VBUTANE	Butane 145 gm Canister
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\* For use with VUT100SI with serial number 2491709 and lower. Serial number located on unit housing.

\*\* For use with VUT100SI with serial number 2491710 and higher. Serial number located on unit housing.

**Ordering Information:** Order by the piece.

# Tools

## MASTER® ELECTRIC HEAT TOOLS



PART NUMBER	DESCRIPTION
VPROHEAT	<p>MASTER® PROHEAT® QUICK TOUCH HEAT GUN WITH MOMENTARY CONTACT SWITCH 1000°F /540°C, 120V, 60 Hz, 11 AMP, and 1300 WATTS</p> <ul style="list-style-type: none"> <li>• Compact, lightweight, easy-to-use</li> <li>• Balanced ergonomic design prevents operator fatigue</li> <li>• Protective hand/switch guard and hanging loop</li> <li>• Momentary Contact Switch – if not held, unit is off</li> <li>• Use to activate adhesives, bend plastics, shrink tubing and more</li> </ul>
V35216	PROHEAT® BENCH STAND
V35017	PROHEAT® ATTACHMENT 1-3/8" Shrink Tubing
VHG-301A	<p>MASTER® PROFESSIONAL QUALITY, HEAVY-DUTY INDUSTRIAL, MULTIPLE USE HEAT GUN 300 - 500°F, 150 - 260°C, 120-V 60 Hz, 12 AMPS, 1440 WATTS</p> <ul style="list-style-type: none"> <li>• Powerful high speed universal motor</li> <li>• Sturdy die cast housing</li> <li>• Adjustable non-slip stand</li> <li>• Use to bend plastics, cure adhesives, dry parts, heat parts, shrink tubing and packaging, strip paint and more</li> </ul>

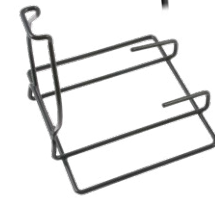
**Ordering Information:** Order by the piece.

## MASTER® BUTANE HEAT TOOLS

PART NUMBER	DESCRIPTION
VMICROTORCH	<p>MASTER® MICROTORCH® A PORTABLE, BUTANE POWERED HEAT TOOL</p> <ul style="list-style-type: none"> <li>• Quick starting self-igniting piezo electric ignition eliminates the need for lighters and matches</li> <li>• Wind resistant flame resists moisture and is perfect for outdoor use, such as camping and biking</li> <li>• Adjustable flame height allows for low and high temperatures up to 2500°F/1300°C blue flame</li> <li>• Safety lock and attached safety cap prevent unintentional ignition</li> <li>• VMICROTORCH Meets Consumer Products Safety Commission (CPSC) requirements</li> </ul>
VMT-76	<p>MASTER® TRIGGER® A PROFESSIONAL QUALITY, HAND HELD OR TABLE TOP, BUTANE POWERED, SELF IGNITING TORCH, SOLDERING IRON AND FLAMELESS HEAT TOOL</p> <ul style="list-style-type: none"> <li>• MT-76 includes soldering iron and heat tip for soldering up to 752°F/400°C and heating up to 932°F/500°C</li> <li>• Kit includes triggertorch, removable stand, solder tip and heat tip</li> <li>• Gas adjustment wheel provides adjustable long blue torch flame with temperatures up to 2,500°F/1300°C</li> <li>• Incorporates trigger switch with pulldown lock to meet Consumer Products Safety Commission (CPSC) requirements</li> <li>• Incorporates a hands free slide lock for continuous use and instant off operation</li> </ul>

**Ordering Information:** Order by the piece.

Common applications for MASTER® versatile heat tools include activating adhesives, bending & forming plastics, defrosting, drying, curing, heating, shrinking packaging & tubing, soldering, gluing, softening tile, stripping paint and welding plastics.

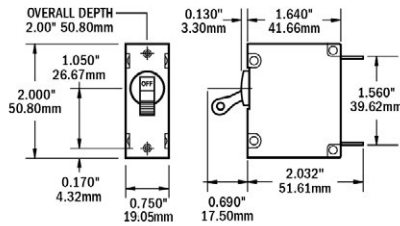


WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
<b>TOOLS</b>
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

# Breakers & Fuses

## MAGNETIC CIRCUIT BREAKERS "A" SERIES

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
<b>BREAKERS &amp; FUSES</b>
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



Series A Dimensions



EAA1-20WH



EAB2-20WH

**FEATURES:**

- \*Series = trip
- \*"Trip Free"
- \*Magnetic operation, operates as a function of current only
- \*Panel mounted
- \*Power switching Round cutout 0.50 dia.

**TECHNICAL INFORMATION**

- **Series Trip:** Long delay
- **Inrush Pulse Tolerance:** 10 times rated current
- **Oper. Temp:** -40°C to 85°C
- **Shock:** Withstands 100 g or more without tripping, while carrying full rated current per Mil-Std-202, Method 213, cond. 1
- **Vibration:** Withstands 10 g without tripping, while carrying full rated current per Mil-Std-202, Method 204, cond. A
- **Endurance:** Withstands 10,000 operations at rated voltage and current or withstands 50 operations at 600% AC or 1000% DC at rated voltage and current, in accordance with UL 1077
- **Moisture Resistance:** Meets requirements of Mil-C-55629, tested in accordance with Mil-Std-202, Method 106
- **Salt Spray:** Meets requirements of Mil-C-55629, tested in accordance with Mil-Std-202, Method 101
- **Trip Free:** Trips on overload, cannot be forcibly held on

**PERCENTAGE OVERLOAD VS. TRIP TIME IN SECONDS AT +25C (VERTICAL MOUNT)**

DELAY	100%	135%	150%	200%	400%	600%	800%	1000%
DC 50/60-Hz MEDIUM	NO TRIP	7-130	3-60	1.3-20	.085-3	.02-2	.015-.8	.01-.26

**"A" SERIES INTERRUPTING CAPACITY (AMPS)**

MAX RATING	VOLTAGE FREQUENCY	PHASE	CURRENT RATING FULL LOAD AMPS	INTERRUPTING CAPACITY UL/CSA WITHOUT BACKUP FUSE
80	DC	-	0.02 - 30	3000
65	DC	-	31 - 50	3000
125/250	50/60 Hz	1Ø	0.02 - 30	3000
125/250	50/60 Hz	1Ø	31 - 50	2000

**"A" SERIES HYDRAULIC/MAGNETIC CIRCUIT BREAKERS**

RATED AMPS	SINGLE POLE P/N	DOUBLE POLE SINGLE THROW P/N	DOUBLE POLE DOUBLE THROW P/N	*TOGGLE COLOR ABBREVIATION
5	EAA1-5	-	-	BK, WH
10	EAA1-10	EAB2-10	EAA2-10	BK, WH
15	EAA1-15	EAB2-15	EAA2-15	BK, WH
20	EAA1-20	EAB2-20	EAA2-20	BK, WH
25	EAA1-25	EAB2-25	EAA2-25	BK, WH
30	EAA1-30	EAB2-30	EAA2-30	BK, WH
40	EAA1-40	EAB2-40	EAA2-40	BK, WH
50	EAA1-50	EAB2-50	EAA2-50	BK, WH

\* Red (RD) Available upon request.

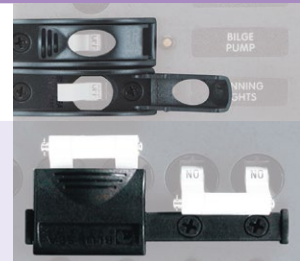
**Ordering Information:** Combine the part number and the color abbreviation.

**Example:** Single Pole, 30 AMP, White toggle = EAA1-30WH. All breakers are available by the piece.

Magnetic circuit breakers offer a low cost answer to power switching and reliable circuit protection. Temperature will not affect the operation of magnetic circuit breakers, as is the case with fuses or thermal breakers. The opening of the circuit is accomplished by the amount of current passing through an electromagnetic coil. As the current exceeds the amount specified by the breaker, the circuit will open (See chart "Percentage overload vs. trip time"). "A" series breakers are designed to have long trip delays to avoid nuisance tripping.

**SERIES "A" BREAKER ACCESSORIES**

PART NUMBER	DESCRIPTION
EG6-GUARD	Fits all "A" Frame Breakers. Mounts on the surface of the panel with two (2) 6-32 x 3/8" screws, which are included. Protects critical function circuits from being accidentally switched off at the breaker.
EG-SLIDE	Fits all Double Pole "A" Frame circuit breakers. AC Lockout slides allow only one breaker to be activated at a time. EG-SLIDE uses circuit breaker mounting screw holes, no special modifications required.



**Ordering Information:** Order by the piece.

# Breakers & Fuses

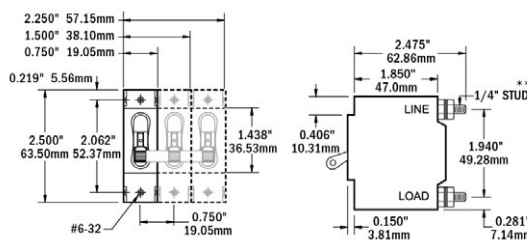
## MAGNETIC CIRCUIT BREAKERS "C" SERIES



ECA2-80BK



ECA1-50BK



Series C Dimensions

### PERCENTAGE OVERLOAD VS. TRIP TIME IN SECONDS AT +25C (VERTICAL MOUNT)

DELAY	100%	135%	150%	200%	400%	600%	800%	1000%
DC 50/60-Hz MEDIUM	NO TRIP	6.5-115	3-65	1.2-20	.08-3	.018-2.5	.015-.8	.009-.25

### "C" SERIES INTERRUPTING CAPACITY (AMPS)

MAX RATING	VOLTAGE FREQUENCY	PHASE	CURRENT RATING FULL LOAD AMPS	INTERRUPTING CAPACITY UL/CSA WITHOUT BACKUP FUSE
80	DC	-	0.02 - 70	7500
65	DC	-	71 - 100	5000
125/250	50/60 Hz	1Ø	0.02 - 50	3000
125/250	50/60 Hz	1Ø	31 - 50	2000

### "C" SERIES HYDRAULIC/MAGNETIC CIRCUIT BREAKERS

RATED AMPS	SINGLE POLE P/N	DOUBLE POLE DOUBLE THROW P/N	TRIPLE POLE TRIPLE THROW P/N
15	ECA1-15BK	-	-
20	ECA1-20BK	-	-
25	ECA1-25BK	-	-
30	ECA1-30BK	ECA2-30BK	-
40	ECA1-40BK	-	-
50	ECA1-50BK	ECA2-50BK	ECA3-50BK
60	ECA1-60BK	ECA2-60BK	-
70	ECA1-70BK	-	-
80	ECA1-80BK	ECA2-80BK	-
90	ECA1-90BK	-	-
100	ECA1-100BK	ECA2-100BK	-

**Ordering Information:** Order by the piece. White (WH) "C" series breakers are available upon request.

Designed for use in industrial, military and marine applications, "C" series breakers are suitable for use in any situation where precision operation is required. Magnetic circuit breakers are a low cost answer to power switching and reliable circuit protection.

Temperature will not affect the operation of magnetic circuit breakers, as it does with thermal breakers or fuses. Boots are available on page 63.

### BREAKER ACCESSORIES

PART NUMBER	DESCRIPTION
EL-SLIDE	Fits all Double Pole "C" Frame circuit breakers. AC Lockout slides allow only one breaker to be activated at a time. EL-SLIDE uses circuit breaker mounting screw holes, no special modifications are required.



**Ordering Information:** Order by the piece.

**Boots are available for circuit breakers on page 63.**

### FEATURES:

- \*Series trip
- \*"Trip Free"
- \*Magnetic operation, operates as a function of current only
- \*Panel mounted
- \*Power switching
- \*Rectangular panel cutout

### TECHNICAL INFORMATION

- **Series Trip:** Long delay
- **Inrush Pulse Tolerance:** 12 times rated current
- **Oper. Temp:** -40°C to 85°C
- **Shock:** Withstands 100 g or more without tripping, while carrying full rated current per Mil-Std-202, method 213
- **Vibration:** Withstands 10 g without tripping, while carrying full rated current per Mil-Std-202, method 204
- **Endurance:** Per UL 1077 (6000 operations at rated load plus 4000 operations with no load) Tested at maximum rate of 6 times per minute
- **Moisture Resistance:** Designed to meet requirements of Mil-C-55629, when tested in accordance with Mil-Std-202, method 106
- **Salt Spray:** Designed to meet requirements of Mil-C-55629, when tested in accordance with Mil-Std-202, method 101
- **Trip Free:** Trips on overload, cannot be forcibly held on or restrained

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
<b>BREAKERS &amp; FUSES</b>
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS

# Breakers & Fuses

## PANEL MOUNT THERMAL BREAKERS



ETS658



ETS45



ETS41

**FEATURES:**

**TYPE: 1658**

- \*Very cost effective design to meet international requirements
- \*No potential current carrying exposed metal parts, except for terminals.
- \*Manual reset
- \*Cycling trip free mechanism
- \*Extremely small and lightweight
- \*UL, CSA, VDE and EN 60934 (IEC 60934) approved

**TYPE: 2-5700 (Series 45)**

- \*Single pole thermal circuit breaker with press-to-reset, tease-free, trip-free, snap action mechanism
- \*Push-push switch/circuit breaker
- \*Threadneck panel mounting
- \*Approved to CBE standard EN 60934 (IEC 60934)

**TYPE: 412 & 413**

- \*Single pole high performance thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation
- \*An indicator band on the push button clearly shows the tripped/off position.
- \*Threadneck panel mounted

SERIES TYPE	658 1658	45 2-5700	41 (<30 AMPS)	41 (30 AMPS - 70 AMPS)
DESCRIPTION	Series Trip	Series Trip, Push-ON, push OFF switching, B&W reset button for trip indication	Series Trip, Push-pull ON-OFF switching	Series Trip, Push-pull, ON-OFF switching
CURRENT RATINGS	5 - 30 AMPS	5 - 30 AMPS	15 - 25 AMPS	30 - 70 AMPS
MAXIMUM VOLTAGE RATINGS	AC 240V or DC 28V	AC 240V or DC 28V	AC 115V or DC 28V	AC 115V or DC 28V
INTERRUPTING CAPACITY	2000 AMPS @ 120V AC, 2500 AMPS @ 32V DC, 2000 AMPS @ 28V DC	2000 AMPS @ 250 VAC, 2500 AMPS @ 50 VDC	6000 AMPS	6000 AMPS
LIFE	1000 Operations	5000 Operations	4000 cycles at 200% rated current	2000 cycles at rated current
TERMINALS	.250 quick connect	Screw Terminals	Screw Terminals	Screw Terminals
APPROVALS	UL 1077 up to 15 AMPS CSA up to 16 AMPS VDE	UL 1077 up to 20A CSA up to 20 AMPS VDE	MIL-E-5272C	MIL-E-5272C
DESIGN NOTES	N/A	N/A	Melamine housing, corrosion, humidity and fungus resistant	Melamine housing, corrosion, humidity and fungus resistant

TRIPPING TIMES IN SECONDS AT 70 °F (21 °C)				
100%	No Trip	No Trip	No Trip	No Trip
200%	1.5 - 8.0	10 - 40	10 - 65	12 - 80
300%	1.0 - 5.0	3.0 - 8.0	3.0 - 20	3.0 - 25
400%	-	2.0 - 9.0	1.5 - 12	1.2 - 12
500%	-	1.0 - 6.0	1.0 - 8.0	1.0 - 7.0
600%	-	0.6 - 5.0	0.6 - 6.0	0.5 - 5.0
1000%	-	0.2 - 2.5	0.2 - 3.5	0.1 - 0.2

RATED AMPS	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
5	ETS658-5	ETS45-5	-	-
10	ETS658-10	ETS45-10	-	-
15	ETS658-15	ETS45-15	ETS41-15	-
20	ETS658-20	ETS45-20	ETS41-20	-
25	ETS658-25*	ETS45-25	ETS41-25	-
30	ETS658-30*	ETS45-30	-	ETS41-30
40	-	-	-	ETS41-40
50	-	-	-	ETS41-50
60	-	-	-	ETS41-60
70	-	-	-	ETS41-70

CAP P/N		
ES-PBCAP ES-PBCVR or ES-PBCVR-BK	ES-PBLCAP	ES-PB41CAP

**Ordering Information:** Order by the piece.

For Series 1658 Breakers add WH= WHITE or BK=BLACK to the end of the part number. \*Not available in black.

