



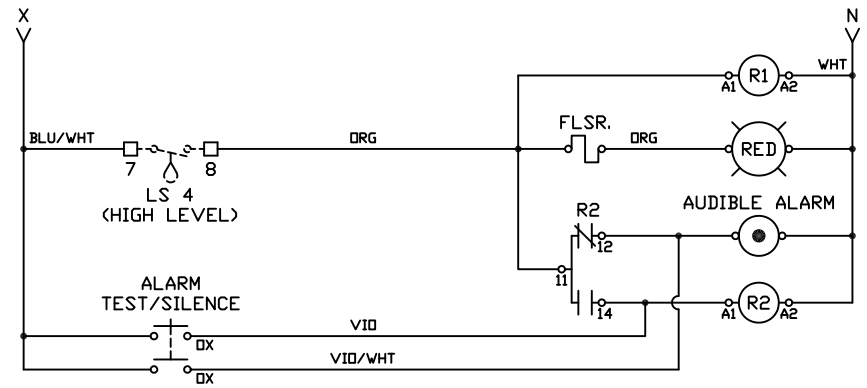
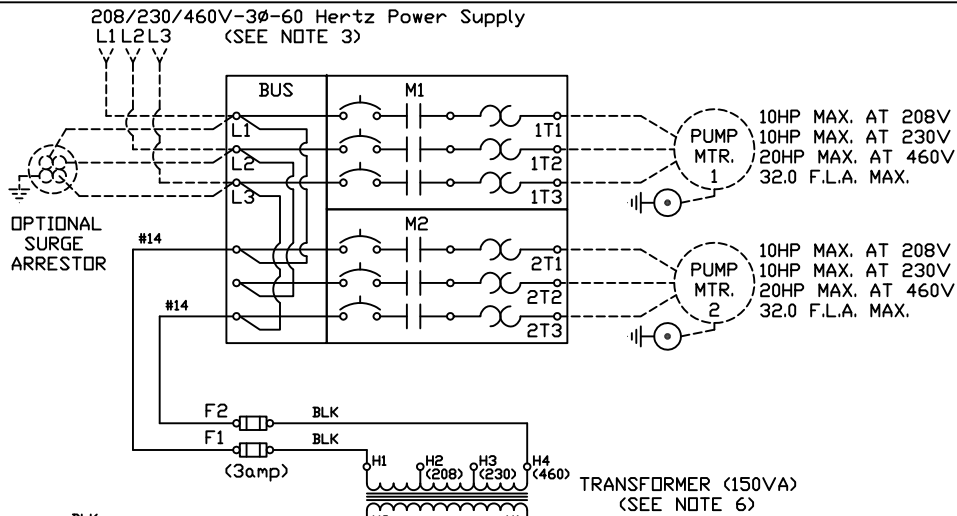
March 28, 2013

Submittal Data

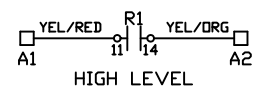
**331SS Lift Station Control Panel  
208/230/460v - 3ph Duplex Controls**

Notes:

- 1) The pump control panel will be housed in a TYPE 4X stainless steel enclosure.
- 2) Enclosure will have an aluminum swing-out inner door to mount indicator lights, switches and ETM's.
- 3) A red flashing alarm light will be mounted to the top of the enclosure. A piezo alarm horn and alarm SILENCE/TEST push-button will be mounted through the left side of the enclosure.
- 4) The complete control panel will be UL508A listed and labeled. The panel will carry a 5KAIC short circuit current rating.

