

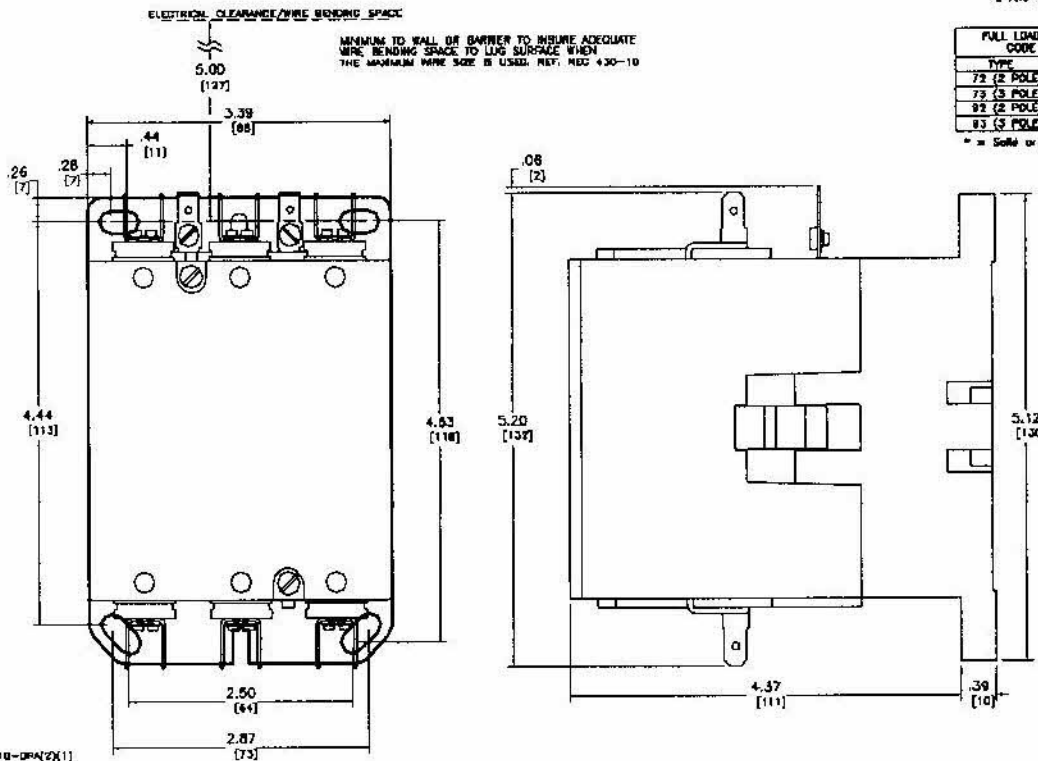
2 AND 3-POLE DEFINITE PURPOSE CONTACTOR
600 VAC, 50-60 HZ

FULL LOAD AMPERES CODE (2)		POWER TERMINALS	
TYPE	FLA	TYPE OF LUG	WIRE SIZES(*) MIN-MAX
72 (2 POLE)	75 FLA	BOX LUG	#14-#10
73 (3 POLE)	75 FLA	BOX LUG	#14-#10
82 (2 POLE)	90 FLA	BOX LUG	#14-#10
83 (3 POLE)	90 FLA	BOX LUG	#14-#10

* = Solid or stranded copper wires only.

COIL VOLTAGE CODE (1)	VOLTAGE	
	50 HZ	60 HZ
V12	24	24
V22	120	110
V24	208-240	220
V26	277	277
V28	480	440
V27	900	550

QUICK CONNECT TERMINALS AND BRIDGE HEAD SCREWS FOR EASY WIRING.



DUAL DIMENSIONS: INCHES
MILLIMETERS

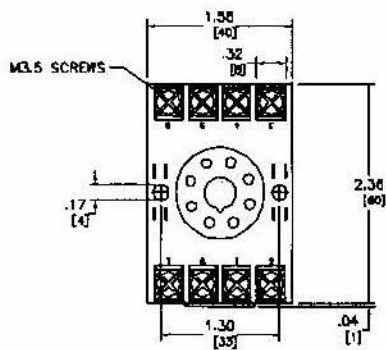
Catalog Number: B910-DPA(2)(1)
 Ratings: SEE CHART
 UL File/CDN: E42240/CDN NLDX2
 CSA File/Class: LR25490/321104
 Meets Standards: -
 Weight: 3.4 LB
 Wire Size: SEE CHART
 Terminal Torque: 60 LB-IN
 Mounting Hnd.: (4) #10 or #8 screws

DEFINITE PURPOSE CONTACTOR (2 AND 3 POLE)
 CLASS B910 TYPE DPA (2) (1)

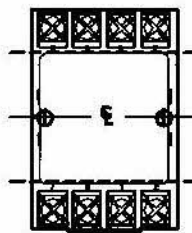


DRWG NO. E0310501-01

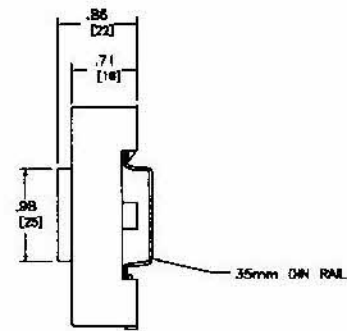
JUNE 2003



FRONT VIEW
 SHOWN WITHOUT RELAY INSTALLED



FRONT VIEW
 SHOWN WITH RELAY INSTALLED



RIGHT VIEW

DUAL DIMENSIONS: INCHES
MILLIMETERS

Catalog Number: B501-NRS1
 Ratings: 300V, 10A
 UL File/CDN: E66924/5wire
 CSA File/Class: LR30144/3211 07
 Meets Standards: -
 Weight: 0.1 lb
 Wire Size: #12-#22 AWG
 Terminal Torque: 7-8 LB-IN
 Mounting Hnd.: (2) #6-32 SCREWS, 35mm DIN RAIL