**Example:** ETS658-10WH = Series #1685 with white actuator.

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
<b>BREAKERS &amp; FUSES</b>
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



# Breakers & Fuses

## BREAKERS ACCESSORIES & COMPONENTS



ES-PBCAP



ES-PBLCAP



ES-PB41CAP



ES-PBCVR



ES-PBCVR-BK



EG-SGLBOOT

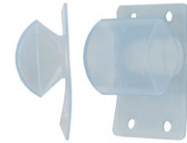
PART NUMBER	DESCRIPTION	FOR USE WITH
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BREAKER BOOTS AND COVERS		
ES-PBCAP	Clear, 9/16" high, 3/8" thread	ETS658 Series
ES-PBLCAP	Clear, 15/16" high, 3/8" thread	ETS45 Series
ES-PB41CAP	Clear, Variable height, 15/32" thread	EST41 Series
ES-PBCVR	Clear, 9/16" high, 3/8" thread	ETS658 Series
ES-PBCVR-BK	Black, 9/16" high, 3/8" thread	ETS658 Series

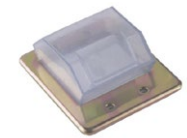
BOOTS FOR MAGNETIC CIRCUIT BREAKERS		
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EG-SGLBOOT	Clear, Mounts Behind Panel, "ON"	"A" Series Sgl. Pole
EG-DBLBOOT	Clear, Mounts Behind Panel, "ON"	"A" Series Dbl. Pole
EL-DBLBOOT	Clear, Mounts Front Panel, "ON/OFF"	"C" Series Dbl. Pole

**Ordering Information:** Order by the piece.

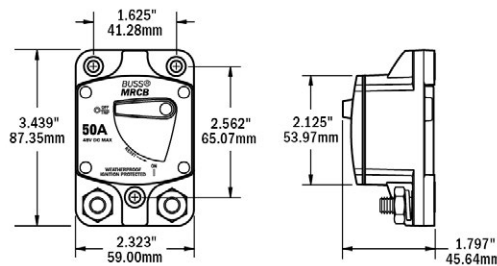


EG-DBLBOOT



EL-DBLBOOT

## MARINE RATED CIRCUIT BREAKERS SERIES 187



RATED AMPS	PART NUMBER	STUD SIZE
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25	EMRCB-25	5/16" - 18
30	EMRCB-30	5/16" - 18
50	EMRCB-50	5/16" - 18
60	EMRCB-60	5/16" - 18
80	EMRCB-80	5/16" - 18
100	EMRCB-100	5/16" - 18
120	EMRCB-120	5/16" - 18
150	EMRCB-150	5/16" - 18

**Rating:** 25-150 AMPS, 48V DC  
**Interrupt Rating:** Main Breaker Protection Interrupt Rating (5,000 AMPS @ 12V DC, 3,000 AMPS @ 24V DC and 1,500 AMPS @ 42V DC)  
**Operating Temp. Rating:** -40°F (-40°C) to 185°F (85°C)  
**Storage Temperature Rating:** -40°F (-40°C) to 260°F (125°C)  
**Materials:** Black UL-rated 94V-0 thermo-set plastic body. Cover and lever are UL-rated 94V-0 thermoplastic  
**Marking:** Standard marking includes amp/volt ratings  
**Terminal Stud Size:** 5/16" - 18  
**Ingress Protection Rating:** IP66

**Ordering Information:** Order by the piece.

**FEATURES:** \*A manual reset circuit breaker with On-Off switch capability \*"Trip-Free" design cannot be held on during fault current conditions \*Ignition protected, all components meet SAE 1171 external circuit protection requirements

\*Large clearance around terminals accepts heavy gauge wire lugs

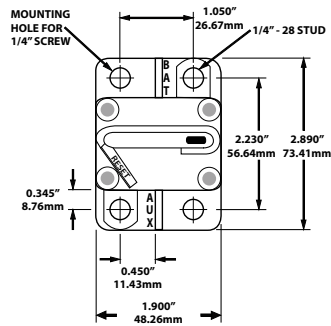
**COMPLIANCES:** \*ABYC E-11; CE; SAE J1171 (ignition protected)

**APPLICATIONS:** These breakers are typically used in DC power systems in marine applications.

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Breakers & Fuses

## MARINE RATED CIRCUIT BREAKERS



### BUSSMANN SERIES 185 MANUAL & SWITCHABLE RESET CIRCUIT BREAKERS

	RATED AMPS	PART NUMBER	RATED AMPS	PART NUMBER
	30	ESM-30	70	ESM-70
	40	ESM-40	80	ESM-80
	50	ESM-50	100	ESM-100
	60	ESM-60	150	ESM-150

**Ordering Information:** Order by the piece.

**Rating:** 25-150 AMPS, 48V DC **Interrupt Rating:** 3000 AMPS **Operating Temperature Rating:** -25°F (-32°C) to 180°F (82°C)

**Termination:** 1/4-28 threaded studs **Ingress Protection Rating:** IP67

**APPLICATIONS:** These breakers are typically used in auxiliary and accessory circuits in truck, bus, RV and marine systems. Other uses include battery chargers and DC audio systems. Series 185 are sealed for engine compartment and bilge area applications.

**FEATURES:** \*Single pole thermal surface mount breaker \*Manual & switchable reset circuit breakers \*Series 185 has a unique reset mechanism which provides visual indication of tripped condition. \*Series 185 features a push-to-trip option \*Ignition protection

**COMPLIANCES:** \*SAE J1171 (ignition protected)



Style 1



Style 2



Style 3

### KLIXON® THERMAL CIRCUIT PROTECTORS

	RATED AMPS	PART NUMBER Style 1	PART NUMBER Style 2	PART NUMBER Style 3
	5	EPTR-5	-	-
	10	EPTR-10	-	-
	15	EPTR-15	-	-
	20	EPTR-20	-	-
	25	EPTR-25	-	-
	30	EPTR-30	-	-
	40	EPTR-40	-	-
	50	-	EPTR-50	-
	60	-	-	EPTR-60
	70	-	-	EPTR-70
	80	-	-	EPTR-80
	90	-	-	EPTR-90
	105	-	-	EPTR-105
	120	-	-	EPTR-120
	150	-	-	EPTR-150

**Ordering Information:** Order by the piece.

**APPLICATIONS:** \*Wire harness protection for heavy trucks, buses, construction equipment, off-road vehicles and RVs. \*Marine applications requiring ignition protected devices \*Battery protection in electric vehicles

**FEATURES:** \*Current: AC/DC

**Interrupt Capacity:** \*Style 1: Per SAE J553 & ABYC E-11 \*Style 2: Per SAE J553 & ABYC E-11 \*Style 3: Per SAE J1625 & ABYC E-11

**TERMINALS:** \*Style 1: #8-32x1/4" Screw Terminals \*Style 2: #10-32x5/8" Threaded Posts \*Style 3: 1/4-28x9/16" Threaded Posts

**MOUNTING METHOD:** Panel with eyelet #10 screw

**SHOCK RESISTANCE:** In excess of 10 g

# Breakers & Fuses

## AGC FUSES, FUSE BLOCKS & HOLDERS

### AGC GLASS FUSES

PART NUMBER	VOLTAGE RATING AC	AMPERAGE RATING	PART NUMBER	VOLTAGE RATING AC	AMPERAGE RATING
EAGC.5	250	.5	EAGC7.5	250	7.5
EAGC1	250	1	EAGC10	250	10
EAGC1.5	250	1.5	EAGC15	32	15
EAGC2.5	250	2.5	EAGC20	32	20
EAGC3	250	3	EAGC25	32	25
EAGC5	250	5	EAGC30	32	30

**Ordering Information:** Order by the package (5 pieces).

AGC stood for "all glass." The automotive industry uses the "AG" prefix (AGC, AGW) for most glass fuses.

**FEATURES:** \*1/4" Dia. x 1 1/4" Long \*Glass tube with Nickel plated brass end caps \*Fast-acting for maximum protection \*Wide amp/volt ratings allow versatility of protecting electronic circuits

**COMPLIANCES:** \*UL listed product meets standard 248-14, CSA



### BLUE SEA ST GLASS 6 CIRCUIT FUSE BLOCK WITH NEGATIVE BUS AND COVER

PART NUMBER	NO. OF CIRCUITS	MAX VOLTAGE	MAX AMPS PER CIRCUIT
EFB30-6IBC	6	32V DC	30 AMPS (100 AMP Per Block)

**Ordering Information:** Order by the piece.

**FEATURES:** \*Clear insulating cover with label recesses to accept Large Format Labels

\* Cover insulates all conductive parts, satisfying ABYC/USCG requirements & provides spare fuse storage

\*Tin-plated copper buses and Phosphor Bronze fuse clips give 30 Ampere rating per circuit

\* Accepts AGC (Fast Acting), MDL (Time-Delay) and all other 3AG Glass Fuses



### BRASS FUSE BLOCKS WITH INDEPENDENT BUS

PART NUMBER	NO. OF CIRCUITS	MAX VOLTAGE	MAX AMPS PER CIRCUIT
EFB20-4IB	4	32V DC	25 AMPS (150 AMP Per Block)
EFB20-6IB	6	32V DC	25 AMPS (150 AMP Per Block)
EFB20-8IB	8	32V DC	25 AMPS (150 AMP Per Block)

**Ordering Information:** Order by the piece.

**FEATURES:** \*Made with brass clips and screws with a common bus bar connected to the fuse clips

\*Additional independent buses integral to the fuse block \*8-32 Screw terminals



EFB20-6IB

### AGC FUSE HOLDERS

**Ordering Information:** Order by the piece.



**P/N: EFH-WP**

Water-resistant, accepts 18 through 12 AWG, 30 AMP maximum, one piece construction.



**P/N: EFH-MWP30**

10 AWG wire, 30 AMP fuse

**P/N EFH-MWP15**

14 AWG wire, 15 AMP fuse molded, water-resistant, inline, fuse holder with 8" 14 or 10 AWG wire loop molded into the assembly. AGC fuse included.



**P/N: EFH-PMKT**

Panel mount "knob-type". Recommended panel cutout 0.505 diameter, terminals 0.250 quick connects.



**P/N: EFH-KT**

In-line, spring loaded, "knob-type" with wire included.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Breakers & Fuses

## ATO/ATC FUSES, BLOCKS & HOLDERS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES**
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



ATO/ATC TYPE FUSES

### ATO/ATC TYPE FUSES

PART NUMBER	RATED AMPS	COLOR	PART NUMBER	RATED AMPS	COLOR
EATC1	1	BLACK	EATC10	10	RED
EATC2	2	GREY	EATC15	15	LT. BLUE
EATC3	3	VIOLET	EATC20	20	YELLOW
EATC4	4	PINK	EATC25	25	NATURAL
EATC5	5	TAN	EATC30	30	LT. GREEN
EATC7.5	7.5	BROWN	EATC40	40	AMBER

**Ordering Information:** Order in multiples of 5.

**FEATURES:** \*Delivers fast-acting protection for electronics and other small loads \*Standard 1/4" blade-type automotive fuses \*Tin-plated connector blades for corrosion resistance

**COMPLIANCES:** \*Meets or exceeds OEM and SAE standards

Introduced in the late '70s, ATC blade fuses are widely used by automotive OEMs. Clear, easy to read amp legend and color coding make for easy identification.



EFB30-5025 (left)  
EFB30-5026 (right)

### BLUE SEA ST BLADE FUSE BLOCK - 6 or 12 CIRCUITS WITH NEGATIVE BUS AND COVER

PART NUMBER	CIRCUITS	SPARE STORAGE	MAX VOLTS	MAX AMPS PER CIRCUIT
EFB30-5025	6	2	32V DC	30 AMPS (100 AMP Max per Block)
EFB30-5026	12	2	32V DC	30 AMPS (100 AMP Max per Block)

**Ordering Information:** Order by the piece.

**FEATURES:** \*Positive distribution bus with #10-32 stud \*Cover satisfies ABYC/USCG requirements for insulation \*Cover incorporates an easy to open push button latch providing easy access to fuses, storage for two spare fuses, and label recesses \*Fuse blocks with covers include 20 write-on circuit labels \*Tin-plated copper buses and fuse clips \*Accepts ATO® and ATC® fast acting blade fuses



EFB30-6ATC

### ATO/ATC FUSE BLOCK WITH COMMON HOT FEED AND INDEPENDENT NEGATIVE BUS FUSE BLOCKS

PART NUMBER	CIRCUITS	MAX VOLTS	MAX AMPS PER CIRCUIT
EFB30-4ATC	4	24V	30 AMPS (160 AMP Max)
EFB30-6ATC	6	24V	30 AMPS (160 AMP Max)
EFB30-10ATC	10	24V	30 AMPS (160 AMP Max)
EFB30-14ATC	14	24V	30 AMPS (160 AMP Max)

**Ordering Information:** Order by the piece.

**FEATURES:** \*For ATC, ATO fuses and circuit breakers, various sizes will snap together. \*Fuse/breaker contacts are tin plated & recessed for safety. Recessed area in the center accepts a label. \*Electrical ratings: 30 AMPS maximum per circuit at 12V to 24V DC 160 AMPS maximum total for the block at 12V DC. \* Black thermoplastic block. Blade terminals are .25" wide (6.4 mm). Stud terminal is 10-32.

### ATO/ATC FUSE HOLDERS

**Ordering Information:** Order by the piece.

#### P/N: EFH-ATC-PKRD

Made from durable, glass reinforced, impact modified plastic, 6" of 10 AWG red wire, holds up to a 40 AMP ATC/ATO fuse, mounting tab integrated to cover. Fuse not included.



#### P/N: EFH-ATC-WP

Molded, side mount ATC/ATO fuse holder. Made with black high-temp thermoplastic construction, 12 AWG leads. Rated at 30 AMPS. Fuse not included.



# Breakers & Fuses

## MAXI FUSES & MARINE RATED BATTERY FUSES

MAXI BLADE-TYPE FUSES					
PART NUMBER	RATED AMPS	COLOR	PART NUMBER	RATED AMPS	COLOR
EMF30	30	GREEN	EMF60	60	BLUE
EMF40	40	ORANGE	EMF70	70	TAN
EMF50	50	RED	EMF80	80	CLEAR

**Ordering Information:** Order by the piece.

**FEATURES:** \*Interrupting Ratings: 1000 AMPS @ 32V DC \* Operating Temperature: 40°F to 257°F (40°C to 125°C) \* Specifications: SAE J888, ISO 8820, DIN 72581 3E

Maxi blade fuses are used when a high amperage circuit is required from 30-80 AMPS. All blade fuses are color-coded to indicate their amps.

BLUE SEA MAXI FUSE HOLDER - 30 AMPS to 80 AMPS			
PART NUMBER	CIRCUITS	MAX VOLTS	MAX AMPS
EFH-5006	1	32V DC	80 AMPS

**Ordering Information:** Order by the piece.

**FEATURES:** \*The most economical fuse block for 30-80 Ampere fusing Maxi fuse holder and cover include \*Snap-on terminal cover insulates all conductive parts, satisfying ABYC/USCG requirements \*Accepts wire sizes 18-4 AWG from sides or bottom \* Ring terminal screws compress fuse blades within blocks for extremely low resistance connections

MAXI FUSE HOLDER			
PART NUMBER	CIRCUITS	MAX VOLTS	MAX AMPS
EFH-MFH	1	32V	60 AMPS
EFH-5068	1	32V	48 AMPS

**Ordering Information:** Order by the piece.

**FEATURES:** \*Maxi fuse holder & cover provides an efficient installation method for MAXI fuses

MARINE RATED BATTERY FUSES					
PART NUMBER	RATED AMPS	PART NUMBER	RATED AMPS	PART NUMBER	RATED AMPS
EMRBF30	30	EMRBF80	80	EMRBF175	175
EMRBF40	40	EMRBF90	90	EMRBF200	200
EMRBF50	50	EMRBF100	100	EMRBF225	225
EMRBF60	60	EMRBF125	125	EMRBF250	250
EMRBF75	75	EMRBF150	150	EMRBF300	300

**Ordering Information:** Order by the piece.

**FEATURES:** \*Maximum Amperage: 300 AMPS \*Maximum Voltage: 58V DC \*Terminal Stud: M8 (5/16")

\*Recommended Torque: 75 in-lb (8.47 N·m) \* Weight: 0.16 lb (0.07 kg)

\*Space-saving ignition protected fuse for 30 to 300 AMP loads. Must use with Terminal Fuse Block. \*High Interrupt Rating 10000 AMPS @ 14V DC, 5000 AMPS @ 32V DC, 2000 AMPS @ 58V DC satisfies ABYC requirements for DC main circuit protection on large battery banks \*Clear window—visual indication of blown condition, use for main or auxiliary circuits.