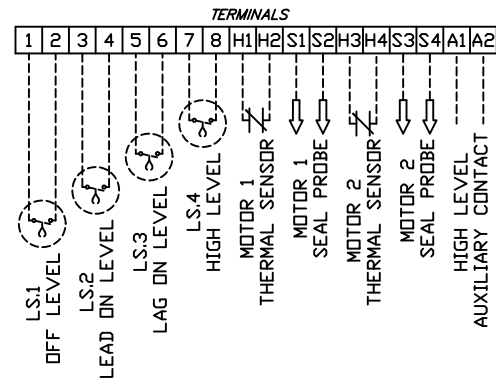
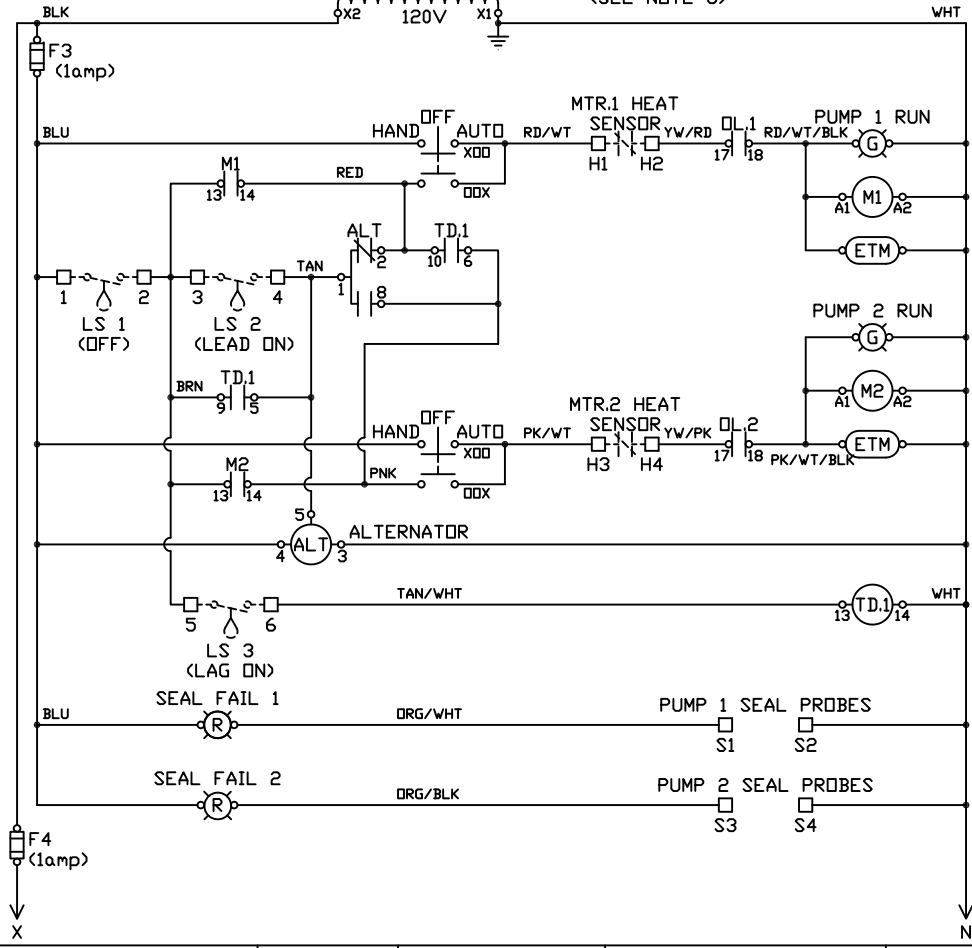


**AUXILIARY CONTACT**  
RATED: 3A, 30VDC / 240VAC



**NOTES:**

- 1) PANEL GROUND BAR MUST BE CONNECTED TO EARTH GROUND PER NEC AND LOCAL ELECTRICAL CODES.
- 2) FACTORY WIRING IS SHOWN AS: \_\_\_\_\_  
FIELD WIRING IS SHOWN AS: - - - - -
- 3) INSTALLER MUST PROVIDE EITHER AN INVERSE TIME MAIN CIRCUIT BREAKER OR A MAIN FUSIBLE DISCONNECTING DEVICE WITH DUAL ELEMENT FUSES PER TABLE NO.1.
- 4) RECOMMENDED TIGHTENING TORQUES FOR TERMINALS 208/230/460 VOLT POWER: 35 POUND INCHES, 120 VOLT POWER, CONTROL & LOW VOLTAGE: 18 POUND INCHES.
- 5) MOTOR THERMAL HEAT SENSORS ARE NOT IN ALL MOTORS. IF THE MOTOR DOES NOT HAVE THEM, A JUMPER MUST BE PLACED BETWEEN THE H1-H2 AND H3-H4 TERMINALS.
- 6) THE TRANSFORMER IS FACTORY SET AT 460 VOLTS. CONFIGURE IN FIELD FOR OTHER LINE VOLTAGES.
- 7) OVERLOADS ARE FACTORY SET TO MINIMUM SETTING. OVERLOAD RELAYS TO BE ADJUSTED PER NAMEPLATE FLA OF THE MOTOR.