GENERAL PURPOSE RELAY SOCKET (8 PIN)
 CLASS B501 TYPE NRS1



DRWG NO. E0700301-01

JUNE 2003

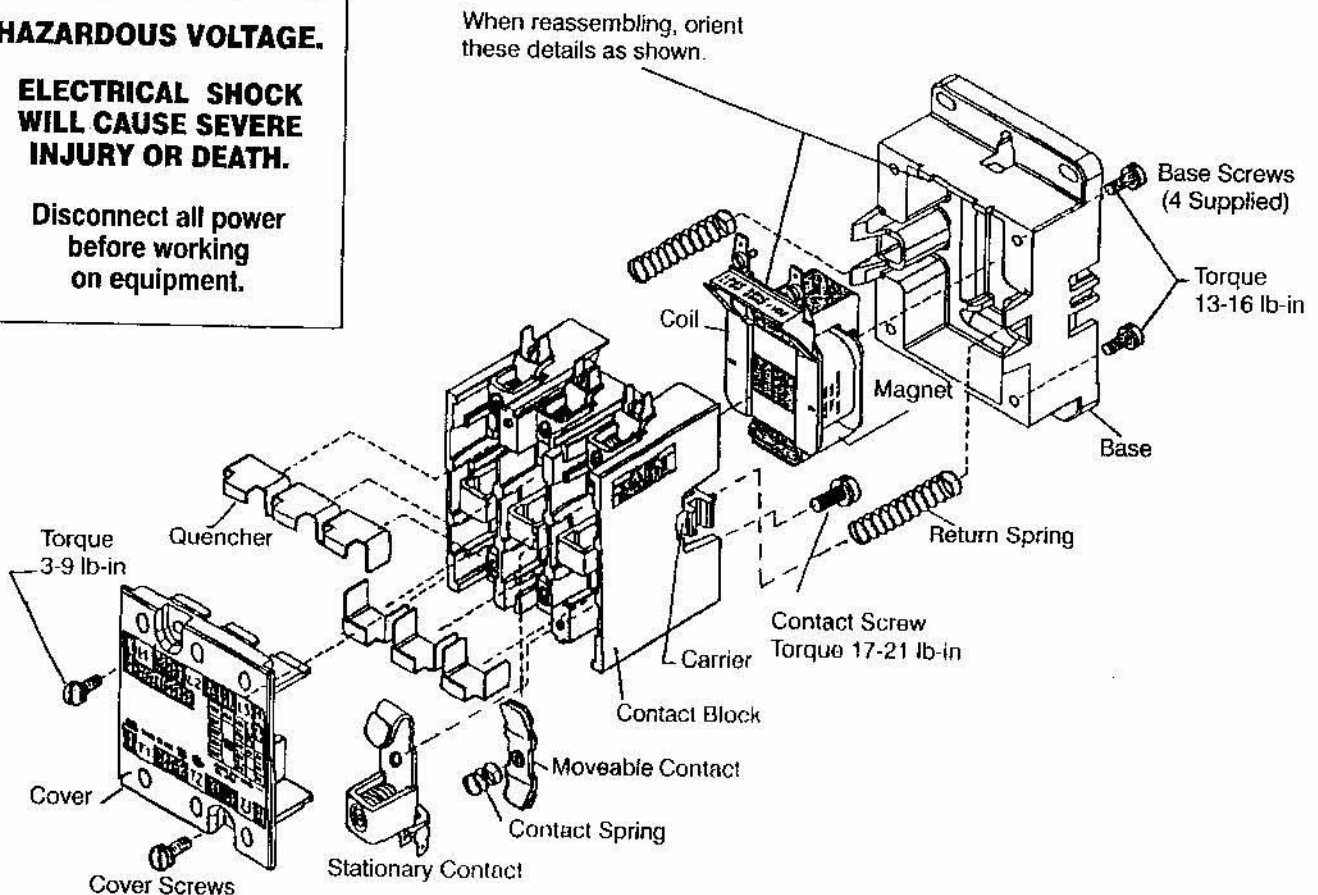


SQUARE D Instruction Bulletin

Bulletin No. 30072-005-95
April, 1991
Raleigh, NC U.S.A.

Type DPA 75 & 90 Ampere Definite Purpose Contactors Class 8910

⚠ DANGER
HAZARDOUS VOLTAGE.
**ELECTRICAL SHOCK
WILL CAUSE SEVERE
INJURY OR DEATH.**
Disconnect all power
before working
on equipment.



⚠ CAUTION
**EQUIPMENT DAMAGE.
MAY RESULT IF CONTACTOR
IS IMPROPERLY MOUNTED OR REASSEMBLED.**
Mount only on vertical surface.
If disassembled, refer to diagram for proper:
Parts installation
Base-to-Coil orientation
Screw torques

Table 1 Contact Replacement Kits

75 Amp	CLASS 9998	TYPE DRC7
90 Amp	CLASS 9998	TYPE DRC9

Each kit contains two (2) stationary contacts, one (1) moveable contact, one (1) contact spring, and two (2) contact screws.



GROUPE SCHNEIDER

MANUFACTURER'S DECLARATION OF CONFORMITY

The undersigned, representing the following manufacturer

manufacturer:	SQUARE D COMPANY
address:	128 Bingham Road Asheville, NC 28802 USA

herewith declares that the product

product identification:	Class 8910 Type DPA Definite Purpose Contactors Class 8911 Type DPS Magnetic Motor Starters Class 8965 Type DPR Reversing Contactors Class 9999 Type D Auxiliary Contact Modules
-------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

to which this declaration refers are in conformity with the following

Standards or Normative Documents:	- General rules: EN60947.1 - Electromechanical contactors and motor starters: EN60947.4.1 - Electromechanical control circuit devices: EN60947.5.1 - Underwriters Laboratories Inc.: UL508 - Canadian Standards Association: C22.2 SPEC 14
-----------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

subject to installation, maintenance and utilization in accordance with their purpose, regulations, current standards, manufacturer's instructions and industry standards, is in conformity with the provisions of the following EC directive(s) (including all applicable amendments):

reference n°	title
73/23/CCE	Low-voltage Directive of February 19, 1973 modified by Directive 93/68/EC of July 22, 1993.
89/336/CEE	Electromagnetic Compatibility Directive of May 3, 1989 modified by Directives 92/31/CEE of April 28, 1992 and 93/68/CEE of July 22, 1993.

The CE marking on the product and/or the packaging signifies that Square D holds the reference technical file available to the European Authorities.

Raleigh, NC

date: March 9, 1998

Authorization Signature

Name: John Gawron
Position: Director, Motor Control

Signature:

ALL DISTRIBUTION OR REPRODUCTION WITHOUT WRITTEN AUTHORIZATION IS FORBIDDEN

■ Federal Pacific ■ Federal Pioneer ■ Merlin Gerin ■ Modicon ■ Square D ■ Telemecanique
Groupe Schneider-North America, 1415 South Roselle Road, Palatine, IL 60067-7399 847-397-2600 Fax 847-925-7500



MANUFACTURER'S DECLARATION OF CONFORMITY

The undersigned, representing the following manufacturer

Document No: R-DOC-8501R-R1

Company:	SQUARE D COMPANY
address:	8001 Highway 64 East Knightdale, NC 27545-9023 USA

Herewith declares that the product

Product identification:	<i>Class 8501 Type RS General Purpose Relays Class 8501 Type KL Latching Relays Class 8501 Type C Power Relays Class 8501 Type N Sockets</i>
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To which this declaration refers are in conformity with the following:

Standards and/or Normative Documents:	<i>General Rules: EN60947-4-1 Electromechanical control circuit devices: EN60947-5-1</i>
---------------------------------------------	----------------------------------------------------------------------------------------------

Subject to installation, maintenance and utilization in accordance with their purpose, regulations, current standards, manufacturer's instructions and industry standards. Meet(s) the provisions of the following EC Directive(s): (Including all applicable amendments)

reference n°	title
<i>73/23/CCE 89/336/CEE</i>	<i>Low-voltage Directive of February 19, 1973 modified by Directive 93/68/EC of July 22, 1993.</i>

The CE marking on the product and/or the packaging signifies that the product is in compliance with the applicable EU Directives.

Raleigh, NC

Date: May 2, 2002

Authorization Signature

Name: John Gawron
Position: Director, Industrial Control Activity

Signature:



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▼ Valves

▼ Distributors

Industries

Search

▼ About

Product Compliance

UL

UL Listed & Recognized Components

Series: 100 | 200

UL Recognized Components

Series: 23 | 24 | 32 | 33 | 34 | 35 | 36 | 38 | 42 | 44 | 45 | 46 | 48 | 100 | 200 | DP

Pilots: PM | PP | PE | PI | GM | TM | TP

Excel Document

g

CSA

CSA Approved Valves

Series: 23 | 24 | 33 | 34 | 35 | 36 | 43 | 45 | 46 | 52 | 55 | 56 | 57 | 58 | 82 | 92 | 9
100 | 200 | 400 | 600 | 700 | 800 | 900 | 6200 | 6300 | 6500

Series: MAC 125 | MAC 250 | MAC 500

Series: MACConnect 36 | 46|

Regulators: 82 | 6200 | 6300 | 6500 | 125 | ISO PRA1A PRA2A PRA3A

Series: MAC 125 | MAC 250 | MAC 500

Series: PPC036B

Series: ISO 1, 2, 3 (DIN 5599/1) ISO 1, 2, 3 (DIN 5599/2)

Excel Document

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C-US

CSA / C-US

Series: 23 | 24 | 35 | 36 | 43 | 45 | 56C | 57C , D | 58D | 100 | 600 | 700 | 800 | 900**Series:** 36 MACConnect | PPC036B**Excel Document**

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RoHS

The European Union has reacted to the problem of waste electrical and electronic equipment by enacting the following directive: Waste Electrical & Electronic Equipment – WEEE (2002/96/EC), Restriction of Hazardous Substances – RoHS (2002/95/EC)

EU Restriction of Hazardous Substances (RoHS)**Summary**

- The Restriction of Hazardous Substances (RoHS) regulations put into force by each member state implement provisions of the European Parliament and Council Directive the Restrictions of Hazardous Substances in electrical and electronic equipment (2002/95/EC).
- The RoHS regulations ban putting on the EU market new EEE containing more than the levels of lead, cadmium, mercury, hexavalent chromium and both polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.
- The regulations apply to EEE falling within eight product categories.
- Specific exemptions exist for certain types of EEE as well as certain applications of the restricted substances.
- The regulations come into effect from 1 July 2006.