### MRBF TERMINAL FUSE BLOCK

**FEATURES:** \*New isolated stud design uses standard M8 (5/16") hardware & permits stacking of terminals \*Compact, high-amp fuse—Appropriate for DC Main, inverter, windlass, and bow thruster circuit protection \*Provides high current protection in tight space constraints \*Insulating cap prevents accidental shorts

**Ordering Information:** Order by the piece.

**Note:** Fuses are NOT included when purchasing the MRFB Terminal Fuse Block.



Maxi Blade-Type Fuses



EFH-5006



EFH-MFH

EFH-5068



EMRBF40



EMRBF150



EFB-MRBF1



EFB-MRBF2

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS



# Breakers & Fuses

## ANL FUSES & HOLDERS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
<b>BREAKERS &amp; FUSES</b>
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



LIMITER ANL LOW VOLTAGE, NON-TIME-DELAY FUSE					
PART NUMBER	RATED AMPS	PART NUMBER	RATED AMPS	PART NUMBER	RATED AMPS
EANL35	35	EANL130	130	EANL300	300
EANL40	40	EANL150	150	EANL350	350
EANL50	50	EANL175	175	EANL400	400
EANL60	60	EANL200	200	EANL500	500
EANL80	80	EANL225	225	EANL600	600
EANL100	100	EANL250	250		

**Ordering Information:** Order by the piece.

**FEATURES:** \*Use with ANL fuse blocks for many applications with 35-600 AMP loads

\*Interrupting Rating: 2,700 AMP DC, 6,000 AMP AC \*Voltage: 80V DC (or less), 32V AC

\*Silver-plated connector blades for corrosion resistance \*Visible indication of blown fuse condition

\*Isolates faults in equipment systems such as lift trucks and other battery operated system

**COMPLIANCES:** \*SAE J1171 (35-500 AMPS): Ignition Protected



ANL FUSE BLOCKS	
PART NUMBER	DESCRIPTION
EFB-ANL	<ul style="list-style-type: none"> <li>• ANN &amp; ANL fuse block with lock nuts</li> <li>• High-strength thermoplastic base</li> <li>• Two countersunk mounting holes on 1" centers for #10 flat head screws</li> <li>• 400 AMP max, 80 volts DC, 125 volts AC</li> <li>• Bolt down fuses are vibration resistant and ideal for heavy equipment application</li> </ul>



EFB-ANL-LT	<ul style="list-style-type: none"> <li>• Cover included</li> <li>• Accepts 5/16" (M8) ring terminals</li> <li>• Rated 35 - 300 AMPS, for use on systems up to 32 Volts DC</li> <li>• Swing out design allows replacement of the fuse without removing fasteners</li> <li>• Stainless steel studs provide resistance to corrosion and high torquing for excellent electrical contact</li> <li>• UL 94-V0 base resists high heat</li> <li>• Insert molded studs ensure secure fuse mounting</li> <li>• Insulating cover satisfies ABYC/USCG requirements</li> <li>• Cover breakouts allow wire access in any direction</li> </ul>
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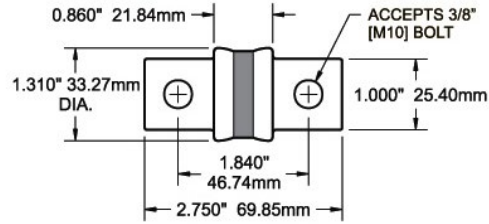


EFB-ANL-HD	<ul style="list-style-type: none"> <li>• Cover included</li> <li>• Accepts 5/16" (M8) ring terminals</li> <li>• Rated 35 - 750 AMPS, for use on systems up to 32 Volts DC</li> <li>• Swing out design allows replacement of the fuse without removing fasteners</li> <li>• Stainless steel studs provide resistance to corrosion and high torquing for excellent electrical contact</li> <li>• UL 94-V0 base resists high heat</li> <li>• Insert molded studs ensure secure fuse mounting</li> <li>• Insulating cover satisfies ABYC/USCG requirements</li> <li>• Cover breakouts allow wire access in any direction</li> </ul>
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**Ordering Information:** Order by the piece.

# Breakers & Fuses

## CLASS T FUSES & HOLDERS



225–400 Amperes

### CLASS T FUSES

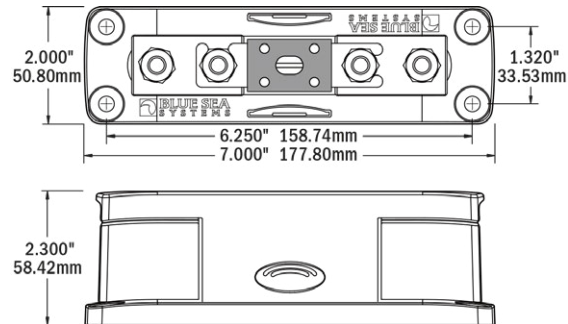
PART NUMBER	RATED AMPS
ETF-225	225
ETF-250	250
ETF-300	300
ETF-350	350
ETF-400	400

**Ordering Information:** Order by the piece.

**FEATURES:** \*Extremely fast short-circuit response \*20,000 AMP interrupt capacity (AIC) \*UL rated for DC applications under UL 198L

**COMPLIANCES:** \*UL 248-15

Class T fuse blocks provide circuit protection for devices, including inverters. High interrupt capacity for large battery banks including Lithium-ion and TPPL batteries. Class T fuse blocks have a small foot print, providing substantial space savings in equipment.



### CLASS T FUSE BLOCK WITH INSULATING COVER

PART NUMBER	DESCRIPTION	MAX AMPS
EFB-T	<ul style="list-style-type: none"> <li>The fuse system recommended by most inverter manufacturers for high speed response to short circuits</li> <li>Clear insulating cover, satisfies ABYC/USCG requirements</li> <li>For use on systems up to 160 Volts DC</li> <li>3/8"-16 stud terminals accept ring terminals for wire up to 4/0 AWG</li> <li>Large heat dissipating tin-plated copper mounting blocks</li> <li>Two # 8 accessory terminals located on each end</li> </ul>	400 AMPS

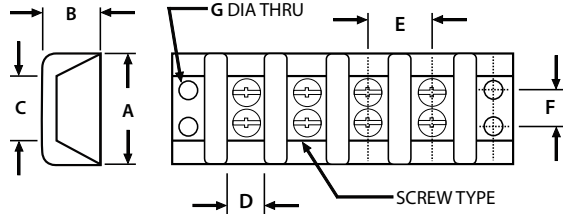
**Ordering Information:** Order by the piece.

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Terminal Blocks & Bus Bars

## TERMINAL BLOCKS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
<b>TERMINAL BLOCKS &amp; BUS BARS</b>
SWITCHES & ACTUATORS
LIGHTS & METERS



E30TB8



E20TB2



E30TB2



E50TB2



E20TBJ



SERIES (AMP)	RATED VOLTS	WIRE RANGE	SCREW TYPE	DIMENSIONS (Inches)							
				(A)	(B)	(C)	(D)	(E)	(F)	(G)	
20	300V	16-14 AWG	6-32 x 1/4"	1.12	0.53	0.75	0.34	0.44	0.42	0.175	
30	600V	14-10 AWG	8-32 x 5/16"	1.31	0.71	0.94	0.42	0.56	0.50	0.203	
50	600V	10-8 AWG	10-32 x 3/8"	1.81	0.75	1.06	0.47	0.69	0.62	0.275	

TERMINAL BLOCKS				
NO. OF POSITIONS	20 AMP PART NUMBER	30 AMP PART NUMBER	50 AMP* PART NUMBER	
2	E20TB2	E30TB2	E50TB2	
3	E20TB3	E30TB3	E50TB3	
4	E20TB4	E30TB4	E50TB4	
5	E20TB5	E30TB5	-	
6	E20TB6	E30TB6	E50TB6	
7	E20TB7	E30TB7	-	
8	E20TB8	E30TB8	E50TB8	
9	E20TB9	-	-	
10	E20TB10	E30TB10	E50TB10	
11	E20TB11	-	-	
12	E20TB12	E30TB12	-	
15	E20TB15	E30TB15	-	
18	E20TB18	-	-	
20	E20TB20	E30TB20	-	

**Ordering Information:** Order by the piece. \*Open back design  
**FEATURES:** \*Nickel plated brass hardware \*Phenolic base \*Closed back \*Eliminates splicing & simplifies wiring  
**COMPLIANCES:** \*UL recognized, CSA Certified  
**CHARACTERISTICS:** \*Heat Resist.: 290°F Continuous \*Dielectric Strength: 350 Vv

TERMINAL BLOCK JUMPERS - Used to combine circuits on a terminal block				
JUMPER STYLE	20 AMP JUMPER	30 AMP JUMPER	50 AMP JUMPER	PACKAGE SIZE
ENCLOSED	E20TBJ	E30TBJ	E50TBJ	25, 100
SLOTTED	E20TBJ-S	E30TBJ-S	N/A	25, 100, 1000

**Ordering Information:** Combine part number and package size.  
**Example:** Order of 100 enclosed 20 Amp Terminal block jumpers = E20TBJ-100  
**FEATURES:** \*Terminal block jumpers are constructed of nickel plated brass \*Available in two styles, enclosed & slotted

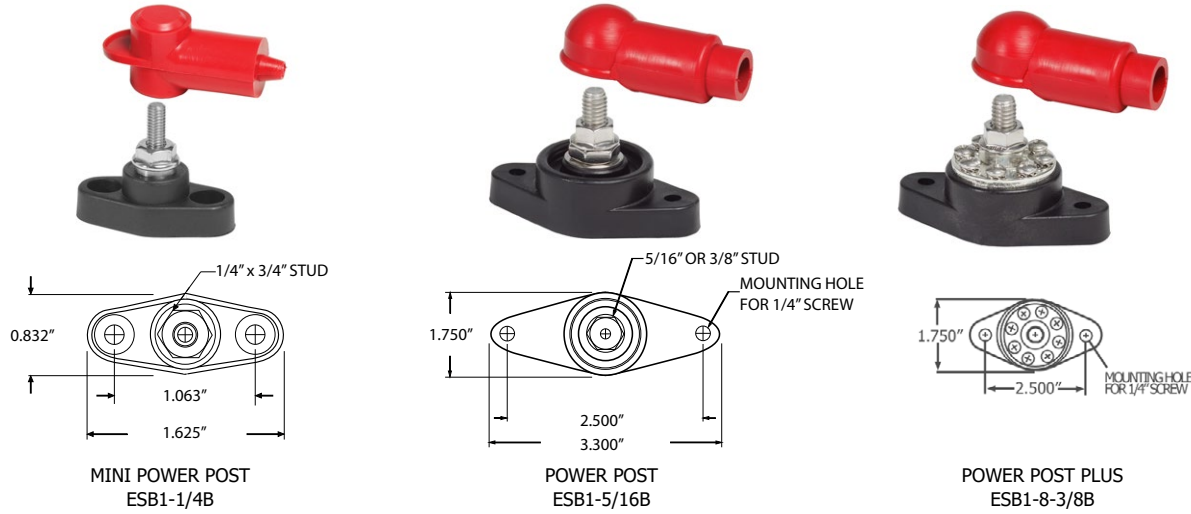
## EUROPEAN TERMINAL BLOCKS

EUROPEAN TERMINAL BLOCKS				
NO. OF POSITIONS	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
	15 AMP	30 AMP	40 AMP	65 AMP
	300V	300V	300V	600V
	14 AWG MAX	12 AWG MAX	10 AWG MAX	8 AWG MAX
12	E150-12	E200-12	E400-12	E650-12

**Ordering Information:** Order by the piece.  
**FEATURES:** \*Constructed from 6/6 nylon \*Tin plated brass inserts \*Easily cut \*Recessed screws and terminals to avoid shock hazard \*Closed back design  
**COMPLIANCES:** \*UL recognized, CSA Certified  
 European terminal blocks are constructed from 6/6 nylon and incorporate tin plated brass inserts for corrosion resistance and wire protectors to prevent stranded wire damage during installation.

# Terminal Blocks & Bus Bars

## POWER POSTS & FEED THROUGH CONNECTORS



SINGLE POWER POST				
PART NUMBER WITHOUT BOOT	PART NUMBER WITH BOOT	CURRENT RATING	STUD TYPE	CONFIGURATION
N/A	ESB1-1/4B	NR*	1/4"	Mini Power Post
ESB1-5/16	ESB1-5/16B	NR*	5/16"	Power Post
ESB1-3/8	ESB1-3/8B	NR*	3/8"	Power Post
ESB1-8-5/16	ESB1-8-5/16B	150	5/16"	Power Post Plus w/ 8 (#8) Screws
ESB1-8-3/8	ESB1-8-3/8B	150	3/8"	Power Post Plus w/ 8 (#8) Screws

\*Not Rated - Amperage flow is between terminals stacked on the post and is dependent on the wire and terminals used.

**Ordering Information:** Order by the piece.

**FEATURES:**

**POWER POSTS** \*Connects high amperage cables securely

**POWER POST PLUS** \*150 Amp bus allows small wire connections at high amperage cable connections \*Connects high amperage cables securely

**CHARACTERISTICS:** \*Base Material: Reinforced thermoplastic \*Max. Voltage: 48V DC

Pacer stocks a large variety of power post solutions. Improper or corroded buses can rob precious voltage from a circuit. In starter and anchor windlass circuits where hundreds of amps flow, this could mean a significant difference in cranking/lifting capability. **Connect all high amperage cables securely.**



EFC1-5/16R



EFC1-3/8B

TERMINAL FEED THROUGH CONNECTOR POSTS				
PART NUMBER WITHOUT BOOT	COLOR	CURRENT RATING	STUD TYPE	
EFC1-5/16B	BLACK	250	5/16"	
EFC1-5/16R	RED	250	5/16"	
EFC1-3/8B	BLACK	250	3/8"	
EFC1-3/8R	RED	250	3/8"	

**Ordering Information:** Order by the piece.

**FEATURES:** \*Available in red or black for both 5/16" and 3/8" stud sizes \*Perfect for passing high current cables through hulls, decks and bulkheads

\*Large size terminals have a mounting face that can be gasketed or bedded to provide a water tight installation \*Rated IP66 - withstands heavy seas water

**CHARACTERISTICS:** \*Base Material: Reinforced thermoplastic \*Stud Material: Tin-plated copper alloy \*Max Voltage: 48V DC

\*Amperage: 250 AMPS \*Recommended Torque: 100 in-lb (11.3 N-m)

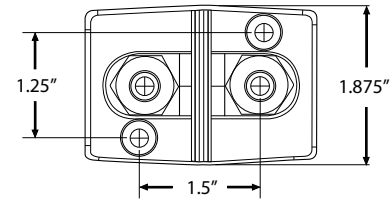
Large cables passed through holes are subject to chafing even when protective grommeting is used. Terminal Feed Through Connectors eliminate chafing and provide excellent strain relief for the cable. **Connect all high amperage cables securely.**

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Terminal Blocks & Bus Bars

## POWER POSTS & MINI BUS BARS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



### DUAL POWER POST

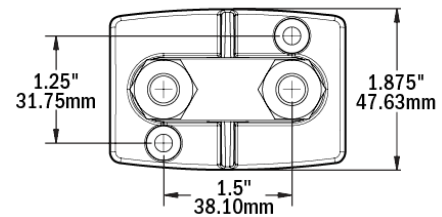
PART NUMBER	BOOTS INCLUDED	CURRENT RATING	STUD TYPE	CONFIGURATION
EDB2-5/16	(1) BLACK, (1) RED	N/A*	5/16"	Dual Power Post
EDB2-3/8	(1) BLACK, (1) RED	N/A*	3/8"	Dual Power Post

\*Not Rated - Amperage flow is between terminals stacked on the post and is dependent on the wire and terminals used.