**TABLE NO.1**

PUMP AMPS	CIRCUIT BREAKER SIZE	MAIN FUSE SIZE	PANEL TOTAL AMPS
1-5	15 AMPS	15 AMPS	13
5-6	20 AMPS	17.5 AMPS	15
6-8	30 AMPS	20 AMPS	19
8-10	35 AMPS	30 AMPS	23
10-15	50 AMPS	40 AMPS	33
15-20	70 AMPS	60 AMPS	43
20-25	90 AMPS	70 AMPS	53
25-30	100 AMPS	80 AMPS	63
30-32	125 AMPS	90 AMPS	67

**TABLE NO.2**

PUMP FULL LOAD AMPS	CLICK & FIT OL MODULE
1.25-5	LUCA 05 FU
5-18	LUCA 18 FU
8-32	LUCA 32 FU

VOLTAGE: 208/230/460 VAC	PHASE: 3 Ø	HERTZ: 60 HZ.	TOTAL F.I.A.: 67.0 FLA	ENCLOSURE TYPE: NEMA 4X	2	UPDATED DRAWING NOTES	3/25/13	REC
LARGEST MOTOR: HP: 20 HP	F.I.A.: 32.0 FLA	SHORT CIRCUIT CURRENT: 5 KA RMS	SYMMETRICAL, 208/230/460 V MAX.	1	UPDATED WIRING ON OVERLOAD CONTACTS	11/8/12	REC	
REV.					REVISION DESCRIPTION		DATE	DRWN.

\* THIS DRAWING CONTAINS PROPRIETARY INFORMATION WHICH MUST NOT BE DUPLICATED, USED, OR DISCLOSED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.



220 Ohio Street  
Ashland, Ohio 44805  
(419) 281-5767

**331** LIFT STATION CONTROL PANEL  
331SS DUPLEX PUMP CONTROL PANEL

DRWN.	DATE	SHEET 1 OF 1
REC	9/12/12	DRWG. NO. 1033170

H-O-A SWITCHES,  
E.T.M.S, RUN LIGHTS  
AND SEAL FAIL LIGHTS

RED ALARM LIGHT

HORN

SILENCE  
/TEST

20'

CUTOUT IN INNER DOOR  
FOR MOTOR STARTER

PADLOCK  
HASP

CUTOUT SHOWING  
INNER DOOR

16'

4X STAINLESS STEEL ENCLOSURE  
(8" DEEP)

CONTROL  
TRANSFORMER

INCOMING POWER

OPTIONAL  
SURGE  
ARRESTOR

INTEGRATED MOTOR  
STARTER

ALTERNATOR

TIMER AND RELAYS

GROUND BAR

FIELD TERMINAL BLOCKS

BACK PANEL

VOLTAGE: 208/230/460 VAC	PHASE: 3 Ø	HERTZ: 60 HZ.	TOTAL F.L.A.: 67.0 FLA	ENCLOSURE TYPE: NEMA 4X
LARGEST MOTOR: HP: 20 HP	F.L.A.: 32.0 FLA	SHORT CIRCUIT CURRENT: 5 kA RMS	SYMMETRICAL, 208/230/460 V MAX.	