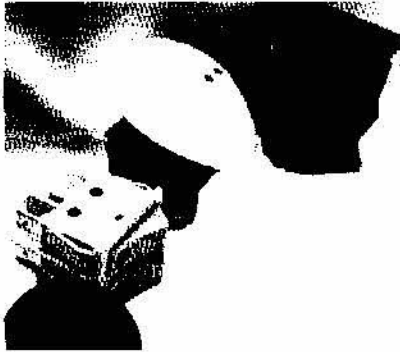
Corporate Statement

EEE falling within Categories 1,2,3,4,5,6,7, and 10 of the WEEE regulations, Annex IA, are covered under the scope of RoHS regulations. Categories include;

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
10. Automatic dispensers

MAC Valves, Inc. has reviewed the typical customer applications for our product against the covered categories and has taken the opinion that the vast majority of these applications do

R SERIES
DOUBLE POLE ROCKER SWITCHES UP TO 20A 125VAC
 illuminated or non-lighted, splash-proof cover



Snap-in Panel Cutout
 X=Panel Thickness

X	Dim.Y	Dim.Z
0.75 to 1.25 mm	30.0 + 0.1 / - 0	22.0 + 0.1 / - 0
1.25 to 2 mm	30.2 + 0.1 / - 0	22.0 + 0.1 / - 0
2 to 3 mm	30.5 + 0.1 / - 0	22.0 + 0.1 / - 0

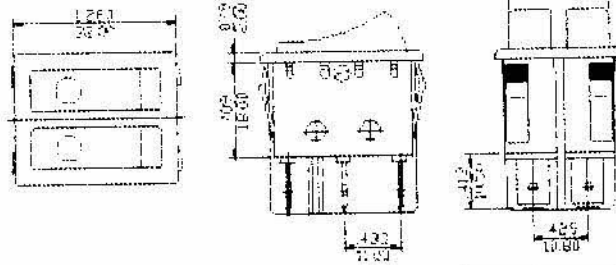


- 16A 125/250VAC 1/4HP (UL,CSA NRTL/C)
- 16A 125/250VAC,65 °C (UL/CUL)-on-off-on
- 20A 125VAC, 3/4HP 250VAC (UL)
- 20A 125VAC /16A 250VAC, 3/4HP 125/250VAC T105 (UL/CUL)
- 16(4) 250V~T125 1E4, 10(2)A 250V~5E4 (VDE, ENEC)
- 16(8)A 250V~T125 (VDE,ENEC)
- 16(4)A 250V~T125 1E4 (CQC)
- 10(2)A 250V~T125 5E4 (CQC)
- Initial contact resistance : 20m ohm max.
- Insulation resistance : 100M ohm min, at 500VDC
- Dielectric strength : 1,000 VAC for 1 minute
- Electrical life : 16(4) A 250VAC : 10,000 cycles
- 10(2) A 250VAC : 50,000 cyclesdegrees in Celsius
- Temperature range : -20 to + 125 degrees in Celsius
- Switch for Class II appliances
- Base : Nylon 66, UL rated : 94V-2 min
- Actuator : Nylon 66 /PC, UL rated 94V-2 min
- Spring : Piano wire
- Contacts : Silver copper alloy
- Terminals : Silver copper alloy
- Lamp : Neon for AC; Tungsten bulb for DC

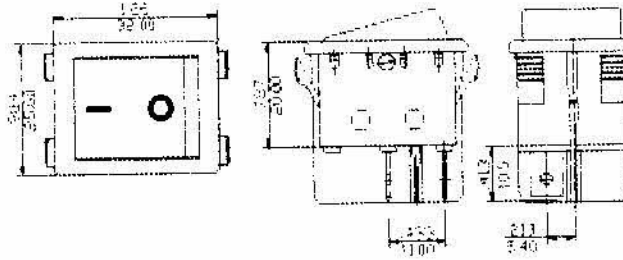
How to order



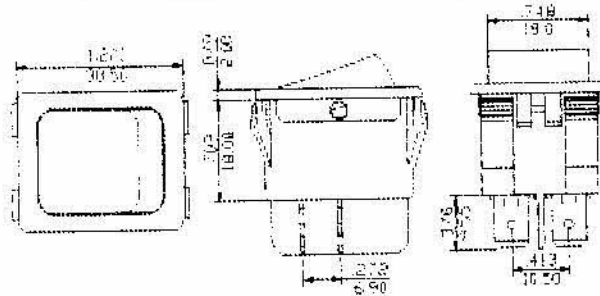
R210-2-CRC-BBN, LED light effect, twin rocker



R110-1FCN-BBN-NN, "I O" mark in-molded



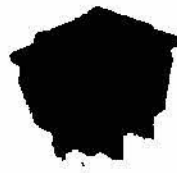
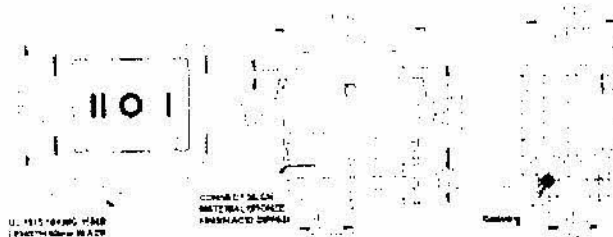
R110-1F2N-BB5-NN, 22x28mm mounting



R210-112L-BB1-NN, LED-effect Len lighted



R237-1C6N-BB4-NN



UL Listed Extension Grade Thermocouple Wire

EXPP Series
Starts at
\$255
300 m (1000') Spool

FOR LARGER LENGTHS
CONSULT SALES FOR
PRICE AND DELIVERY!



- ✓ UL Listed Type PLTC, 300 V; Listed Under UL Subject 13, File E153789
- ✓ Extruded PVC Single Conductor and Duplex Insulation
- ✓ ANSI Color Coded
- ✓ Resistant to Moisture, Abrasion, Chemicals, and UV Light



Shown smaller than actual size.

OMEGA® duplex extension grade thermocouple wire performs continuously at temperatures to 105°C (220°F). The wire's flexibility permits installation in conduit and wiring trays, and it is easily stripped by hand or using mechanical methods. Insulation is PVC. The wire is UL listed for Power Limited Tray Cable (PLTC) applications.

Note: Overbraiding wire invalidates UL rating.

Spool Pricing Guidelines	
Multiply 300 m or 1000' spool price by multiplier and round to the nearest dollar. Consult Sales for price quote.	
7.5 m or 25'	= Price from Chart x 0.0625
15 m or 50'	= Price from Chart x 0.1
30 m or 100'	= Price from Chart x 0.175
60 m or 200'	= Price from Chart x 0.3
150 m or 500'	= Price from Chart x 0.5
300 m or 1000'	= Price from Chart x 1.0

ANSI color code shown To order IEC color code see page A-9

Examples:
50' spool of thermocouple extension grade wire, type K, 16 gage, UL listed EXPP-K-16-UL-50, (Price = \$540 for 1000'):
50' Spool = \$540 x 0.1 = \$54.00

Extension Grade
CHROMEKA®/
ALOMEGA®
Duplex
ANSI Type KX



ANSI Color Code: Positive Wire, Yellow; Negative Wire, Red; Overall, Yellow

MOST POPULAR MODEL HIGHLIGHTED!