**Ordering Information:** Order by the piece.

**FEATURES:** \*Designed for connecting high amp conductors \*Includes one black and one red insulator \*Tin plated brass bus \*48V DC

Provides a termination point for extending the length of outboard harnesses or other conductors.



### DUAL POWER BUS BAR

PART NUMBER	BOOTS INCLUDED	CURRENT RATING	STUD TYPE	CONFIGURATION
EPB2	(2) RED	N/A	3/8"	Dual Stud Bus Bar

**Ordering Information:** Order by the piece.

**FEATURES:** \*Provides compact high-ampere busing with 3/8-16 terminal studs \*Designed for connecting high amp conductors

\*Includes two red insulators \*48V DC Max

## 100 AMP MINI BUS BARS



EMB0-6



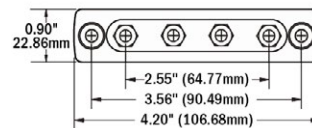
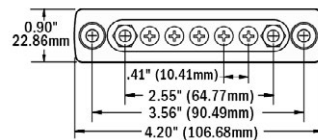
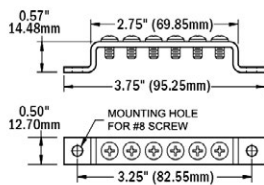
EMB2-5



EMB4



EMBC



MINI BUS BAR COVER  
(for EMB2-5 & EMB4)  
Sold Separately

### 100 AMP MINI BUS BARS

PART NUMBER	AMPS	CONFIGURATION	COVER PART NUMBER
EMB0-6	100	Non-Insulated Grounding Bar with (6) #8-32 Screws	N/A
EMB2-5	100	Common Bus Bar with (2) #10-32 Studs & (5) #8-32 Screws	EMBC
EMB4	100	Common Bus Bar with (4) #10-32 Studs	EMBC

**Ordering Information:** Order by the piece.

**FEATURES:** \*Great for limited space applications \*100 AMP continuous rating \*48V DC Max \*300V AC Max (EMB2-5 & EMB4 only)

\*Bus Material: Tin-plated copper CDA 110/UNS11000



# Terminal Blocks & Bus Bars

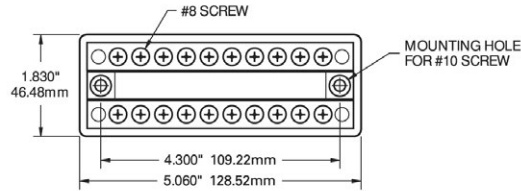
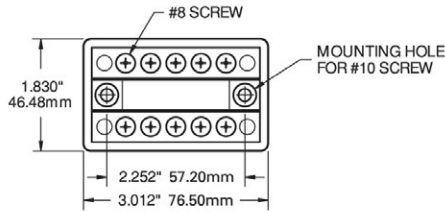
## DUAL ROW BUS BARS & COMMON BUS BARS



EDB10



EDB20



### 100 AMP DUAL BUS BARS

PART NUMBER	AMPS	CONFIGURATION	COVER PART NUMBER
EDB10	100	Dual bus bar - 5 circuit has (5) #8-32 screws on each side	EDB10C
EDB20	100	Dual bus bar - 10 circuit has (10) #8-32 screws on each side	EDB20C

**Ordering Information:** Order by the piece. Bus bars and covers are sold separately.

**FEATURES:** \*100 AMP continuous rating \*48V DC Max \*300V AC Max \*Bus Material: Tin-plated copper CDA 110/UNS11000

\*Base Material: Reinforced polycarbonate

Combines negative and positive buses on one block.



EDB20C

100 AMP DUAL BUS BAR COVER  
Sold Separately



EBB2-20C

150 AMP COMMON BUS BAR COVER  
Sold Separately

## 150 AMP COMMON BUS BARS



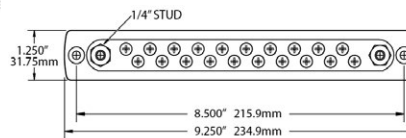
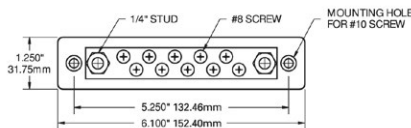
EBB2-10



EBB2-20



EBB4



### 150 AMP COMMON BUS BARS

PART NUMBER	AMPS	CONFIGURATION	COVER PART NUMBER
EBB2-10	150	Common bus bar with (10) #8-32 screws, (2) 1/4" studs	EBB2-10C
EBB2-20	150	Common bus bar with (20) #8-32 screws, (2) 1/4" studs	EBB2-20C
EBB4	150	Common bus bar with (4) 1/4" studs	EBB2-10C

**Ordering Information:** Order by the piece. Bus bars and covers are sold separately.

**FEATURES:** \*Industry standard \*150 AMP continuous rating \*48V DC Max \*300V AC Max \*Bus Material: Tin-plated copper CDA 110/UNS11000

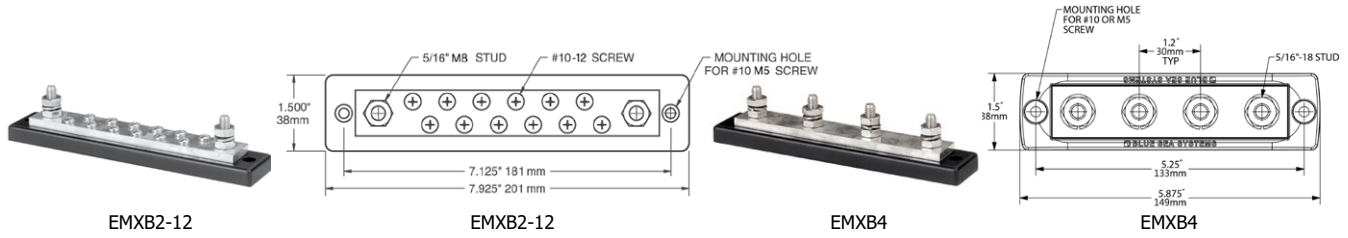
\*Base Material: Reinforced polycarbonate \*Lock washers and nuts included on studs

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

# Terminal Blocks & Bus Bars

## MAXI BUS BARS & POWER BUS BARS

WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
SWITCHES & ACTUATORS
LIGHTS & METERS



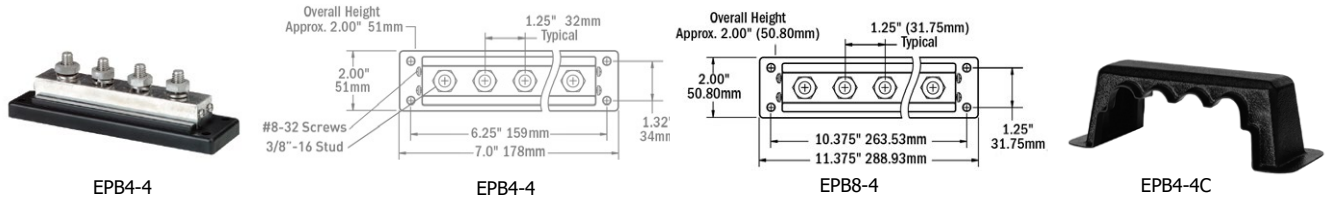
### 250 AMPS MAXI BUS BARS

PART NUMBER	AMPS	DESCRIPTION	COVER PART NUMBER
EMXB2-12	250	(2) 5/16" - 18 Studs & (12) #10-12 Screws	EMXBC6
EMXB4	250	(4) 5/16" - 18 Studs	EMXBC4

**Ordering Information:** Order by the piece.

**FEATURES:** \*250A continuous rating \*48V DC Max \*300V AC Max \*Bus Material: Tin-plated copper CDA 110/UNS11000  
 \*UL 94-V0 rated base material resists high heat \*Raised bus provides easy access to multiple wires on a single screw or stud

Insert molded stainless steel studs to eliminate the need for securing nuts and allow high torquing for excellent electrical contact. The recessed mounting holes eliminate shorts to metal mounting surfaces.



### 600 AMPS POWER BUS BARS

PART NUMBER	AMPS	DESCRIPTION	COVER PART NUMBER
EPB8-4	600	(8) 3/8" - 16 Studs	EPB8-4C
EPB4-4	600	(4) 3/8" - 16 Studs	EPB4-4C

**Ordering Information:** Order by the piece.

**FEATURES:** \*600A DC - 545A AC continuous rating \*48V DC Max \*300V AC Max \*Bus Material: Tin-plated copper CDA 110/UNS11000  
 \*UL 94-V0 rated base material resists high heat \*Raised bus provides easy access to multiple wires on a single screw or stud  
 \*Four #8-32 screws located at the end of the bus allows for easy small gauge wire connections.

High amperage bus bars are constructed from tinned plate CDA110 copper with a reinforced polycarbonate base. Lugs can be stacked and (4) #8-32 screws allow for easy connection of smaller conductors.



### SEALED BUS BARS

PART NUMBER	AMPS	DESCRIPTION
ESBB-12	150	(1) 5/16" - 18 Stud/(1) 12 pos. Deutsch
ESBB-24	300	(2) 5/16" - 18 Studs/(2) 12 pos. Deutsch

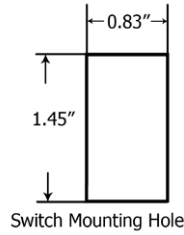
**Ordering Information:** Order by the piece.

**FEATURES:** \*Ignition protected SAE J1171 \*48V DC Max \*Bus Material: Encapsulated copper \*RETPU thermoplastic base  
 \*IP67 sealed connector for quick installation.

Sealed bus bars finish the electrical system with a corrosion resistant design that is not prone to loose screws. Quick installation takes less than 10% of the time of a traditional bus bar.

# Switches & Actuators

## CONTURA SWITCHES



### DESCRIPTION

- S.P.S.T. = Single pole, single throw
- S.P.D.T. = Single pole, double throw
- D.P.S.T. = Double pole, single throw
- D.P.D.T. = Double pole, double throw

### SINGLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	LAMPS / VOLTS	DESCRIPTION
ES-V1DA	ON - OFF	1 DEP. / 12-V	S.P.S.T.
ES-V4DA	ON - ON	2 DEP. / 12-V	S.P.D.T.
ES-V6DA	ON - OFF - ON	2 DEP. / 12-V	S.P.D.T. Center Off
<b>(MOMENTARY)</b>			
ES-V2DA	(ON) - OFF	1 DEP. / 12-V	S.P.S.T.
ES-V3DA	ON - (OFF)	1 DEP. / 12-V	S.P.S.T.
ES-V5DA	ON - (ON)	2 DEP. / 12-V	S.P.D.T.
ES-V7DA	ON - OFF - (ON)	2 DEP. / 12-V	S.P.D.T. Center Off
ES-V8DA	(ON) - OFF - (ON)	2 DEP. / 12-V	S.P.D.T. Center Off

### DOUBLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION*	LAMPS / VOLTS	DESCRIPTION
ES-VADA	ON - OFF	1 DEP. / 12-V	D.P.S.T.
ES-VDDA	ON - ON	2 DEP. / 12-V	D.P.D.T.
ES-VJDA	ON - OFF - ON	2 DEP. / 12-V	D.P.D.T. Center Off
<b>(MOMENTARY)</b>			
ES-VBDA	(ON) - OFF	1 DEP. / 12-V	D.P.S.T.
ES-VFDA	ON - (ON)	2 DEP. / 12-V	D.P.D.T.
ES-VKDA	ON - OFF - (ON)	2 DEP. / 12-V	D.P.D.T. Center Off
ES-VLDA	(ON) - OFF - (ON)	2 DEP. / 12-V	D.P.D.T. Center Off

**Ordering Information:** Order by the piece. \*For more available options, contact a Pacer Group expert today. Actuators sold separately.

**FEATURES:** \*Snap-in mounting \*Multi-step mounting wings provide a secure fit for panel thicknesses of 0.032" thru 0.250" in an industry standard 0.830" x 1.450" mounting hole \*Silver plated butt contact mechanism provides 50 to 100 thousand electrical cycles and a variety of different electrical ratings \*Single or double pole \*Removable actuators \*Maximum sealing protection with dual seals around lamps and rocker stem certified to IP66 & IP68. \*Optional panel seals for additional protection \*Multiple illumination options

**COMPLIANCES:** \*Passed a range of environmental, corrosion, temperature, vibration, shock and sealing tests including MIL Std 202F, MIL Std 810C, UL 1500, ISO 8846, IEC 60529, BS 5490 and more \*UL CSA DEMKO SEMKO NEMKO

**CHARACTERISTICS:** \*Base Material: Polyester \*Dielectric Strength: 2000V RMS \*Insulation Resistance: 50 \*MegOhms \*Rating: 20 AMPS 12V \*Terminal: 0.250 QC Tabs \*Mounting Method: Snap-in \*Mounting Hole Dimensions: 0.83" x 1.45" (21.08 mm x 36.83 mm)

The V-Series CONTURA with sealed front panel components are certified to IP66 and IP68, signifying complete protection against dust, prolonged spray and submersion under pressure. Contura switches are recognized at UL1500 - Ignition Protection for Marine Products.



Single



End



Middle



Panel Seals



Actuator Removal Tool

### MOUNTING PANELS

PART NUMBER	DESCRIPTION
ES-CVMS	Single Mounting Panel
ES-CVMM	Middle Panel
ES-CVME	End Panel
ES-CVHP	Hole Plug

### CONTURA SWITCH ACCESSORIES

PART NUMBER	DESCRIPTION
ES-VPS	Panel Seals
ES-CVRT	Actuator Removal Tool

**Ordering Information:** Order by the piece.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

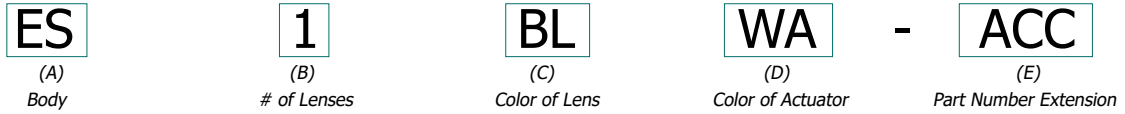
LIGHTS & METERS

# Switches & Actuators

## CONTURA ACTUATORS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS**
- LIGHTS & METERS

**Actuator Ordering Information:**  
Build the part numbers. Select **(A)** Body Style, **(B)** Number of Lenses, **(C)** Lens Color, **(D)** Actuator Color, **(E)** Part Number Extension. For Printed Actuators see available ISO symbols on pages 77-79.



	(A) Body Style	(B) No. of Lenses		(C) Lens Color (if not red)		(D) Actuator Color (if not black)	
Contura II	ES	0	n/a	Red	n/a	Black	n/a
Contura III	EC	1	1	Blue	BL	Red	RA
Contura V	EV	2	2	White	WL	White	WA

**(A) Body Style**



(ES)



(EC)

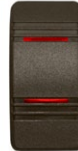


(EV)

**(B) Number of Lenses (for no lens leave blank)**



- (1) - Top square
- (2) - Top square & bottom bar



- (1) - Top bar
- (2) - Top bar & bottom bar



- (1) - Top circle
- (2) - Top circle & bottom oval

**(C) Lens Color (for red lens or no lens leave blank)**



Red



Blue\*



White\*

-

(BL)

(WL)

**(D) Actuator Color (for black actuator leave blank)**



Black



Red

(RA)



White

(WA)

**(E) Part Number Extension. (for no print, add "BLANK")**

(ISO Print)\*\*

\*Blue lens not available in red actuators, and white lens not available in EC style or white actuators.  
\*\*See available ISO Print on pages 77-79.