1	UPDATED DRAWING NOTES	3/25/13	REC
REV.	REVISION DESCRIPTION	DATE	DRWN.

\* THIS DRAWING CONTAINS PROPRIETARY INFORMATION WHICH MUST NOT BE DUPLICATED, USED, OR DISCLOSED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

**CSI**controls

220 Ohio Street  
Ashland, Ohio 44805  
(419) 281-5767

**331**

LIFT  
STATION  
CONTROL  
PANEL  
331SS DUPLEX  
PUMP CONTROL PANEL

DRWN.	DATE	SHEET 1 OF 1
REC	9/12/12	DRWG. NO.
SCALE: .25 = 1	1033170L	

# CONCEPT® Stainless Steel Type 4X Wall-Mounted Enclosures



## Application

The CONCEPT stainless steel enclosure, with its streamlined design and Type 4X rating, is a perfect fit for mounting electrical or high-tech electronic equipment in a variety of indoor and outdoor settings. It is typically used in the following areas where corrosion-resistant protection is needed: food processing plants, pharmaceutical manufacturing facilities, petrochemical plants, pulp and paper processing, and water treatment facilities.

## Construction

- Manufactured from 16 or 14 gauge Type 304 or 316L stainless steel
- Seams continuously welded and ground smooth
- Minimum-width body flange provides maximum door opening
- Body flange trough excludes liquids and contaminants
- Panel mounting studs fit optional CONCEPT panels and other accessories
- Mounting holes in back of body for direct mounting or for optional external mounting brackets
- Type 304 stainless steel hidden hinges promote clean aesthetic appearance
- Standard full-access door opening
- Doors are interchangeable and easily removable by pulling captive hinge pins
- Provision on door (except window door style) for thermoplastic data pocket
- Provision on door (except window door style) for optional doorstop kit
- Quarter-turn latches (or a 3-point latch system on larger enclosures) furnished with flush slotted insert. Optional handles or inserts are available.
- Seamless foam-in-place gasket provides oiltight and dusttight seal against contaminants
- Self-grounding latch system with double seal provides maximum protection against leakage
- Bonding provision on door. Grounding stud on body.
- Furnished hardware kit consists of panel-mounting nuts, panel-grounding hardware, and sealing washers for wall-mounting holes
- Installation instructions for enclosure and accessories are provided

## Finish

Enclosures are unpainted. Door and body have smooth #4 brushed finish. Optional mild steel panels are painted white. Optional conductive panels are available.

## Industry Standards

Mounting brackets required to meet UL/CSA external mounting requirements.

UL 508A, File No. E61997: Type 3R, 4, 4X, and 12

NEMA/EEMAC Type 3R, 4, 4X, 12, and 13

CSA File No. 42186: Type 4, 4X, and 12

VDE IP66

IEC 60529, IP66

Meets Type 3RX requirements

## Patents

This product covered by the following patents:

US 360,345

DE 9405854.7

US 5,509,703

US 5,666,695

Other patents pending.

## Accessories

Corrosion Inhibitors  
Data Pocket  
DIN3 Rails  
Door Stop Kit  
Lighting Kits  
Mounting Brackets  
Panels  
Panels, NEMA  
Terminal Block Kit Assembly  
Thermal Accessories

## Data Pockets for Solid Door Enclosures

- No pocket when enclosure B dimension = 12.00 in. (305mm)
- Small pocket when enclosure A dimension <30.00 in. (762mm) and B dimension is between 12 in. (305mm) and 20.00 in. (508mm)
- Large pocket when enclosure A dimension >30.00 in. (762mm) and B dimension is >20.00 in. (508mm)

## Modification Services Program

You can customize this product to your unique requirements by specifying from these options:

- Enclosure height, width, depth
- Holes and cutouts in body, doors, subpanels
- Tapped holes in subpanels
- Fasteners, mounting channel in enclosure and subpanel
- Mounting (adds and deletes)
- Doors
- Subpanels
- Thermal management (louvers, fans, filters)
- Windows
- Standard accessories
- Drip shield

To order, contact your local Hoffman sales representative.