Model Number	AWG Gage	Nominal Conductor Size		Nominal Insulation Thickness				Nominal Overall Size		Approximate Shipping Weight		Price/1000'
		Inches	mm	Conductor	Overall	Inches	mm	Inches	mm	lb/1000'	kg/300 m	
EXPP-K-14-UL	14	0.064	1.62	0.020	0.51	0.035	0.89	0.184 x 0.288	4.7 x 7.3	40	18	\$1495
EXPP-K-16S-UL	16S	0.060	1.52	0.015	0.38	0.035	0.89	0.171 x 0.261	4.3 x 6.6	39	17.7	1310
EXPP-K-16-UL	16	0.051	1.29	0.015	0.38	0.035	0.89	0.160 x 0.250	4.1 x 6.4	37	16.8	865
EXPP-K-18S-UL	18S	0.048	1.22	0.015	0.38	0.035	0.89	0.158 x 0.236	4.0 x 6.0	31	14	1270
EXPP-K-20S-UL	20S	0.038	0.965	0.015	0.38	0.035	0.89	0.148 x 0.226	3.8 x 5.7	24	10.9	625
EXPP-K-20-UL	20	0.032	0.813	0.015	0.38	0.035	0.89	0.137 x 0.204	3.5 x 5.2	22	10	485

Ordering Example: EXPP-K-20-UL-1000, 1000' (300 m) UL listed extension grade thermocouple wire, 20 gage, type KX = \$485.

Extension Grade
CHROME[®]/Constantan
Duplex
ANSI Type EX



All products shown actual size.

MOST POPULAR
MODELS HIGHLIGHTED!

ANSI Color Code: Positive Wire, Purple; Negative Wire, Red; Overall, Purple

Model Number	AWG Gage	Nominal Conductor Size		Nominal Insulation Thickness				Nominal Overall Size		Approximate Shipping Weight		Price 1000'
		Inches	mm	Conductor		Overall		Inches	mm	lb/1000'	kg/300 m	
EXPP-E-16-UL	16	0.051	1.3	0.015	0.38	0.035	0.89	0.160 x 0.250	4.1 x 6.4	37	16.8	\$1215
EXPP-E-18S-UL	18S	0.048	1.2	0.015	0.38	0.035	0.89	0.158 x 0.236	4.0 x 6.0	31	14	1000
EXPP-E-20-UL	20	0.032	0.81	0.015	0.38	0.035	0.89	0.137 x 0.204	3.5 x 5.2	22	10	370

Ordering Example: EXPP-E-16-UL-50, 50' of extension grade thermocouple wire, 16 gage, type EX, UL listed (\$1215 per 1000').
\$1215 X 0.1 = \$121

Extension Grade
Copper/Alloy#11
Duplex
ANSI Type RX/SX

Compensating Extension Wires for Platinum (-)/Platinum-Rhodium (+) Thermocouples

ANSI Color Code: Positive Wire, Black; Negative Wire, Red; Overall, Green

Model Number	AWG Gage	Nominal Conductor Size		Nominal Insulation Thickness				Nominal Overall Size		Approximate Shipping Weight		Price 1000'
		Inches	mm	Conductor		Overall		Inches	mm	lb/1000'	kg/300 m	
EXPP-RS-16-UL	16	0.051	1.3	0.015	0.38	0.035	0.89	0.160 x 0.250	4.1 x 6.4	37	16.8	\$515

Ordering Example: EXPP-RS-16-UL-100 100' of extension grade thermocouple wire, 16 gage, type RX/SX, UL listed (\$515 per 1000').
\$515 X 0.175 = \$90

Extension Grade
Iron/Constantan
Duplex
ANSI Type JX

ANSI Color Code: Positive Wire, White; Negative Wire, Red; Overall, Black

Model Number	AWG Gage	Nominal Conductor Size		Nominal Insulation Thickness				Nominal Overall Size		Approximate Shipping Weight		Price 1000'
		Inches	mm	Conductor		Overall		Inches	mm	lb/1000'	kg/300 m	
EXPP-J-14-UL	14	0.064	1.6	0.020	0.51	0.035	0.89	0.184 x 0.288	4.7 x 7.3	40	18	\$855
EXPP-J-16S-UL	16S	0.060	1.5	0.015	0.38	0.035	0.89	0.171 x 0.261	4.3 x 6.6	39	17.7	720
EXPP-J-16-UL	16	0.051	1.3	0.015	0.38	0.035	0.89	0.160 x 0.250	4.1 x 6.4	37	16.8	475
EXPP-J-20S-UL	20S	0.038	0.97	0.015	0.38	0.035	0.89	0.148 x 0.226	3.8 x 5.7	24	10.9	420
EXPP-J-20-UL	20	0.032	0.81	0.015	0.38	0.035	0.89	0.137 x 0.204	3.5 x 5.2	21	10	240

Ordering Example: EXPP-J-20-UL-1000, 1000' of extension grade thermocouple wire, 20 gage, type JX, UL listed, \$240.

Extension Grade
Copper/Constantan
Duplex
ANSI Type TX

Note: Published prices are based on market value at time of printing and are subject to change due to Nickel surcharges, Chromium and precious-metal market fluctuations.

ANSI Color Code: Positive Wire, Blue; Negative Wire, Red; Overall, Blue

Model Number	AWG Gage	Nominal Conductor Size		Nominal Insulation Thickness				Nominal Overall Size		Approximate Shipping Weight		Price 1000'
		Inches	mm	Conductor		Overall		Inches	mm	lb/1000'	kg/300 m	
EXPP-T-14-UL	14	0.064	1.62	0.020	0.51	0.035	0.89	0.184 x 0.288	4.7 x 7.3	40	18	\$895
EXPP-T-16-UL	16	0.051	1.29	0.015	0.38	0.035	0.89	0.160 x 0.250	4.1 x 6.5	37	16.8	530
EXPP-T-20S-UL	20S	0.038	0.965	0.015	0.38	0.035	0.89	0.148 x 0.226	3.7 x 5.7	24	10.9	450
EXPP-T-20-UL	20	0.032	0.813	0.015	0.38	0.035	0.89	0.137 x 0.204	3.5 x 5.2	22	10	250

"S" Denotes stranded wire, e.g., "20S" is seven strands of 28 AWG wire, or 7/28
Ordering Example: EXPP-T-20-UL-500, 500' of extension grade thermocouple wire, 20 gage, type TX, UL listed (\$250 per 1000').
\$250 X 0.5 = \$125

Switches

Level Switches

Basic Switches

Z

A

X

DZ

TZ

1ZAP2 / 1VAP2

Z / A / X / DZ Common Accessories

Limit Switches

Push Buttons / Indicator Lamps

Thumbwheel Switches

Digital Indicators

Sensors

Switches

Safety Components

Relays

Control Components

Automation Systems

Motion & Drives

In Addition

Cautions

Applications

Item A to Z Index

Z-15GW-B7-K

Inquiry of Z-15GW-B7-K

Products links

Find OMRON IA Products in your country

Get more support via Products links, such as manuals and CAD files.