**FEATURES:**

- Contura II (ES):** Styling consists of raised bumps or finger traction \*Available with red, blue or white lens
- Contura III (EC):** \*Styling consists of three rows of bars on top and bottom \*Available with red or blue lens
- Contura V (EV):** \*Styling consists of a symmetrically curved design \*Available with red, blue or white lens

Contura actuators are constructed of thermoplastic polycarbonate with a hard nylon overlay. All three body styles are removable and interchangeable on V-Series Contura Switches. Available non-illuminated or with a single or double lens. Over 100 ISO symbols are available for print on any switch cover.

**Examples of Common Actuators:**



ES1BLWA-ACC



ES1RA-HRN



EC-BLANK



EC1WA-ACC1



EV2WL-NAVANC



EV-CKPT

# Switches & Actuators

## ACTUATOR SYMBOLS



PART NUMBER EXTENSION	ABLG	ACC	ACC1	ACC2	ACCLT	ANC	ARCH	ARTR
ISO PRINT	 AFT BILGE	 ACCY	 ACCY 1	 ACCY 2	 ACC LIGHTS	 ANCHOR	 ARCH	 AERATOR
PART NUMBER EXTENSION	ASPDR	ATPLT	BATT	BDOC	BDLT	BLG	BLG1	BLG2
ISO PRINT	 AFT SPREADER LIGHTS	 AUTOPILOT	 BATTERY PARALLEL	 BRIDGEDECK OPEN/CLOSE	 BRIDGEDECK LIGHTS	 BILGE	 BILGE 1	 BILGE 2
PART NUMBER EXTENSION	BLG3	BLST	BLWR	BTWL	BTWL1	BTWL2	CBN	CHRT
ISO PRINT	 BILGE 3	 FILL BALLAST DRAIN	 BLOWER	 BAITWELL	 BAITWELL 1	 BAITWELL 2	 CABIN	 CHART PLOTTER
PART NUMBER EXTENSION	CKPT	CNSL	CTSY	CWPR	DECK	DMLT	DMMR	DOCK
ISO PRINT	 COCKPIT	 CONSOLE	 COURTESY	 CENTER WIPER	 DECK LIGHTS	 DOME LIGHTS	 DIMMER	 DOCKING LIGHTS
PART NUMBER EXTENSION	DPTH	EHD	ENG	ENGRM	ESTP	ETRM	EXHST	FAN
ISO PRINT	 DEPTH FINDER	 ELECTRIC HEAD	 ENGINE	 ENGINE ROOM	 ENGINE STOP	 ENGINE TRIM	 EXHAUST SYSTEM	 FAN
PART NUMBER EXTENSION	FBLG	FBX	FFBX	FLIR	FRSH	FSPDR	FUEL	FUELG
ISO PRINT	 FWD BILGE	 FISHBOX	 FWD FISHBOX	 FLIR NIGHT CAMERA	 FRESH WATER	 FWD SPREADER LIGHTS	 FUEL	 FUEL GAUGE

**Ordering Information:** Order by the piece. See Page 76 for details.



# Switches & Actuators

















## ACTUATOR SYMBOLS

PART NUMBER EXTENSION	GLLY	HRN	HTC	HTP	INT	JPT	LT	LVWL
ISO PRINT								
	GALLEY	HORN	HATCH	HARDTOP	INTERIOR	JACK PLATE	LIGHT	LIVEWELL
PART NUMBER EXTENSION	LVWLLT	LWRC	LZTT	MAC	MAP	MBLG	MCHNRY	MFUELA
ISO PRINT								
	LIVEWELL LIGHT	LIVEWELL RECIRC	LAZARETTE	MACERATOR	MAP	MID BILGE	MACHINERY SPACE	MAIN FUEL AUX
PART NUMBER EXTENSION	NAV	NAVANC	OC	OH	PBLG	PENG	PFBX	PFBXS
ISO PRINT								
	NAVIGATION	NAV/ANC	OPEN CLOSE	OVER HEAD LIGHTS	PORT BILGE	PORT ENGINE	PORT FISHBOX	PORT FISHBOX STBD
PART NUMBER EXTENSION	PFUELS	PMAC	PNL	PPWR	PSTP	PTRM	PVNT	PWPR
ISO PRINT								
	PORT FUEL STBD	PORT MACERATOR	PANEL	PORT ENG POWER	PORT STOP	BOW DOWN PORT BOW UP	PORT VENT	PORT WIPER
PART NUMBER EXTENSION	PWRSTR	RAW	RCP	RDR	SALT	SBLG	SENG	SFBX
ISO PRINT								
	POWER STEERING	RAW WATER	RECIRC	RADAR	SALT WATER	STBD BILGE	STBD ENGINE	STBD FISHBOX
PART NUMBER EXTENSION	SLN	SMAC	SPDR	SPT	SPWR	SSTP	STR	STRM
ISO PRINT								
	SALON LIGHTS	STBD MACERATOR	SPREADER LIGHTS	SPOT	STBD ENG POWER	STBD STOP	STEREO	BOW DOWN STBD BOW UP

**Ordering Information:** Order by the piece. See Page 76 for details.

# Switches & Actuators

## ACTUATOR SYMBOLS

PART NUMBER EXTENSION	STRT	SVNT	SWM	SWPR	TRM	TRNSM	TWR	UFUELL
ISO PRINT	 PARALLEL START	 STBD VENT	 SWIM PLATFORM	 STBD WIPER	 TRIM TABS	 TRANSOM LIGHT	 TOWER	 UPPER FUEL GAUGE LOWER
PART NUMBER EXTENSION	UW	VNT	VHF	WND	WNDPWR	WPR	WSHR	WSHDWN
ISO PRINT	 UNDER WATER LIGHTS	 VENT	 VHF	 DEPLOY WINDLASS RETRIEVE	 WINDLASS POWER	 WIPER	 WINDSHIELD WASHER	 WASHDOWN

**Ordering Information:** Order by the piece. See Page 76 for details.

## PANEL SWITCH JUMPERS



EJ-DIODE-PB-PB



EJ10RD4-250-250



EJ14BK6-250-PB

PART NUMBER	AWG NO.	COLOR	LENGTH (Inches)	TERMINAL #1	TERMINAL #2
EJ-DIODE-PB-PB*	N/A	N/A	4	0.250 DISC. w/ MALE TAB	0.250 DISC. w/ MALE TAB
EJ10RD4-10-10-E	10	RED	4	#10 RING TERMINAL	#10 RING TERMINAL
EJ10RD4-250-250	10	RED	4	0.250 FEMALE DISCONNECT	0.250 FEMALE DISCONNECT
EJ10RD4-250-PB	10	RED	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ10RD4-8-8-E	10	RED	4	#8 RING TERMINAL	#8 RING TERMINAL
EJ10RD6-250-PB	10	RED	6	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14BK4-250-PB	14	BLACK	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14BK6-250-PB	14	BLACK	6	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14BL4-250-PB	14	BLUE	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14BL6-250-PB	14	BLUE	6	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14OR4-250-PB	14	ORANGE	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14RD4-250-250	14	RED	4	0.250 FEMALE DISCONNECT	0.250 FEMALE DISCONNECT
EJ14RD4-250-8-E	14	RED	4	0.250 FEMALE DISCONNECT	#8 RING TERMINAL
EJ14RD4-250-PB	14	RED	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14YL4-250-PB	14	YELLOW	4	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB
EJ14YL6-250-PB	14	YELLOW	6	0.250 FEMALE DISCONNECT	0.250 DISC. w/ MALE TAB

**Ordering Information:** Order by multiples of 10.

\*EJ-DIODE-PB-PB, order by the piece.

**FEATURES:** \*Stranded, tinned copper conductors \*Highly flexible color coded insulation

**COMPLIANCES:** \*UL stranded 1426 BC-5W2 (16-8 AWG) \*AWM 1015/1230 (22-10 AWG) \*MTW \*CSA: TEW \*ABYC: E-11.14 (16-8 AWG)

\*Coast Guard: 33 CFR 183.401 Subpart 1-Electrical Systems

**CHARACTERISTICS:**

**Conductor:** Annealed Finely Stranded Tinned Copper ASTM B172 Class K

**Insulation:** -20°C to 105°C Flexible, Color Coded PVC

**Temperature Rating:** 105°C Dry, 75°C Wet 60°C Oil

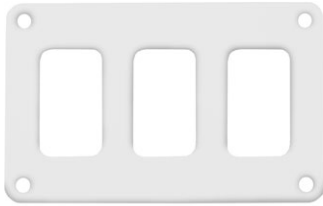
**Voltage Rating:** 600V **Resistant to:** Acid, Alkali, Abrasion, Flame, Gasoline, Oil and Moisture

Pre-made wire jumpers save time and money. Pacer wire jumpers are the most common configurations to bus breakers, jumper from breaker to switch or receptacle, connect lights from switch to switch and easily connect switch light grounds.

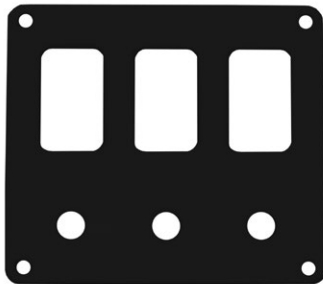
# Switches & Actuators

## PANEL BLANKS

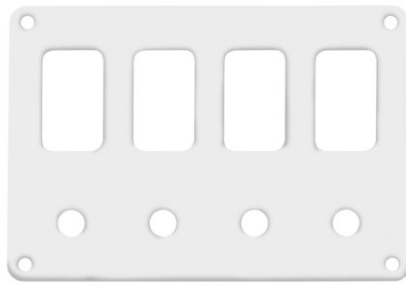
WIRE & CABLE
MULTI-CONDUCTOR
COAX CABLES
NETWORK CABLES
HEAT SHRINK
ROUTING & BUNDLING MATERIALS
CABLE TIES
TERMINALS
DEUTSCH & DELPHI
LUGS & BOOTS
ID PRODUCTS & LABELERS
TOOLS
BREAKERS & FUSES
TERMINAL BLOCKS & BUS BARS
<b>SWITCHES &amp; ACTUATORS</b>
LIGHTS & METERS



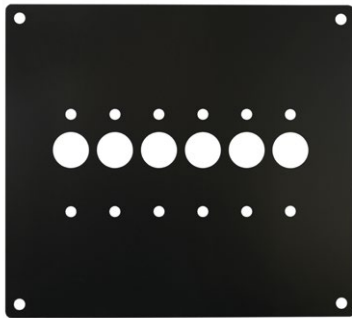
PSC-31WH



PSBC-31BK



PSBC-41WH



EP-BRK-6

### CONTURA SWITCH PANEL BLANKS

PART NUMBER	POSITIONS	ROWS	WIDTH (Inches)	HEIGHT (Inches)	AVAILABLE COLOR
PSC-11	1	1	1.750	2.750	BK, WH
PSC-21	2	1	3.000	2.750	BK, WH
PSC-22	4	2	3.000	4.750	BK, WH
PSC-31	3	1	4.250	2.750	BK, WH
PSC-41	4	1	5.500	2.750	BK, WH
PSC-61	6	1	8.000	2.750	BK, WH
PSC-81	8	1	10.500	2.750	BK, WH

**Ordering Information:** Combine part numbers with color.

**Example:** PSC-11 in Black=PSC-11-BK. Order by the piece.

**FEATURES:** \*Cut from .090 thick 5052 H32 marine grade aluminum alloy \*Powder coated on all sides for maximum durability \*Powder coat colors are textured black or smooth gloss white

### CONTURA SWITCH AND BREAKER PANEL BLANKS

PART NUMBER	POSITIONS	ROWS	WIDTH (Inches)	HEIGHT (Inches)	AVAILABLE COLOR
PSBC-11	1	1	1.750	4.250	BK, WH
PSBC-21	2	1	3.000	4.250	BK, WH
PSBC-31	3	1	4.250	4.250	BK, WH
PSBC-41	4	1	5.500	4.250	BK, WH
PSBC-61	6	1	8.000	4.250	BK, WH
PSBC-81	8	1	10.500	4.250	BK, WH
PSBC-22	4	2	3.000	7.826	BK, WH
PSBC-32	6	2	4.250	7.826	BK, WH
PSBC-42	8	2	5.500	7.826	BK, WH
PSBC-62	12	2	8.000	7.826	BK, WH
PSBC-82	16	2	10.500	7.826	BK, WH

**Ordering Information:** Order by the piece.

**FEATURES:** \*Cutouts fit standard Contura switches \*See page 75 for selection \*Cutouts for standard 3/8 push to reset breakers. See page 62 for selection \*Choose from 658 on 45 series \*Choose black or clear boots See page 81

### A-FRAME BREAKER PANEL BLANKS

PART NUMBER	A-FRAME POSITIONS	WIDTH (Inches)	HEIGHT (Inches)
EP-BRK-1	1	3.500	3.500
EP-BRK-2	2	3.500	3.500
EP-BRK-3	3	5.375	6.000
EP-BRK-4	4	5.375	6.000
EP-BRK-6	6	5.375	6.000

**Ordering Information:** Order by the piece.

**FEATURES:** \*Made from durable 3/16 black Lexan \*Cutouts fit standard A-frame breakers. See page 60 \*Uses screw EGF-6-32-375 to mount breakers to panel Sold seperately. See page 63 \*Breaker openings spaced for Breakers Bus Bars \*Use EBB-BRKR1 for power feed or panel jumpers. See page 79

PANEL ACCESSORIES	PAGE #
Switches	75, 81-85
Actuators	76 - 79
Breakers	60 - 64
Breaker Boots	63 & 81
Busbars	72 - 74
Panel Jumpers	79

# Switches & Actuators

## METAL BAT TOGGLE SWITCHES



DESCRIPTION OF SWITCH	TERMINAL POSITIONS
S.P.S.T. = Single pole, single throw	
S.P.D.T. = Single pole, double throw	
S.P.T.T. = Single pole, triple throw	
D.P.S.T. = Double pole, single throw	
D.P.D.T. = Double pole, double throw	

### SINGLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	DESCRIPTION
-------------	-----------------	-------------

ES-B2FA54	ON-OFF	S.P.S.T.
ES-B2FB54	ON-ON	S.P.D.T.
ES-B2FC54	ON-OFF-ON	S.P.D.T. (Center Off)
ES-B2GE54	ON-ON-ON	S.P.T.T.
<b>(MOMENTARY)</b> The parenthesis means that the action is momentary.		
ES-B6FA54	(ON)-OFF	S.P.S.T.
ES-B6FA58	ON-(OFF)	S.P.S.T.
ES-B6FB54	ON-(ON)	S.P.D.T.
ES-B6FC54	(ON)-OFF-(ON)	S.P.D.T. (Center Off)
ES-B6FC58	ON-OFF-(ON)	S.P.D.T. (Center Off)

### DOUBLE POLE SWITCHES

PART NUMBER	SWITCH FUNCTION	DESCRIPTION
-------------	-----------------	-------------

ES-B2GK54	ON-OFF	D.P.S.T.
ES-B2GL54	ON-ON	D.P.D.T.
ES-B2GM54	ON-OFF-ON	D.P.D.T. (Center Off)
<b>(MOMENTARY)</b> The parenthesis means that the action is momentary.		
ES-B6GK5E	(ON)-OFF	D.P.S.T.
ES-B6GK5S	ON-(OFF)	D.P.S.T.
ES-B6GL5E	ON-(ON)	D.P.D.T.
ES-B6GM5S	(ON)-OFF-(ON)	D.P.D.T. (Center Off)
ES-B6GM5E	ON-OFF-(ON)	D.P.D.T. (Center Off)
ES-B6GG54	(ON)-ON-OFF	PROGRESSIVE

**Ordering Information:** Order by the piece.

**FEATURES:** \*Durable brass/nickel plated metal bat toggle switch \*Nickel plated hardware

\*Screw Terminal connection \*Single and double pole \*Mounting Hole .50"

**COMPLIANCES:** \*UL \*CSA \*VDE approvals

**CHARACTERISTICS:** \*Base Material: Phenolic \*Actuator (Bat): Brass/Nickel Plated \*Bushing: Brass/Nickel Plated

\*Dielectric Strength: 100V Min. \*Insulation Resistance: 100 Megohm \*Screw Terminal: #6-32NC2

\*Bushing Length: 0.465" \*Panel Mounting Hole: 1/2" diameter

\*Rating: 15 AMPS 125V AC / 10 AMPS 250V AC / 3/4" HP 125-250V AC

## SILICONE RUBBER BOOTS

PART NUMBER	HEIGHT (Inches)	THREAD (Inches)	COLOR
ES-BOOT	15/16	15/32	Black
ES-BOOT-W	15/16	15/32	White

**Ordering Information:** Order by the piece.

See page 91 for typical uses of switches on boats.