*NOTE: For information about modifications outside the scope of the Modification Services program, contact your Hoffman sales representative.*

# CONCEPT® Stainless Steel Type 4X Wall-Mounted Enclosures

## Standard Sizes CONCEPT® Stainless Steel Single-Door Wall-Mount Enclosures

Catalog Number	A x B x C in. (mm)	Stain- less Steel Type	Door Ga.	Body Ga.	CONCEPT Panel Catalog Number	Conductive Panel Catalog Number	Panel Size D x E (in.)	Panel Size D x E (mm)	Mounting G x H (in.)	Mounting G x H (mm)	Latch (qty)	Latch (style)	J (in.)	J (mm)
CSD12126SS	12.00 x 12.00 x 6.00 (305 x 305 x 152)	304	16	16	CP1212	CP1212G	10.20 x 10.20	259 x 259	10.50 x 10.50	267 x 267	1	1/4-turn	6.00	152
CSD12126SS6	12.00 x 12.00 x 6.00 (305 x 305 x 152)	316L	16	16	CP1212	CP1212G	10.20 x 10.20	259 x 259	10.50 x 10.50	267 x 267	1	1/4-turn	6.00	152
CSD16126SS	16.00 x 12.00 x 6.00 (406 x 305 x 152)	304	16	16	CP1612	CP1612G	14.20 x 10.20	361 x 259	14.50 x 10.50	368 x 267	1	1/4-turn	8.00	203
CSD16126SS6	16.00 x 12.00 x 6.00 (406 x 305 x 152)	316L	16	16	CP1612	CP1612G	14.20 x 10.20	361 x 259	14.50 x 10.50	368 x 267	1	1/4-turn	8.00	203
CSD16166SS	16.00 x 16.00 x 6.00 (406 x 406 x 152)	304	16	16	CP1616	CP1616G	14.20 x 14.20	361 x 361	14.50 x 14.50	368 x 368	1	1/4-turn	8.00	203
CSD16166SS6	16.00 x 16.00 x 6.00 (406 x 406 x 152)	316L	16	16	CP1616	CP1616G	14.20 x 14.20	361 x 361	14.50 x 14.50	368 x 368	1	1/4-turn	8.00	203
CSD20166SS	20.00 x 16.00 x 6.00 (508 x 406 x 152)	304	16	16	CP2016	CP2016G	18.20 x 14.50	462 x 361	18.50 x 14.50	470 x 368	1	1/4-turn	10.00	254
CSD20166SS6	20.00 x 16.00 x 6.00 (508 x 406 x 152)	316L	16	16	CP2016	CP2016G	18.20 x 14.50	462 x 361	18.50 x 14.50	470 x 368	1	1/4-turn	10.00	254
CSD20206SS	20.00 x 20.00 x 6.00 (508 x 508 x 152)	304	16	16	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
CSD20206SS6	20.00 x 20.00 x 6.00 (508 x 508 x 152)	316L	16	16	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
CSD16128SS	16.00 x 12.00 x 8.00 (406 x 305 x 203)	304	16	16	CP1612	CP1612G	14.20 x 10.20	361 x 259	14.50 x 10.50	368 x 267	1	1/4-turn	8.00	203
CSD16128SS6	16.00 x 12.00 x 8.00 (406 x 305 x 203)	316L	16	16	CP1612	CP1612G	14.20 x 10.20	361 x 259	14.50 x 10.50	368 x 267	1	1/4-turn	8.00	203
CSD16168SS	16.00 x 16.00 x 8.00 (406 x 406 x 203)	304	16	16	CP1616	CP1616G	14.20 x 14.20	361 x 361	14.50 x 14.50	368 x 368	1	1/4-turn	8.00	203
CSD16168SS6	16.00 x 16.00 x 8.00 (406 x 406 x 203)	316L	16	16	CP1616	CP1616G	14.20 x 14.20	361 x 361	14.50 x 14.50	368 x 368	1	1/4-turn	8.00	203