Similar items

Z-15H

Z-15H2

Z-15H2-B

Item index of Z

Ratings / Performance : Mounting holes

Ratings

Actuator	Hinge lever (63.5 R, Stainless steel lever, low OF)
Sensitivity	Standard sensitivity
Operation type	General type
Operating mechanism	Snap action
Switching mechanism	Self-reset type
Contact method	Single-Pole, Double-Throw type
Contact form	1c
Contact gap	0.5 mm
Load	General load
Rated current	15 A
Ratings (AC)Non-inductive load	Rated voltage: 125 VAC, Resistive load: 15 A (NC) 15 A (NO), Lamp load: 3 A (NC) 1.5 A (NO) Rated voltage: 250 VAC, Resistive load: 15 A (NC) 15 A (NO), Lamp load: 2.5 A (NC) 1.25 A (NO) Rated voltage: 500 VAC, Resistive load: 10 A (NC) 10 A (NO), Lamp load: 1.5 A (NC) 0.75 A (NO)
Ratings (AC)Inductive load	Rated voltage: 125 VAC, Inductive load: 15 A (NC) 15 A (NO), Motor load: 5 A (NC) 2.5 A (NO) Rated voltage: 250 VAC, Inductive load: 15 A (NC) 15 A (NO), Motor load: 3 A (NC) 1.5 A (NO) Rated voltage: 500 VAC, Inductive load: 6 A (NC) 6 A (NO), Motor load: 1.5 A (NC) 0.75 A (NO)
Ratings (DC)Non-inductive load	Rated voltage: 8 VDC, Resistive load: 15 A (NC) 15 A (NO), Lamp load: 3 A (NC) 1.5 A (NO) Rated voltage: 14 VDC, Resistive load: 15 A (NC) 15 A (NO), Lamp load: 3 A (NC) 1.5 A (NO) Rated voltage: 30 VDC, Resistive load: 6 A (NC) 6 A (NO), Lamp load: 3 A (NC) 1.5 A (NO) Rated voltage: 125 VDC, Resistive load: 0.5 A (NC) 0.5 A (NO), Lamp load: 0.5 A (NC) 0.5 A (NO) Rated voltage: 250 VDC, Resistive load: 0.25 A (NC) 0.25 A (NO), Lamp load: 0.25 A (NC) 0.25 A (NO)
Ratings (DC)Inductive load	Rated voltage: 8 VDC, Inductive load: 15 A (NC) 15 A (NO), Motor load: 5 A (NC) 2.5 A (NO) Rated voltage: 14 VDC, Inductive load: 10 A (NC) 10 A (NO), Motor load: 5 A (NC) 2.5 A (NO) Rated voltage: 30 VDC, Inductive load: 5 A (NC) 5 A (NO), Motor load: 5 A (NC) 2.5 A (NO) Rated voltage: 125 VDC, Inductive load: 0.05 A (NC) 0.05 A (NO), Motor load: 0.05 A (NC) 0.05 A (NO) Rated voltage: 250 VDC, Inductive load: 0.03 A (NC) 0.03 A (NO), Motor load: 0.03 A (NC) 0.03 A (NO)
Ratings explanation	Lamp load has an inrush current of 10 times the steady-state current. Inductive load has a power factor of 0.4 Min. (AC) and a time constant of 7 ms Max. (DC). Motor load has an inrush current of 6 times the steady-state current.
Inrush current	NC: 30 A NO: 15 A
Ambient temperature	Operating: -25 CEL to 80 CEL Storage: -25 CEL to 80 CEL (with no icing or condensation)
Ambient humidity	Operating: 35%RH to 85%RH Storage: 35%RH to 85%RH (with no icing or condensation)

Characteristics

Speed of permissible operation	0.22 mm/s to 1000 mm/s
Operating specification (Mechanically)	240 operations / 1 minute Max.

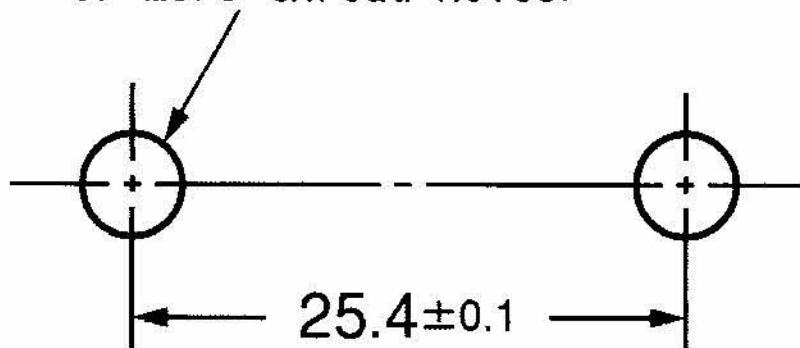
Operating specification (Electrically)	20 operations / 1 minute Max.
Contact resistance	15 m Ohm Max. (Initial value) (Measuring method is voltage drop method at 1 A, 6 to 8 VDC.)
Insulation resistance	Between each terminal of the same polarities: 100 M Ohm Min. Between live-metallic part and ground: 100 M Ohm Min. Between each terminal and non-live-metallic part: 100 M Ohm Min. (at 500 VDC Megger)
Dielectric strength	Between each terminal of the same polarities: 1,000 VAC Between live-metallic part and ground: 2,000 VAC Between each terminal and non-live-metallic part: 2,000 VAC (50/60 Hz for 1 min.)
Mechanical durability	10,000,000 operations Min.
Electrical durability	500,000 operations Min. (rating load)
Vibration resistance (Malfunction)	Vibration frequency range: 10 to 55 Hz, Double amplitude: 1.5 mm, Malfunction: 1 ms max. at the free position and the total travel position.
Shock resistance (Destruction)	1,000 m/s ²
Shock resistance (Malfunction)	Malfunction time is 1 ms max. at the free position and the total travel position at 150 m/s ²
Degree of protection	General type IEC60529 (JEM): IP00
Applicable standard (UL)	Standard No.: UL508 File number: E41515
Applicable standard (CSA)	Standard No.: CSA C22.2 No.55 File number: LR21642
Mounting Method	Mounting with screw
Material of case	Thermosetting resin
Weight	Approx. 40 g

Operating characteristics

Operating Force (OF)	Standard value 0.69 N Max.
Release Force (RF)	Standard value 0.14 N Min.
Pre-Travel (PT)	Reference value 10 mm Max.
Over-Travel (OT)	Standard value 5.6 mm Min.
Movement Differential (MD)	Standard value 1.27 mm Max.
Free Position (FP)	Standard value 28.2 mm Max.
Operating Position (OP)	Standard value 19 +/- 0.8 mm

As of September 2, 2009

Two 4.2mm dia. mounting holes
Or M3.5 thread holes.



As of September 2, 2009

← Top of page

**Barrier Blocks
Series 140**

.375 Density, 5-40 x 3/16"
BH Screw, Open Bottom,
Double Row

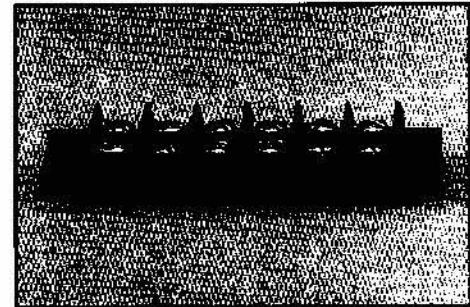
Cinch

Electrical Characteristics

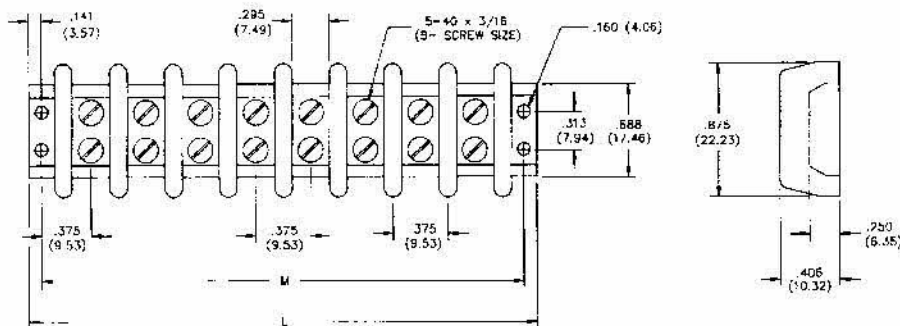
Voltage Rating: 250 VAC RMS maximum
Current Rating: 15 Amps maximum
Maximum Watts Per Terminal: 3750

Mechanical Characteristics

Maximum Wire Size: #16 AWG
Recommended Tightening Torque: 9 lb.-in.