These one piece bonded silicone rubber boots are resistant to salt, water, acids, weather, dust, sunlight and ozone. They are designed for use on metal bat toggle switches.



WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS



# Switches & Actuators

## M-SERIES & E-SERIES BATTERY SWITCHES

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS

### M-SERIES MINI BATTERY SWITCHES

300 AMPS continuous, 500 AMPS (5 min.) intermittent rating, Crank rating (30 sec.) 900 AMPS.

**EBS-6005**

**EBS-6006**

**EBS-6007**



Single Circuit ON-OFF

Single Circuit ON-OFF

Selector 4-Position

Switches a single battery to a single load group (48V DC Max). Comes with removable key.

Switches a single battery to a single load group (48V DC Max).

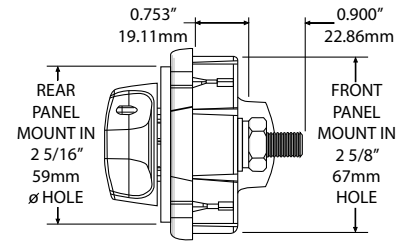
Switches isolated battery banks to all loads or combines battery banks to all loads (32V DC Max).

### M-SERIES MINI DUAL CIRCUIT BATTERY SWITCHES

300 AMPS per circuit continuous, 450 AMPS per circuit (5 min.) intermittent rating, Crank rating (30 sec.) 675 AMPS per circuit

**EBS-6010**

**EBS-6011**



Dual Circuit ON-OFF

Dual Circuit Plus ON-OFF

Simultaneously switches two isolated battery banks (32V DC Max).

Simultaneously switches two isolated battery banks or combines battery banks to all loads (32V DC Max).

**M-SERIES FEATURES:** \*300 Amps continuous rating for outboards and small gasoline or diesel engines \*Ignition protected \*Tin-plated copper studs for maximum conductivity and corrosion resistance \*Studs accept 3/8" (M10) ring terminals \*7/8" (22 mm) stud length accepts multiple cable terminals \*Mounting Holes: #10 screw \*Blue Sea Systems one-piece terminal stud design never loosens over time \*Case design allows surface, rear, or front panel mounting options \*Selector type battery switches with "make before break" contact design allow switching between battery banks without power interruption

**M-SERIES COMPLIANCES:** \*UL 1107(only 6005), UL 1500 \*CE \*IP 66 \*ISO 8846 \*SAE J1171(excl. 6007) \*ABYC E-11(only 6005)

Blue Sea Systems compact high-amperage switches are vapor/ignition protected and UL Listed. The M-Series are 300 Amp continuous rated for outboards, small gasoline or diesel engines.

### E-SERIES BATTERY SWITCHES

350 AMPS continuous, 600 AMPS (5 min.) intermittent rating, Crank rating (30 sec.) 1200 AMPS

**EBS-9001E**

**EBS-9002E**

**EBS-9003E**



Selector 4-Position

Selector 4-Position with AFD

Single Circuit ON-OFF

Switches isolated battery banks to all loads or combines battery banks to all loads (32V DC Max).

Switches isolated battery banks to all loads or combines battery banks to all loads (32V Max). Includes Alternator Field Disconnect.

Switches a single battery to a single load group (48V DC Max).

**E-SERIES FEATURES:** \*350 Amps continuous rating for outboards, small gasoline or diesel engines \*Studs accepts 3/8" (M10) ring terminals \*Ignition protected \*Tin-plated copper studs for maximum conductivity & corrosion resistance \*7/8" (22 mm) stud length accepts multiple cable terminals \*Blue Sea Systems one-piece terminal stud design never loosens over time \*Fits most Perko and Guest low amperage battery switch hole patterns \*Case design allows surface, rear, or front panel mounting options \*Tactile indicator conveys knob position by feel \*Selector type battery switches with a "make before break" contact design allows switching between battery banks without power interruption



# Switches & Actuators

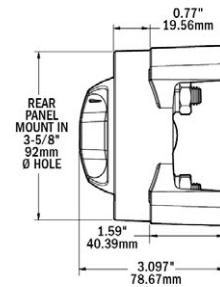
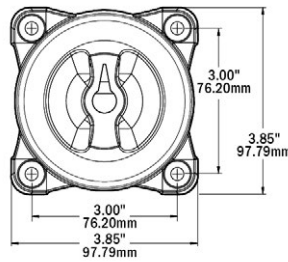


## E-SERIES & HD-SERIES BATTERY SWITCHES

### E-SERIES DUAL CIRCUIT PLUS BATTERY SWITCH

350 AMPS continuous, 525 AMPS (5 min.) intermittent rating, Crank rating (30 sec.) 700 AMPS per circuit.

#### EBS-5511E



#### Dual Circuit Plus ON-OFF

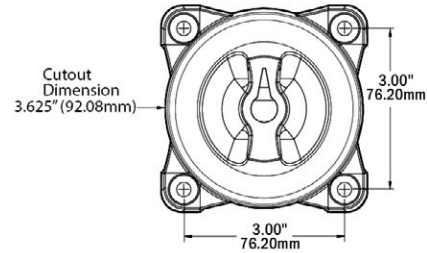
Simultaneously switches two isolated battery banks or combines battery banks to all loads (32V DC Max).

**E-SERIES COMPLIANCES:** \*UL 1500, UL 1107 \*CE \*IP 66 \*ISO 8846 Marine \*SAE J1171 Marine \*ABYC E-11

### HD-SERIES BATTERY SWITCHES

#### EBS-3000

#### EBS-3002



#### Single Circuit - ON-OFF

Switches a single battery to a single load group (32V DC Max).

600 AMPS continuous rating  
900 Amps (5 min) intermittent rating  
Crank rating (30 sec.) 1750 AMPS  
Crank rating (1 min.) 1325 AMPS

#### Selector 4 Position

Switches isolated battery banks to all loads or combines battery banks to all loads (32V Max).

500 AMPS continuous rating  
700 Amps (5 min) intermittent rating  
Crank rating (30 sec.) 1600 AMPS  
Crank rating (1 min.) 1150 AMPS

#### Ordering Information:

Order by the piece.

#### HD-SERIES FEATURES:

- \*Up to 600 Amps continuous rating for large diesel engines.
- \*Tin-plated copper studs for maximum conductivity and corrosion resistance
- \*Accepts up to 4/0 AWG battery cables
- \*Studs accepts 1/2" (M12) ring terminals
- \*7/8" (22 mm) stud length accepts multiple cable terminals
- \*Blue Sea Systems one-piece terminal stud design never loosens over time
- \*Fits most Perko and Guest low amperage battery switch hole patterns
- \*Case design allows surface, rear, or front panel mounting options
- \*Tactile indicator conveys knob position by feel

**HD-SERIES COMPLIANCES:** \*UL 1107, UL 1500 \*CE \*IP 66 \*ISO 8846 Marine \*SAE J1171 Marine \*ABYC E-11

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Switches & Actuators

## GUEST BATTERY SWITCHES & CHARGING RELAY

### GUEST UNIVERSAL MOUNT BATTERY SWITCHES

EBS-2111

EBS-2112

EBS-2300A

EBS-2303A / EBS-2304A



Universal Selector

Universal ON-OFF

Heavy-Duty Selector

Heavy-Duty On-Off with AFD (Alternator Field Disconnect)

Switches battery bank 1 or bank 2 or BOTH to a single load using one switch (32V Max)

Switches a single battery to a single load group (32V Max)

Switches battery bank 1 or bank 2 or BOTH to a single load using one switch (32V Max)

Switches a single battery to a single load group (32V Max)

Continuous AMPS: 230  
Momentary AMPS: 345  
Cable Lug Size: 3/8"  
Dimensions: 5.0" x 2.75"

Continuous AMPS: 230  
Momentary AMPS: 345  
Cable Lug Size: 3/8"  
Dimensions: 5.0" x 2.75"

Continuous AMPS: 360  
Momentary AMPS: 600  
Cable Lug Size: 1/2"  
Dimensions: 5.5" x 3.5"

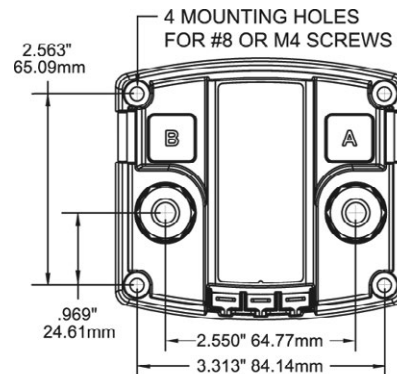
**EBS-2303A**  
Heavy -Duty On/Off Switch  
Continuous AMPS: 450  
Momentary AMPS: 800  
**EBS-2304A**  
Extra-Duty On/Off Switch  
Continuous AMPS: 600  
Momentary AMPS: 1000

**Ordering Information:** Order by the piece.

**FEATURES:** \*New ergonomically styled turn knob provides easy On/Off switching \*Updated color scheme and graphics make it easier to determine switch status \*Longer stud lengths for improved assembly and easier cable routing \*Built with heavy-duty copper sweep contacts to ensure positive circuit control \*Rugged internal components protected by a tough, impact resistant polycarbonate housing that is impervious to the elements \*Positive click-stop on all positions \*\*"Make before break" contacts allow selection of all positions except "Off" while engine is running

All Guest Battery Switches safely provide battery disconnect, isolate all circuits and conform to USCG safety standard 183.410 for ignition protection.

## SI ACR AUTO CHARGING RELAY 12/24V DC 120A



P/N: EACR-7610

**SPECIFICATIONS**

**12 VOLTS DC**

**24 VOLTS DC**

Intermittent Rating	210 Amps	210 Amps
Continuous Rating	120 Amps DC	120 Amps DC
(Combine) Amperage Oper. Current	175 mA	115 mA
(Open) Amperage Oper. Current	15 mA	15 mA
Maximum Cable Size	1/0 AWG	1/0 AWG
Terminal Stud Size	3/8" - 16 (M10)	3/8" - 16 (M10)
Maximum Torque	140 in-lb	140 in-lb

**RELAY CONTACT POSITION**

**12 VOLTS DC**

**24 VOLTS DC**

Combine ( 30 sec )	13.6V DC	27.2V DC
( 90 sec )	13.0V DC	26.0V DC
Open ( 10 sec )	12.35V DC	24.7V DC
( 30 sec )	12.75V DC	25.5V DC
Open High 16.0 Volts	16.0V DC	30.0V DC
Over Voltage Lockout	16.0V DC	32.0V DC
Under Voltage Lockout	9.5V DC	19.0V DC

**Ordering Information:** Order by the piece.

**FEATURES:** \*Protects sensitive electronics by temporary isolation of house loads from engine circuit during engine cranking \*Designed for 12 or 24 volt systems \*12/24 volt auto ranging voltage input \*Hermetically sealed contacts/vapor-proof \*IP67 — protected against immersion up to 1 meter (3.28ft) for 30 minutes \*Ignition protected—safe for installation aboard gasoline powered boats \*Remote LED output indicates relay state away from ACR \*Supports high-output alternators up to 120 Amperes \*Dual sensing \*Meets: UL 1077, UL 1500, CE, IP67, ISO 8846, SAE J1171

Automatically handles the charging of two battery banks & isolates batteries during starting to protect sensitive electronics.

# Switches & Actuators

## SOLENOID & POWER TRANSFER SWITCHES

### L-SERIES SOLENOID SWITCH with COIL ECONOMIZER 12/24V DC 250 AMPS

P/N: ESOL-9012

#### COIL CIRCUIT

Input Voltage	9 - 36V DC Maximum
Power Consumption	12 - 36V / 3.80A
- inrush max, 130ms	12V / 0.13A
- holding	24V / 0.07A

#### MAIN POWER CONTACTS

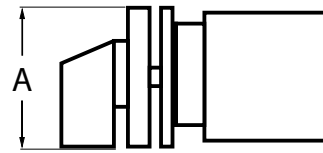
Inrush Rating: 0.25 sec (10 repeats)*	2,000A
Voltage Rating	60V DC
Stud Terminal Size	5/16" ( m8 )

\*Blue Sea Systems Engine Starting Standard

**Ordering Information:** Order by the piece.

**FEATURES:** \*Hermetically sealed contacts / vapor-proof \*Ignition protected - safe for installation aboard gasoline powered boats \*Integrated coil control minimizes heating & amperage draw \*450 Amp Class \*Activated by a low amperage ON-OFF switch mounted anywhere \*Designed for 12 or 24 volt systems

Used as a manual battery paralleling switch, this switch has integrated coil control & minimizes heating and amperage draw.



Power Transfer switch

### "SHIP SHORE" POWER TRANSFER SWITCHES

PART NUMBER	# OF POLES	GEN. PURPOSE (UL) RATED AMPS	THERMAL CURRENT AMPS	(A) DIMENSIONS (Inches <sup>2</sup> )
EPTS-2P-10A-S00	2	10	10	1.18
EPTS-3P-10A-S00	3	10	10	1.18
EPTS-2P-20A-S0	2	20	20	1.89
EPTS-2P-25A-S0	2	25	25	1.89
EPTS-3P-15A-S0	3	15	20	1.89
EPTS-3P-25A-S0	3	25	25	1.89
EPTS-2P-35A-S1	2	35	40	2.52
EPTS-3P-35A-S1	3	35	40	2.52
EPTS-4P-35A-S1	4	35	40	2.52
EPTS-2P-50A-S1	2	50	63	2.52
EPTS-3P-50A-S1	3	50	63	2.52
EPTS-4P-50A-S1	4	50	63	2.52
EPTS-2P-65A-S1	2	65	80	2.52
EPTS-3P-65A-S1	3	65	80	2.52
EPTS-4P-65A-S1	4	65	80	2.52
EPTS-3P-100A-S2	3	100	125	3.46
EPTS-4P-100A-S2	4	100	125	3.46
EPTS-3P-150A-S2	3	150	200	3.46
EPTS-4P-150A-S2	4	150	200	3.46

### MULTI-STEP "SHORE 1, SHORE 1 & 2, GEN"

EPTS-MS-65A		65	80	2.52
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Alternative escutcheon plates available upon request.

### COVER PLATE FOR MULTI-STEP

EPTS-F262	Shore 1, Shore 1 & 2, Gen
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**Ordering Information:** Order by the piece.

**COMPLIANCES:** \*CSA \*CUL \*CULUS \*GOST \*UL

"Ship Shore" Power transfer switches are double throw, multiple pole, and have "SHORE-OFF-GEN" 60 ° switching.