Dimensions



Ordering Information

No. of Terminals	Standard Screw Catalog No.	"M" Dim.	"L" Dim.
1	1-140	.750	1.032
2	2-140	1.125	1.407
3	3-140	1.500	1.782
4	4-140	1.875	2.157
5	5-140	2.250	2.532
6	6-140	2.625	2.907
7	7-140	3.000	3.282
8	8-140	3.375	3.657
9	9-140	3.750	4.032
10	10-140	4.125	4.407
11	11-140	4.500	4.782
12	12-140	4.875	5.157
13	13-140	5.250	5.532
14	14-140	5.625	5.907
15	15-140	6.000	6.282
16	16-140	6.375	6.657
17	17-140	6.750	7.032
18	18-140	7.125	7.407
19	19-140	7.500	7.782
20	20-140	7.875	8.157
21	21-140	8.250	8.532
22	22-140	8.625	8.907
23	23-140	9.000	9.282
24	24-140	9.375	9.657
25	25-140	9.750	10.032

Barrier Blocks

Cinch

FEATURES

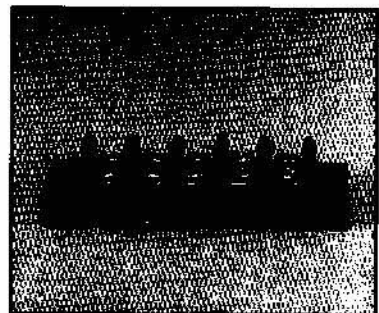
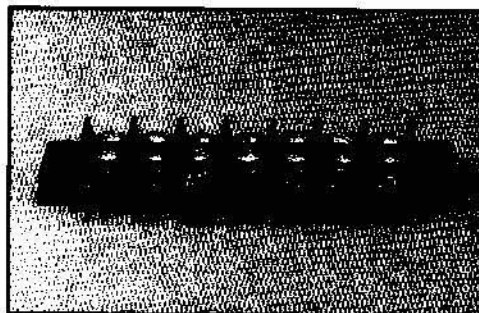
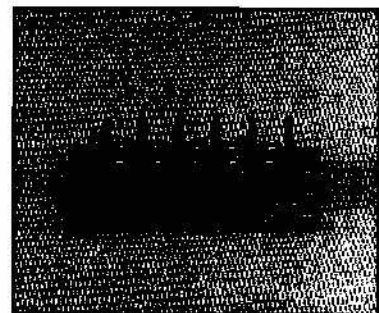
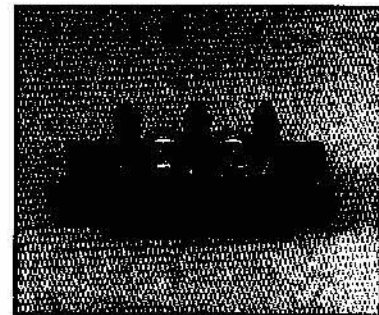
- *Interposing barriers between terminals yield higher electrical ratings and provide additional protection against frayed wire shorting.*
- *A wide variety of barrier blocks makes it possible to select the combination of mechanical and electrical characteristics that best meet the exact requirements of your application.*
- *A wide selection of optional terminals and fanning strips permits the equipment designer to choose the method of termination most suitable for his environmental specifications and manufacturing requirements.*

MATERIALS

Insulation Material: Molded monoblock, general purpose phenolic, black, UL Rated 94V-1
Eyelets: Material - Brass
Plating - Nickel
Screws: Material - Steel
Plating - Nickel over copper flash
Solder Terminals: Material - Brass
Plating - Electro-Tin
Marker Strip Material: Nema Grade XPC, UL Rated 94V-0

ENVIRONMENTAL

Operating Temperature: -55° to +300°F
Certifications: UL Recognized - File E61245
CSA - LR 31996



Marketed exclusively through distribution.

Malleable Liquidtight Uninsulated Fittings

Features/Industry Standards

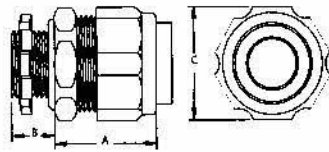
- Designed and engineered to ensure excellent performance
- Heavy-duty, impact resistant construction
- Factory installed "O" ring seals against lubricants and other liquids
- All malleable iron construction
- Full-size UL locknut
- Threaded locking mechanism ensures secure fit and better holding strength
- Outer bushing conforms to nut and conduit for fast and easy installation
- UL Standard 514B, UL Listed File # E-167170
- ANSI/NEMA FB-1
- C-UL certified for Canada
- Federal Specification A-A-50552



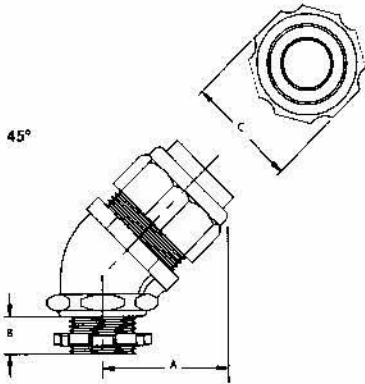
Specification/Ordering Information Straight Uninsulated

PRODUCT CODE	CATALOG NUMBER	WEIGHT PER/C	TRADE SIZE	DIMENSION IN INCHES			CARTON DIMMER	COUNT MASTER
				A	B	C		
0601-22-00	LS-38	16	3/8"	1.0629	0.4800	1.1020	25	250
0602-22-00	LS-50	22	1/2"	1.0826	0.4800	1.2990	25	250
0603-20-00	LS-75	31	3/4"	1.3385	0.5110	1.5354	20	200
0604-10-00	LS-100	40	1"	1.3976	0.6690	2.7716	10	100
0605-05-00	LS-125	74	1-1/4"	1.4760	0.7200	2.1650	5	50
0606-04-00	LS-150	103	1-1/2"	1.7200	0.8260	2.4800	4	40
0607-03-00	LS-200	163	2"	2.0000	0.9170	2.9330	3	30
0608-05-00	LS-250	260	2-1/2"	2.5200	1.2800	3.8780	*	5
0609-05-00	LS-300	380	3"	2.5300	1.3385	4.6260	*	5
0610-05-00	LS-350	440	3-1/2"	2.440	1.4170	5.1180	*	5
0611-05-00	LS-400	540	4"	2.5590	1.4763	5.7480	*	5

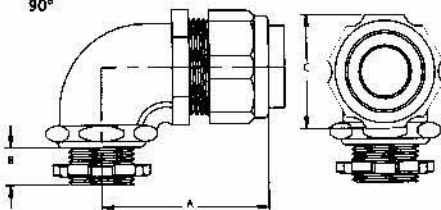
Straight



45°



90°



45° Uninsulated

0701-15-00	L4-38	25	3/8"	1.2400	0.4800	1.1020	15	150
0702-15-00	L4-50	31	1/2"	1.3980	0.4800	1.2990	15	150
0703-10-00	L4-75	42	3/4"	1.6730	0.5110	1.5354	10	100
0704-05-00	L4-100	56	1"	1.8891	0.6690	1.7716	5	50
0705-04-00	L4-125	110	1-1/4"	2.2040	0.7200	2.1650	4	40
0706-03-00	L4-150	160	1-1/2"	2.4400	0.8260	2.4800	3	30
0707-02-00	L4-200	245	2"	3.0300	0.9170	2.9330	2	20
0708-01-00	L4-250	500	2-1/2"	4.0940	1.2800	3.8780	*	1
0709-01-00	L4-300	700	3"	4.5670	1.3385	4.6260	*	1
0711-01-00	L4-400	1200	4"	5.6690	1.4763	5.7480	*	1

90° Uninsulated

0801-15-00	L9-38	25	3/8"	1.5354	0.4800	1.4170	15	150
0802-15-00	L9-50	37	1/2"	1.8110	0.4800	1.5354	15	150
0803-10-00	L9-75	50	3/4"	2.0470	0.5110	1.8500	10	100
0804-05-00	L9-100	68	1"	2.1260	0.6690	2.1260	5	50
0805-04-00	L9-125	118	1-1/4"	2.6378	0.7200	2.4800	4	40
0806-03-00	L9-150	200	1-1/2"	3.0300	0.8260	3.0710	3	30
0807-02-00	L9-200	280	2"	3.7790	0.9170	3.500	2	20
0808-01-00	L9-250	700	2-1/2"	6.8900	1.2800	6.5750	*	1
0809-01-00	L9-300	1100	3"	7.4400	1.3385	7.7165	*	1
0810-01-00	L9-350	1300	3-1/2"	8.4253	1.4170	8.8190	*	1
0811-01-00	L9-400	1300	4"	9.5670	1.4763	10.3150	*	1



PRODUCT SPECIFICATION



LANGUAGE

English

2.5 Safety Agency Approvals

UL 310 Electrical Quick-Connect Terminals File Number E79133
CSA Certification – Quick Connect Terminals File Number 018689C

3. RATINGS

- 3.1 Voltage
600 Volts
- 3.2 Temperature
149 C

4. REQUIREMENTS

4.1 Design and Construction

Product design and constructed as per Molex Engineering Product Drawing and Engineering Standards Series ES-40000, ES-88, and ES-124.

4.2 Quality Assurance as per Molex QPol4 Series and ISO-9001.

4.3 Mechanical as per UL 310
Crimp Pull Out test
Engagement- Disengagement Test

4.4 Electrical as per UL 310
Temperature and Heat Cycling Tests
Millivolt Drop Test

REVISE ON PC ONLY		TITLE:	
A	RELEASED ETC2002-0290 HEB 2002/04/12	TERMINAL, TAB QUICK DISCONNECT VIBRAKRIMP	
	REV. DESCRIPTION		
DOCUMENT NUMBER PS-19902-005		FILENAME P19902005	SHEET 2
ES-40000-3996 REV. A SHEET 4 95/MAR/10 EC U5-0926 DCBRD03.LWP			

TYPE MTW / AWM / TEW MACHINE TOOL & APPLIANCE WIRE

ENGINEERING SPECIFICATIONS:

Standards:

UL Standard 1063, UL Standard 758, UL Style 1015
Appliance Wire CSA Standard as TEW



CONSTRUCTION:

Conductors:

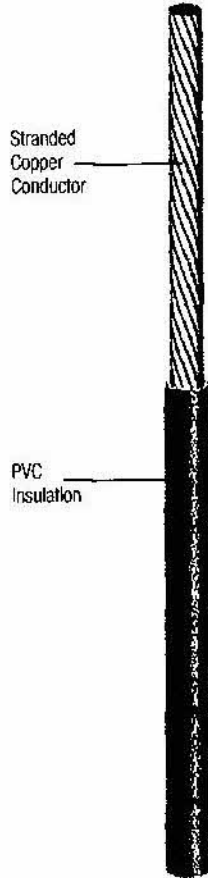
Bare, annealed copper per ASTM-B3, B174, and B787

Insulation:

Color-coded Polyvinyl Chloride (PVC), heat and moisture-resistant, flame-retardant compound per UL-1063

Applications:

Type MTW or TEW conductors are primarily used in control cabinets, in machine tool applications, and in appliance wiring applications at temperatures -25°C to 105°C. For use in accordance with the National Electrical Code (NEC) and NFPA Standard 79. Voltage rating for all applications is 600 volts.



Type MTW/AWM/TEW Machine Tool & Appliance Wire

Size (AWG)	Number of Strands	PVC Insulation Thickness (Conductor)		Outside Diameter		Approximate Net Weight		Allowable Ampacity* (Amps)			Standard Packaging (ft.)
		(mm)	(Inches)	(mm)	(Inches)	(kg/km)	(lbs/1000 ft)	60°C	75°C	90°C	
18	16	0.762	0.030	2.79	.110	12	8	6	6	6	2000' carton (4x500), 2500' reels
16	26	0.762	0.030	3.12	.123	16	11	8	8	8	2000' carton (4x500), 2500' reels
14	19	0.762	0.030	3.35	.132	27	18	15	15	15	2000' carton (4x500), 2500' reels
12	19	0.762	0.030	3.84	.151	37	25	20	20	20	1000' carton (2x500), 2500' reels
10	19	0.762	0.030	5.21	.205	60	40	30	30	30	500' spools, 2500' reels
8	19	1.143	0.045	5.94	.234	100	67	40	50	55	500' 1000' 2500' 5000' reels
6	19	1.524	0.060	7.62	.300	149	100	55	65	75	500' 1000' 2500' 5000' reels
4	19	1.524	0.060	8.84	.348	223	150	70	85	95	500' 1000' 2500' 5000' reels
3	19	1.524	0.060	9.50	.374	315	212	85	100	110	500' 1000' 2500' 5000' reels
2	19	1.524	0.060	10.26	.404	342	230	95	115	130	500' 1000' 2500' 5000' reels

*Allowable ampacity shown above is per the National Electrical Code. The above data is approximate and subject to normal manufacturing tolerances.

PRINT LEGEND: CONDUCTOR SIZES 18 AWG THROUGH 2 AWG STRANDED: E156879 (202) AWG TYPE MTW 600 VOLTS GR 1 VW-1 (UL) OR AWM OR C(UL) TYPE TEW FT1

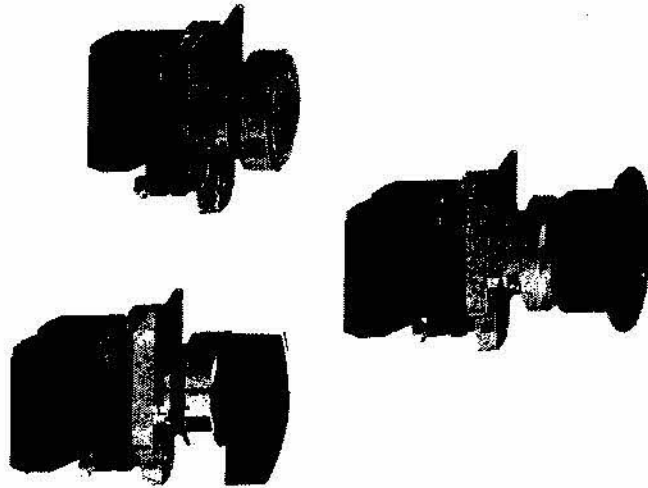


800.962.9473 www.encorewire.com

Push Buttons and Operator Interface Specifier's Guide XB4 22 mm Die Cast Chrome Plated