WIRE & CABLE

MULTI-CONDUCTOR

COAX CABLES

NETWORK CABLES

HEAT SHRINK

ROUTING & BUNDLING MATERIALS

CABLE TIES

TERMINALS

DEUTSCH & DELPHI

LUGS & BOOTS

ID PRODUCTS & LABELERS

TOOLS

BREAKERS & FUSES

TERMINAL BLOCKS & BUS BARS

SWITCHES & ACTUATORS

LIGHTS & METERS

# Switches & Actuators

## BATTERY CHARGERS

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



EBC-2613A	EBC-2720A
<ul style="list-style-type: none"> <li>Total Amps: 15 AMPS</li> <li>Fully Potted to Waterproof Electronics</li> <li>Maintenance Mode protects batteries during storage</li> <li>3-Stage Switching Electronic Circuit</li> <li>Short Circuit Protected</li> <li>Reverse Polarity Protected</li> <li>Number of Outputs: 3</li> <li>Amps per output: 5/5/5</li> <li>Battery System: 3-12V or 24V plus 12V</li> <li>Output Voltage: 12V DC per output</li> <li>DC Output: 2 4' and 1 6' DC output cables with terminal rings</li> <li>Input Voltage: 100-130V AC/60 Hz</li> <li>Input Connection: 6' AC Cord with Connect Charge Plug</li> <li>Dimensions: 7.0" x 9.6" x 2.6"</li> </ul>	<ul style="list-style-type: none"> <li>Total Amps: 20</li> <li>Number of Outputs: 2</li> <li>Amps per output: 10/10</li> <li>Battery System: 2-12V or 1-24V</li> <li>Output Voltage: 12V DC per output</li> <li>Input Voltage: 90-135V AC 50/60Hz</li> <li>Connections: NEMA 5-15 AC Plug and DC ring terminals</li> <li>Dimensions: 12.9" x 7.5"</li> </ul>

**Ordering Information:** Order by the piece.

**FEATURES:** \*Designed for harsh marine and industrial environments - moisture, salt, shock and vibration tested \*Short circuit and thermal protection  
 \*LED status indicator \*Reverse polarity protected \*Ignition Protection



EBC-7531	EBC-7522
<ul style="list-style-type: none"> <li>Maximum Output Current: 25 AMPS</li> <li>Maximum Output Voltage: 16V DC</li> <li>Nominal Voltage: 12V DC</li> <li>Number of Outputs: 1 Negative / 3 Positive</li> <li>Minimum Input Voltage: 90V AC</li> <li>Maximum Input Voltage: 265V AC</li> <li>Minimum Operating Temperature: -20°C</li> <li>Maximum Operating Temperature: 70°C</li> <li>Charger Efficiency: &gt;80%</li> <li>Dimensions: 13.03" H x 8.46" W x 3.66" D</li> </ul>	<ul style="list-style-type: none"> <li>Maximum Output Current: 40 AMPS</li> <li>Maximum Output Voltage: 16V DC</li> <li>Nominal Voltage: 12V DC</li> <li>Number of Outputs: 3</li> <li>Minimum Input Voltage: 90V AC</li> <li>Maximum Input Voltage: 265V AC</li> <li>Minimum Operating Temperature: -20°C</li> <li>Maximum Operating Temperature: 70°C</li> <li>Charger Efficiency: &gt;80%</li> <li>Dimensions: 13.03" H x 8.46" W x 3.66" D</li> </ul>

**Ordering Information:** Order by the piece.

**FEATURES:** \*Reliability \*Electrical Performance \*Advanced Multi Stage Charging \*Built In Safety Features \*Durable Aluminum Case  
**COMPLIANCES:** \*UL 1236 \*CSA \*CE \*ISO8846 \*SAE J1171 \*ABYC A-31

Rugged, finned aluminum case, universal line voltage 90-265V AC, 45/65 Hz. PreFloat stage prevents over charging by allowing each battery to end absorption stage individually. The three outputs provide charging for up to three battery banks. User selectable charge profiles for lead acid, gel, AGM or new TPPL (Thin Plate Pure Lead), supports Lithium and other battery types with user adjustable charge profiles. ACR Charge Coordination controls ACR state ensuring proper float stage for each battery. Ignition protected, over and under temperature protection for batteries, overheating protection, DC over voltage protection, DC reverse polarity protection, surge and short circuit protection.



# Lights & Meters

## INDICATOR LIGHTS & DC ANALOG AMPMETERS



**E3L Series**



**E5S Series**

PART NUMBER	VOLTAGE RATING	MOUNTING METHOD	MOUNTING HOLE SIZE (Inches)	REQUIRED PANEL DEPTH (Inches)	PANEL THICKNESS (Inches)
E3L-14*	14	Snap In w/Spring Clip	5/16	1.430	0.030 Min
E3L-28	28	Snap In w/Spring Clip	5/16	1.430	0.030 Min
E3L-125	125	Snap In w/Spring Clip	5/16	1.430	0.030 Min
E5S-14	14	Self Locking Ears	1/2	1.090	0.030 to 0.093
E5S-28	28	Self Locking Ears	1/2	1.090	0.030 to 0.093
E5S-125	125	Self Locking Ears	1/2	1.090	0.030 to 0.093

**Ordering Information:** Available lens colors: -R for Red lens, -G for Green lens, -A for Amber lens, -B for Blue lens \*E3L-14-B is unavailable  
Combine part number with color. Order by the piece. **Example:** E3L series, 14 volt, with a blue lens = E3L-14-B

**FEATURES:** \*3L Series are compact style. Base & Bezel colors are black. \*5S Series lights snap fit into 1/2" hole. Silver plated Bezel. \*Multiple voltage rating  
\*6" UL tinned copper lead wires \*Available in red, green, amber and blue \*Built-in resistor

**COMPLIANCES:** \*UL Listed

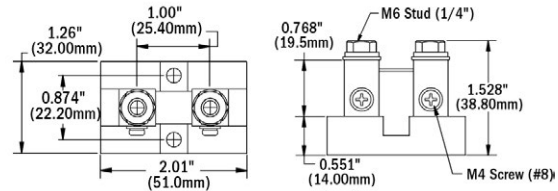
3L Series are compact style lights that snap-fit into a 5/16" hole and are secured with a spring clip. These lights have a built-in resistor, available with a 14, 28 and 125 volt incandescent bulb, flush type mount and translucent lexan lens. All lights come with a six inch 105°C tinned copper wire leads. Base and bezel colors are black. UL Listed. 5S Series lights snap fit into a 1/2" hole, and are secured into place with self-locking ears. These lights are available with 14, 28, and 125 volt incandescent bulbs. All 5S lights have a silver plated bezel.



**MICRO AMMETER  
(SHUNT INCL.)**



**DC SHUNTS**



**DC Resistive Shunts**

PART NUMBER	AMPS	DESCRIPTION
EMM-DCA-50BS	0 to 50 AMPS	Simple 2-wire connection from shunt (Included). Meter senses and powers from shunt connection. Face dimension: 2"
EM-DCA-50BS	0 to 50 AMPS	Simple 4-wire connection from shunt (Included). Meter senses and powers from shunt connection. Face dimension: 2.75"
EM-DCA-100BS	0 to 100 AMPS	Simple 4-wire connection from shunt (Included). Meter senses and powers from shunt connection. Face dimension: 2.75"
EM-DCA-150BS	0 to 150 AMPS	Simple 4-wire connection from shunt (Included). Meter senses and powers from shunt connection. Face dimension: 2.75"
EM-9228	50 AMPS/50 MV	For continuous operation, it is recommended that shunts not be run at more than two-thirds (66%) the rated current under normal conditions.
EM-9230	100 AMPS/50 MV	For continuous operation, it is recommended that shunts not be run at more than two-thirds (66%) the rated current under normal conditions.

**Ordering Information:** Order by the meter.

**FEATURES:** \*Micro and standard size meters with back lighting for low light conditions \*Meters include shunts

\*Surface or Panel mounted \*Easy to read characters

Blue Seas analog amp or volt meters can be panel or surface mounted. They feature a simple wire connection and sense power from the same connection.

- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
- TERMINALS
- DEUTSCH & DELPHI
- LUGS & BOOTS
- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



- WIRE & CABLE
- MULTI-CONDUCTOR
- COAX CABLES
- NETWORK CABLES
- HEAT SHRINK
- ROUTING & BUNDLING MATERIALS
- CABLE TIES
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- DEUTSCH & DELPHI
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- ID PRODUCTS & LABELERS
- TOOLS
- BREAKERS & FUSES
- TERMINAL BLOCKS & BUS BARS
- SWITCHES & ACTUATORS
- LIGHTS & METERS



**DC MICRO VOLTMETER**



**DC ANALOG VOLTMETER**

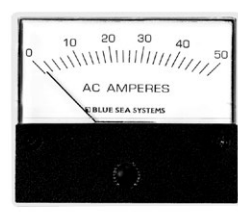


**AC VOLTMETER**

**ANALOG DC & AC VOLT METERS**

PART NUMBER	VOLTS	DESCRIPTION
EMM-DCV-8-16BS	8 to 16V	Meter Current: 1 mA at full scale. Face dimension: 2"
EM-DCV-8-16BS	8 to 16V	Meter Current: 1 mA at full scale. Face dimension: 2.75"
EM-ACV-150BS	0 to 150V	Dial marked in 5 volt increments. 2-wire connections to AC hot and neutral. Meter senses and powers from same connection. Face dimension: 2.75"

**Ordering Information:** Order by the meter.



**AC MICRO AMMETER**



**AC AMMETER**



**TRANSFORMER COIL**

**ANALOG AC AMP METERS**

PART NUMBER	DESCRIPTION
EMM-ACA-50BS	0 to 50 AMPS. Face dimension: 2"
EM-ACA-50BS	0 to 50 AMPS. Simple 4-wire connection. Face dimension: 2.75"
EM-ACA-100BS	0 to 100 AMPS. Simple 4-wire connection. Face dimension: 2.75"
EM-8073	Ratio: 50 AC/50 mA AC. For use with AC Ammeters
EM-8257	Ratio: 100 AC/50 mA AC. For use with AC Ammeters
EM-8256	Ratio: 150 AC/50 mA AC. For use with AC Ammeters

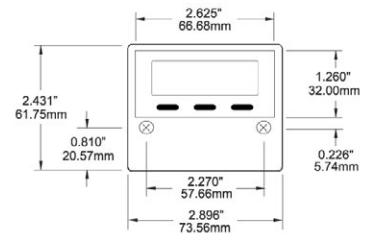
**Ordering Information:** Order by the meter.



**DC DIGITAL METERS**



**AC DIGITAL METERS**



**DIGITAL DC & AC METERS**

PART NUMBER	DESCRIPTION
EMD-DCMM	Multi-Function Meter with Alarm. Displays amperage from -500 to +500 Amps. Displays voltage from 0 to 60 Volts in 0.01 Volt increments. Includes 500 Amp shunt
EMD-DCV-0-60BS	DC Digital Voltmeter. Displays voltage from 0 to 60 Volts
EMD-ACMM	Multi-Function Meter with Alarm. Displays amperage from 0 to 150. Displays voltage from 80 to 270. Displays power from 0 to 35 Kilowatts. Displays freq. from 40 to 90 Hertz.
EMD-ACV-80-249BS	AC Digital Voltmeter. Displays voltage from 80 to 270

**Ordering Information:** Order by the meter.

**FEATURES:** \*Micro and standard size meters with backlighting for low light conditions \*Meters include shunts \*Surface or panel mounted  
 \*Easy to read characters \*They feature a simple wire connection \*Sense power from the same connection

# Lights & Meters

## JUNCTION BOXES & ENCLOSURES



ENCL332

ENCL606W

ENCL1008HWPL1

ENCL1210W

### JUNCTION BOXES with KNOCKOUTS

BOX PART NUMBER	OUTSIDE DIMENSION (Inches)			INSIDE DIMENSION (Inches)			COVER STYLE	MOUNTING PLATE PART NUMBER(Inches)
	HEIGHT	WIDTH	DEPTH	HEIGHT	WIDTH	DEPTH		
ENCL332	3.50	3.50	1.64	2.75	2.75	1.01	SOLID	N/A
ENCL533	5.03	3.06	3.02	4.69	2.72	2.72	SOLID	EMP533
ENCL533C	5.03	3.06	3.02	4.69	2.72	2.72	CLEAR	4.21 X 2.25
ENCL553	5.03	5.03	3.02	4.69	4.69	2.72	SOLID	EMP553
ENCL553C	5.03	5.03	3.02	4.69	4.69	2.72	CLEAR	4.21 X 4.21
ENCL753	7.00	5.03	2.97	6.65	4.69	2.72	SOLID	EMP753 6.18 x 4.22

**Ordering Information:** Order by the piece.

### ENCLOSURES

BOX PART NUMBER	OUTSIDE DIMENSION (Inches)			INSIDE DIMENSION (Inches)			COVER STYLE	MOUNTING PLATE PART NUMBER(Inches)
	HEIGHT	WIDTH	DEPTH	HEIGHT	WIDTH	DEPTH		
ENCL606W	7.32	7.32	4.90	6.00	6.00	4.60	SCREW	EMP606A
ENCL606HW	-	-	-	-	-	-	HINGE & SCREW	4.88 x 4.88
ENCL606HWPL1	-	-	-	-	-	-	HINGE & LATCH	
ENCL806W	9.32	7.32	4.90	8.00	6.00	4.60	SCREW	EMP806A
ENCL806HW	-	-	-	-	-	-	HINGE & SCREW	6.75 x 4.88
ENCL806HWPL1	-	-	-	-	-	-	HINGE & LATCH	
ENCL1008W	11.32	9.32	5.39	10.00	8.00	5.10	SCREW	EMP1008A
ENCL1008HW	-	-	-	-	-	-	HINGE & SCREW	8.75 x 6.88
ENCL1008HWPL1	-	-	-	-	-	-	HINGE & LATCH	
ENCL1210W	13.32	11.32	5.52	12.00	10.00	5.22	SCREW	EMP1210A
ENCL1210HW	-	-	-	-	-	-	HINGE & SCREW	10.75 x 8.88
ENCL1210HWPL2	-	-	-	-	-	-	HINGE & LATCH	
ENCL1412W	15.32	13.32	6.65	14.00	12.00	6.65	SCREW	EMP1412A
ENCL1412HW	-	-	-	-	-	-	HINGE & SCREW	12.75 x 10.88
ENCL1412HWPL2	-	-	-	-	-	-	HINGE & LATCH	
ENCL1614W	17.32	15.32	6.65	16.00	14.00	6.35	SCREW	EMP1614A
ENCL1614HW	-	-	-	-	-	-	HINGE & SCREW	14.75 x 12.88
ENCL1614HWPL2	-	-	-	-	-	-	HINGE & LATCH	
ENCL1816W	19.32	17.32	9.52	18.00	16.00	9.23	SCREW	EMP1816A
ENCL1816HW	-	-	-	-	-	-	HINGE & SCREW	16.75 x 14.88
ENCL1816HWPL2	-	-	-	-	-	-	HINGE & LATCH	

**Ordering Information:** Order by the piece.

**FEATURES:** \*Designed in accordance with the Joint Industrial Council (JIC)-USA \*All mounting hardware is made of 316 stainless steel

\*Continuous gaskets made of polyurethane foam guarantee optimal integrity \*Cover screw holes in corners are outside of gasket area

\*The enclosure can be readily worked with conventional tools \*Junction boxes are sold with solid or clear covers

\*Withstands continuous temperatures up to 150°C \*Enclosures have three configurations: Screw fastened, Hinged & screw fastened Hinged & padlock latch

\*Aluminum mounting plates sold separately \*Junction boxes made of thermoplastic high impact polyethylene oxide (not reinforced polyester)

\*All mounting plates are made of aluminium.

WIRE  
& CABLEMULTI-  
CONDUCTORCOAX  
CABLESNETWORK  
CABLESHEAT  
SHRINKROUTING &  
BUNDLING  
MATERIALSCABLE  
TIES

TERMINALS

DEUTSCH &  
DELPHILUGS  
& BOOTSID PRODUCTS  
& LABELERS

TOOLS

BREAKERS  
& FUSESTERMINAL  
BLOCKS &  
BUS BARSSWITCHES &  
ACTUATORSLIGHTS &  
METERS

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# AMERICAN BOAT and YACHT COUNCIL STANDARDS

COLOR	PACER COLOR CODE	PACER STRIPE CODE	ITEM	USE
Black	BK	0	Ground	Negative / Neutral Main Return
Brown	BR	-1	Alternator Charge Light Generator Armature Pumps	Generator Terminal or Alternator Auxilliary Terminal to Regulator Generator Armature to Regulator Circuit Breaker or Switch to Pumps
Red	RD	-2	Instrument Feed Power Feeds	Distribution Panel to Electrical Instruments Positive Main Power (particulary un-fused)
Orange	OR	-3	Accessory Feed Common Feed Feed	Ammeter to Alternator or Generator Distribution Panel to Accessory Switch Accessory Circuit Breakers or Switches
Yellow	YL	-4	Generator Field Ground	Generator to Regulator Field Terminal Negative / Neutral Main Return
Green	GN	-5	Bonding System	Grounding Wires (if insulated)
Lt. Green	LG	-15		
Blue	BL	-6	Cabin & Instrument Lights	Fuse or Switch to Lights
Lt. Blue	LB	-16	Oil Pressure	Oil Pressure to Sender to Gauge
Violet	VI	-7	Ignition Instrument Feed	Ignition Switch to Coil & Electrical Instrument Distribution Panel Electrical Instruments
Grey	GY	-8	Navigation Lights Tachometer	Circuit Breaker or Switch to Lights Tachometer Sender to Gauge
White	WH	-9		
Tan	TN	-11	Water Temperature	Water Temperature Sender to Gauge
Pink	PK	-12	Fuel Gauge	Fuel Gauge Sender to Gauge

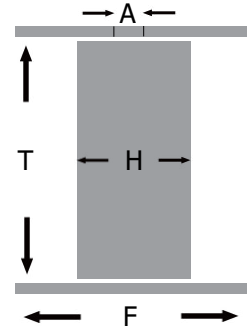
## TYPICAL USES FOR SWITCHES ON BOATS

<b>ON-OFF</b>	Accessories, Auto-Pilot, Bilge Pumps, Pre-Heat, Converter, Deck Wash Pump, Depth Finder, Loran, Radios, Recorder, Stereo, Water Pressure
<b>(ON)-OFF</b>	Horn, Head Flush, Macerator, Alarm Silence
<b>ON-ON</b>	Meter Read, Battery 1, Battery 2, Bilge Pumps, Auto Man, Fuel Tank, Gauge Select, Port/Starboard
<b>ON-OFF-ON</b>	Bilge Pump, Auto/Off/Man, Aerator, Timed/Off/Man, Spotlight, Spot/Off/Flood, Navigation Lights, Run/Off/Anchor, Motor Control, Fwd/Off/Rev
<b>(ON)-OFF(ON)</b>	Meter Read, Port/Off/Stbd, Trim Tabs, Forward/Reverse, Windlass, Raise/Off/Lower, Hatch, Open/Off/Close, Motor Reverse
<b>ON-OFF-(ON)</b>	Bilge Pump, Auto/Off/Man, Wiper Washer, Lights

\*The parenthesis mean that the action is momentary.

# REEL MEASUREMENT TABLE

REEL	FLANGE F (Inches)	HUB H (Inches)	TRAVERSE T (Inches)	ARBOR A (Inches)	MATERIAL
#2	4.5	1.875	2.5	0.75	Plastic
#2W	6.5	1.875	2	0.75	Plastic
#3	6.5	1.875	3	0.75	Plastic
#4	6.5	1.875	4	0.75	Plastic
#5	6.5	1.875	5	0.75	Plastic
#6	6.5	1.875	6	0.75	Plastic
#7	6.5	1.875	7	0.75	Plastic
#9	9.5	3.25	6	0.75	Paper 9
#10	10.5	3.25	8	1.25	Paper 10
#14	13.5	6	11	1.25	Wood
#16	15.5	6	11	1.25	Wood
#18	17.5	6	11	1.25	Wood
#24	23.5	6	11	1.25	Wood
#30	30.0	12	12	1.25	Wood



## TERMINALS & CONNECTORS FOR MARINE APPLICATIONS

PERFORMANCE REQUIREMENTS FOR #22 - #10 AWG TERMINALS ON COPPER WIRE:

MIL-T-7928G

AWG	22	20	18	16	14	12	10
A	9	11	16	22	32	45	55
B	7		7	8	5	5.5	4
C	15	19	38	50	70	110	150

A = Test Current (AMPS)  
 B = Voltage Drop (MV) Max Allowable  
 C = Min. Tensile Strength (lb) Pull-out force of the crimped terminal

UL 486A

AWG	22	20	18	16	14	12	10
C	8	13	20	30	50	70	80
D	9	12	17	16	30	35	50

C = Min. Tensile Strength (lb) Pull-out force of the crimped terminal  
 D = Test Current for Max 50 °C Rise (AMPS)

TYPE	APPROVED CONNECTORS	DISAPPROVED CONNECTORS
Splice	<p>Butt Splice</p>	<p>3 or 4 Ways</p> <p>Twist Wire Nut</p>
Friction	<p>Disconnect Tab</p> <p>Bullet/Snap Plug</p>	
Set Screw	<p>Indirect-bearing</p>	<p>Direct-bearing</p>
Terminals	<p>Ring</p> <p>Locking Fork</p> <p>Flanged Fork</p>	<p>Straight Fork</p>



**TABLE 2:**  
**(A) ALLOWABLE AMPERAGE OF CURRENT CARRYING CONDUCTORS UNDER 50 VOLTS FOR 105°C CABLES - ABYC E-11.16**

CONDUCTOR SIZE	A SINGLE CONDUCTOR		B 2 BUNDLED CONDUCTORS		B 3 BUNDLED CONDUCTORS		B 4-6 BUNDLED CONDUCTORS		B 7-24 BUNDLED CONDUCTORS	
	ENGLISH (METRIC)	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces	Inside Engine Spaces	Outside Engine Spaces
18 (0.8)	20	17.0	20	17.0	14.0	11.9	12.0	10.2	10.0	8.5
16 (1.0)	25	21.3	25	21.3	17.5	14.9	15.0	12.8	12.5	10.6
14 (2.0)	35	29.8	35	29.8	24.5	20.8	21.0	17.9	17.5	14.9
12 (3.0)	45	38.8	45	38.3	31.5	26.8	27.0	23.0	22.5	19.1
10 (5.0)	60	51	60	51.0	42.0	35.7	36.0	30.6	30.0	25.5
8 (8.0)	80	68	80	68.0	56.0	47.6	48.0	40.8	40.0	34.0
6 (13)	120	102	120	102	84.0	71.4	72.0	61.2	60.0	51.0
4 (19)	160	136	160	136	112.0	95.2	96.0	81.6	80.0	68.0
2 (32)	210	178	210	178	147.0	125.0	126.0	107.1	105.0	89.3
1 (40)	245	208	245	208	171.5	145.8	147.0	125.0	122.5	104.1
0 (50)	285	242	285	242	199.5	169.6	171.0	145.4	142.5	121.1
00 (62)	330	280	330	280	231.0	196.4	198.0	168.3	165.0	140.3
000 (81)	385	327	385	327	269.5	229.1	231.0	196.4	192.5	163.6
0000 (103)	445	378	445	378	311.5	264.8	267.0	227.0	222.5	189.1

**(B): ALLOWABLE AMPERAGE OF CONDUCTORS WHEN MULTIPLE CONDUCTORS ARE BUNDLED TOGETHER FOR 105°C CABLES - ABYC E-11.16**

## WIRE GAUGE & VOLTAGE DROP TABLES

**WIRE GAUGE BASED ON MIN CIRCULAR MIL (CM) AREA, 12 VOLT, 3% DROP**

LENGTH*	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	14	12	10	10	10	8	6	6	6	6	4	4
15	16	12	10	10	8	8	6	6	4	4	4	2	2
20	14	10	10	8	6	6	6	4	4	2	2	2	2
25	12	10	8	6	6	6	4	4	2	2	2	1	1
30	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
40	10	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
50	10	6	6	4	4	2	2	1	1/0	2/0	3/0	3/0	3/0
60	10	6	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
70	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	-
80	8	6	4	2	2	1	1/0	2/0	3/0	4/0	4/0	-	-
90	8	4	2	2	1	1/0	2/0	3/0	4/0	4/0	-	-	-
100	6	4	2	2	1	1/0	2/0	3/0	4/0	-	-	-	-
110	6	4	2	1	1/0	1/0	2/0	3/0	4/0	-	-	-	-
120	6	4	2	1	1/0	2/0	3/0	4/0	-	-	-	-	-
130	6	2	2	1	1/0	2/0	3/0	4/0	-	-	-	-	-
140	6	2	1	1/0	2/0	3/0	4/0	-	-	-	-	-	-
150	6	2	1	1/0	2/0	3/0	4/0	-	-	-	-	-	-
160	6	2	1	1/0	2/0	3/0	4/0	-	-	-	-	-	-
170	6	2	1	2/0	3/0	3/0	4/0	-	-	-	-	-	-

**WIRE GAUGE BASED ON MIN CIRCULAR MIL (CM) AREA, 24 VOLT, 3% DROP**

LENGTH*	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	16	14	12	12	10	10	10	8	8	8	6
15	18	16	14	12	12	10	10	8	8	6	6	6	6
20	18	14	12	10	10	10	8	6	6	6	6	4	4
25	16	12	12	10	10	8	6	6	6	4	4	4	4
30	16	12	10	10	8	8	6	6	4	4	4	2	2
40	14	10	10	8	6	6	6	4	4	2	2	2	2
50	12	10	8	6	6	6	4	4	2	2	2	1	1
60	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
70	12	8	6	6	4	4	2	2	1	1	1/0	1/0	2/0
80	10	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
90	10	8	6	4	4	4	2	1	1/0	1/0	2/0	2/0	3/0
100	10	6	6	4	4	2	2	1	1/0	1/0	2/0	3/0	3/0
110	10	6	6	4	2	2	1	1/0	1/0	2/0	3/0	3/0	4/0
120	10	6	4	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
130	8	6	4	2	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0
140	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	-
150	8	6	4	2	2	1	1/0	2/0	3/0	3/0	4/0	4/0	-
160	8	6	4	2	2	1	1/0	2/0	3/0	4/0	4/0	4/0	-
170	8	6	2	2	1	1	2/0	3/0	3/0	4/0	4/0	4/0	-

**WIRE GAUGE BASED ON MIN CIRCULAR MIL (CM) AREA, 12 VOLT, 10% DROP**

LENGTH*	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	18	16	16	14	14	12	12	10	10	10	10
15	18	18	16	14	14	12	12	10	10	8	8	8	8
20	18	16	14	14	12	12	10	10	8	8	8	6	6
25	18	16	14	12	12	10	10	8	8	6	6	6	6
30	18	14	12	12	10	10	8	8	6	6	6	6	4
40	16	14	12	10	10	8	8	6	6	6	4	4	4
50	16	12	10	10	8	8	6	6	4	4	4	2	2
60	14	12	10	8	8	6	6	4	4	2	2	2	2
70	14	10	8	8	6	6	6	4	2	2	2	2	1
80	14	10	8	8	6	6	4	4	2	2	2	1	1
90	12	10	8	6	6	6	4	2	2	2	1	1	1/0
100	12	10	8	6	6	4	4	2	2	1	1	1/0	1/0
110	12	8	6	6	4	4	2	2	1	1	1/0	1/0	1/0
120	12	8	6	6	4	4	2	2	1	1	1/0	1/0	2/0
130	12	8	6	6	4	4	2	2	1	1/0	1/0	2/0	2/0
140	10	8	6	6	4	2	2	1	1	1/0	2/0	2/0	2/0
150	10	8	6	4	4	2	2	1	1/0	1/0	2/0	2/0	3/0
160	10	8	6	4	4	2	2	1	1/0	2/0	2/0	3/0	3/0
170	10	6	6	4	2	2	2	1	1/0	2/0	2/0	3/0	3/0

**WIRE GAUGE BASED ON MIN CIRCULAR MIL (CM) AREA, 24 VOLT, 10% DROP**

LENGTH*	TOTAL CURRENT ON CIRCUIT IN AMPS												
	5	10	15	20	25	30	40	50	60	70	80	90	100
10	18	18	18	18	18	18	16	16	14	14	14	12	12
15	18	18	18	18	16	16	14	14	12	12	12	10	10
20	18	18	18	16	16	14	14	12	12	10	10	10	10
25	18	18	16	16	14	14	12	12	10	10	10	8	8
30	18	18	16	14	14	12	12	10	10	10	8	8	8
40	18	16	14	14	12	12	10	10	8	8	8	6	6
50	18	16	14	12	12	10	10	8	8	6	6	6	6
60	18	14	12	12	10	10	8	8	6	6	6	6	4
70	16	14	12	10	10	8	8	6	6	6	6	4	4
80	16	14	12	10	10	8	8	6	6	6	4	4	4
90	16	12	10	10	8	8	6	6	6	4	4	4	2
100	16	12	10	10	8	8	6	6	4	4	4	2	2
110	14	12	10	8	8	8	6	6	4	4	2	2	2
120	14	12	10	8	8	6	6	4	4	2	2	2	2
130	14	12	10	8	8	6	6	4	4	2	2	2	2
140	14	10	8	8	6	6	6	4	2	2	2	2	1
150	14	10	8	8	6	6	4	4	2	2	2	2	1
160	14	10	8	8	6	6	4	4	2	2	2	1	1
170	12	10	8	6	6	6	4	2	2	2	2	1	1

\*Round trip length in feet.

## CIRCUIT BREAKERS INTERRUPTING CAPACITY (AMPS) ABYC TABLE V.B E-11.16

SHORE POWER	AMPS	MAIN BREAKER SHORE POWER DISCONNECT BREAKER	BRANCH BREAKER
120V 30 AMPS	30 AMPS	3,000	3,000
120V 50 AMPS	50 AMPS	3,000	3,000

NOTE 1: The main circuit breaker is considered to be the first circuit breaker connected to a source of AC power. All subsequent breakers, including sub-main breakers, connected in series with a main circuit breaker shall be considered to be branch circuit breakers.

NOTE 2: A fuse in series with and ahead of, a circuit breaker may be required by the circuit breaker manufacturer to achieve the interrupting capacity in the above table.

## CIRCUIT BREAKER INTERRUPTING CAPACITY (AMPS) ABYC TABLE V.A E-11.16

	TOTAL CONNECTED BATTERY COLD CRANKING AMPS	MAIN BREAKER (AMPERES)	BRANCH BREAKER (AMPERES)
12V to 24V	650 or LESS	1500	750
12V to 24V	651 - 1100	3000	1500
12V to 24V	OVER 1100	5000	2500

NOTE: The main circuit breaker(s) is considered to be the first breaker(s) in a circuit connected in series with the battery. All subsequent breakers, including sub-main breakers, connected in series with a main circuit breaker shall be considered to be branch circuit breakers.

## CALCULATING VOLTAGE DROP

All wire has a finite resistance to current flow. This resistance causes voltage to develop across the length of a current carrying conductor. The result is that the intended load is robbed of the full potential of its source battery. The included tables below are calculated for the two allowable voltage drops specified

by ABYC (cf. E-11.16). Conductors shall be sized for a voltage drop not to exceed:

3%: For conductors feeding panelboard to switchboards, bilge blowers, navigation lights, electronic equipment and any other circuit where voltage drop must be kept to a minimum.

10%: For conductors used for general lighting (other than navigational lights) and other non-critical circuits.

To calculate the size of the wire required for a given voltage drop the following formula is used:

$$CM = \frac{K \times I \times L}{E}$$

- CM = The required circular mil area of the wire. (See Table 1)
- K = Equals 10.75 (represents the mil-foot resistance of copper)
- I = The load current in amperes. (Note: for maximum current carrying capabilities of a conductor refer to Table 2)
- L = The round trip length of the wire measured in feet from the positive terminal of the source, to the load, and back to the negative terminal source.
- E = The voltage drop on the conductor in volts. For example: a 3% drop from a 12 volt source results in:  $E = (12 \times 0.03) = 0.36$

**TABLE 1: CONDUCTOR CIRCULAR MIL (CM) AREA**

AWG	Square mm	ISO MH <sup>c</sup>	ABYC UL CM Area E-11.16 Tbl XII	SAE Wire CM Area J1127, J1128
18	0.8	0.75	1,620	1,537
16	1.0	1.50	2,583	2,336
14	2.0	2.50	4,110	3,702
12	3.0	4.00	6,530	5,833
10	5.0	6.00	10,380	9,343
8	8.0	10.0	16,510	14,810
6	13.0	16.0	26,240	24,538
4	19.0	-	41,740	37,360
2	32.0	35.0	66,360	62,450
1	40.0	-	83,690	77,790
1/0	50.0	50.0	105,600	98,980
2/0	62.0	70.0	133,100	125,100
3/0	81.0	95.0	167,800	158,100
4/0	103.0	-	211,600	205,500

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