Catalog
2005

File 9001



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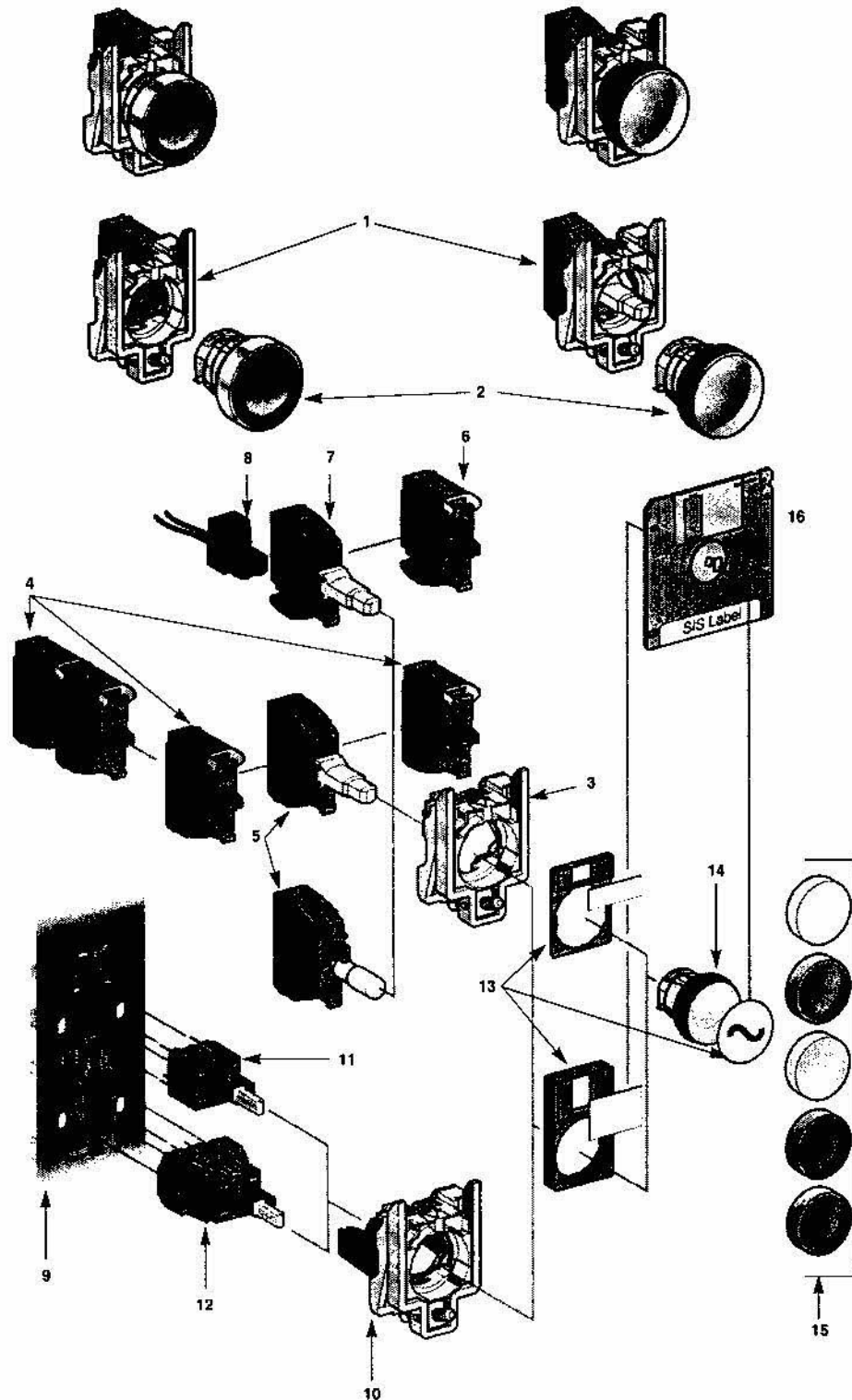
Push Buttons & Operator Interface - XB4 22 mm Die Cast Chrome Plated General Characteristics

Components for User Assembly ZB4B:

- 1 - Electrical Bodies (pre-assembled)
- 2 - Operator Heads (pre-assembled)





Component Parts and Accessories ZB:

- 3 - Mounting Collar – Standard (ZB4BZ009)
- 4 - Contact Blocks – Screw Clamp Terminal (ZBE10*, ZBE20*)
- 5 - Light Modules – Screw Clamp Terminal (ZBV*) for Protected LED and Ba9 Base Lamps
- 6 - Contact Blocks – Plug-in Connector (ZBE10*)
- 7 - Light Modules – Plug-in Connector (ZBV*) for Protected LED only
- 8 - 2 Pin Connector and Cables for Plug-in Connection Electrical Components (APE1*)
- 9 - Printed Circuit Board (PCB) Application (Typical)
- 10 - Mounting Collar – PCB Application (ZB4BZ009 + ZB4BZ079)
- 11 - Contact Blocks – PCB Application (ZBE70*, ZBE70*6)
- 12 - Light Modules – PCB Application (ZBV*7) for Protected LED only
- 13 - Legend Plates and Holders (ZBY*, ZBZ*)
- 14 - Operator Head (Illuminated or Non-Illuminated)
- 15 - Lenses for Pilot Lights (ZBV*) or Lenses for Illuminated Push Buttons (ZBW*)
- 16 - Labeling Software



Push Buttons & Operator Interface - XB4 22 mm Die Cast Chrome Plated General Characteristics

Environment

Protective treatment standard version		"TH"
Ambient air temperature around the device	Storage	-40 to +158 °F (-40 to +70 °C)
	Operation	-13 to +158 °F (-25 to +70 °C) unless otherwise stated
Electric shock protection	Conforming to IEC 60536	Class 1
Degree of protection	Conforming to IEC 60529	IP 65, unless otherwise stated IP 66, for booted push button heads
	Conforming to UL 50 and CSA C22.2 No. 94	Type 1, 2, 3, 4, 4X, 12, and 13, unless otherwise stated
Resistance to high pressure cleaner		1,015 psi (70 x 105 Pa-70 bars); distance: 3.94 in (0.1 m) Temperature: 131 °F (55 °C)
Mechanical shock protection	Conforming to EN 50102	Non illuminated heads: IK 03
		Illuminated heads: IK 05
Conforming to standards	 CE Marked	IEC 60947-1, IEC/EN 60947-5-1, IEC 60947-5-4, EN 60947-1, JIS C 4520, UL 508, CSA C22.2 No. 14
Product certifications	UL Listed, CSA Certified	Standard single contacts with screw clamp terminals: A600; Q600 Double contacts with screw clamp terminals: A600; Q600 Contacts with "Quick-Connect": A300; Q300 Light modules with screw clamp terminals JOYSTICK XD4-PA: A600; R300
	 File E164353 CCN NKCR  File LR 44087 Class 3211 03  File E164353 CCN NKCR 2	
	UL Recognized, CSA Certified	Standard single contacts for plug-in connector: A300; R300 Standard single contact for printed circuit board: B300; R300
	BV, RINA, LROS, DNV, GL (pending)	Standard single contacts and double contacts with screw clamp terminals
Terminal identification	Conforming to EN 50005 and EN 50013	

Characteristics of Operators and Contact Blocks

Mechanical Characteristics			
Contact operation	N/C or N/O		Slow break
Positive operation	Conforming to IEC/EN 60947-5-1 Appendix K		All functions incorporating a N/C contact are positive opening operation
Operating travel (to change electrical state)	Push button		Changing N/C state: 0.06 in (1.5 mm) Changing N/O state: 0.11 in (2.6 mm) Total travel: 0.17 in (4.3 mm)
	Operating force		Changing N/C state: 0.79 lbf (3.5 N) Changing N/O state: 0.85 lbf (3.8 N)
	Additional contact (extra to change state)		Single N/C contact: 0.45 lbf (2 N) Single N/O contact: 0.52 lbf (2.3 N) Double contact N/C: 0.76 lbf (3.4 N) Double contact N/O: 1.12 lbf (5 N) Double contact N/C + N/O: 1.03 lbf (4.6 N)
	Emergency stop with N/C + N/O Maintained mushroom head operators Momentary mushroom head operators		Standard push-pull: 10.12 lbf (45 N) Trigger action push-pull: 11.24 lbf (50 N) Standard turn to release and key release: 8.99 lbf (40 N) Trigger action turn to release and key release: 9.89 lbf (44 N)
	Operating torque (to change electrical state)		Selector switches Additional contact (extra)
Mechanical durability (operating cycles)	Push button	Momentary	5 million
		Double-headed	1 million
		Push-push to release	500,000
	Selector switches	Non-illuminated	3 million
		Illuminated	1 million
	Toggle switches	500,000	
	Emergency stop push button	300,000	
	Joystick	1 million	
Standard blocks	5 million		
Low power switching power blocks	500,000		
Vibration resistance	Conforming to IEC 60068-2-6		Frequency (2 to 500 Hz): 5 gn
Shock resistance	Conforming to IEC 60068-2-27		All functions except mushroom head push buttons- Half sine wave acceleration 11 ms: 50 gn Half sine wave acceleration 18 ms: 30 gn
			Mushroom head push buttons- Half sine wave acceleration 11 ms: 10 gn