CSD16208SS	16.00 x 20.00 x 8.00 (406 x 508 x 203)	304	16	16	CP2016	CP2016G	18.20 x 14.20	462 x 361	14.50 x 18.50	368 x 470	1	1/4-turn	8.00	203
CSD16208SS6	16.00 x 20.00 x 8.00 (406 x 508 x 203)	316L	16	16	CP2016	CP2016G	18.20 x 14.20	462 x 361	14.50 x 18.50	368 x 470	1	1/4-turn	8.00	203
CSD20168SS	20.00 x 16.00 x 8.00 (508 x 406 x 203)	304	16	16	CP2016	CP2016G	18.20 x 14.20	462 x 361	18.50 x 14.50	470 x 368	1	1/4-turn	10.00	254
CSD20168SS6	20.00 x 16.00 x 8.00 (508 x 406 x 203)	316L	16	16	CP2016	CP2016G	18.20 x 14.20	462 x 361	18.50 x 14.50	470 x 368	1	1/4-turn	10.00	254
CSD20208SS	20.00 x 20.00 x 8.00 (508 x 508 x 203)	304	16	16	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
CSD20208SS6	20.00 x 20.00 x 8.00 (508 x 508 x 203)	316L	16	16	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
CSD24168SS	24.00 x 16.00 x 8.00 (610 x 406 x 203)	304	16	16	CP2416	CP2416G	22.20 x 14.20	564 x 361	22.50 x 14.50	572 x 368	1	1/4-turn	12.00	305
CSD24168SS6	24.00 x 16.00 x 8.00 (610 x 406 x 203)	316L	16	16	CP2416	CP2416G	22.20 x 14.20	564 x 361	22.50 x 14.50	572 x 368	1	1/4-turn	12.00	305
CSD24208SS	24.00 x 20.00 x 8.00 (610 x 508 x 203)	304	16	16	CP2420	CP2420G	22.20 x 18.20	564 x 462	22.50 x 18.50	572 x 470	1	1/4-turn	12.00	305
CSD24208SS6	24.00 x 20.00 x 8.00 (610 x 508 x 203)	316L	16	16	CP2420	CP2420G	22.20 x 18.20	564 x 462	22.50 x 18.50	572 x 470	1	1/4-turn	12.00	305
CSD24248SS	24.00 x 24.00 x 8.00 (610 x 610 x 203)	304	14	16	CP2424	CP2424	22.20 x 22.20	564 x 564	22.50 x 22.50	572 x 572	2	1/4-turn	5.00	127
CSD24248SS6	24.00 x 24.00 x 8.00 (610 x 610 x 203)	316L	14	16	CP2424	CP2424G	22.20 x 22.20	564 x 564	22.50 x 22.50	572 x 572	2	1/4-turn	5.00	127
CSD30248SS	30.00 x 24.00 x 8.00 (762 x 610 x 203)	304	14	16	CP3024	CP3024G	28.20 x 22.20	716 x 564	28.50 x 22.50	724 x 572	2	1/4-turn	5.00	127
CSD30248SS6	30.00 x 24.00 x 8.00 (762 x 610 x 203)	316L	14	16	CP3024	CP3024G	28.20 x 22.20	716 x 564	28.50 x 22.50	724 x 572	2	1/4-turn	5.00	127
CSD30308SS	30.00 x 30.00 x 8.00 (762 x 762 x 203)	304	14	14	CP3030	CP3030G	28.20 x 28.20	716 x 716	28.50 x 28.50	724 x 724	2	1/4-turn	5.00	127
CSD30308SS6	30.00 x 30.00 x 8.00 (762 x 762 x 203)	316L	14	14	CP3030	CP3030G	28.20 x 28.20	716 x 716	28.50 x 28.50	724 x 724	2	1/4-turn	5.00	127
CSD36248SS	36.00 x 24.00 x 8.00 (914 x 610 x 203)	304	14	16	CP3624	CP3624G	34.20 x 22.20	869 x 564	34.50 x 22.50	876 x 572	2	1/4-turn	5.00	127
CSD36248SS6	36.00 x 24.00 x 8.00 (914 x 610 x 203)	316L	14	16	CP3624	CP3624G	34.20 x 22.20	869 x 564	34.50 x 22.50	876 x 572	2	1/4-turn	5.00	127
CSD36308SS	36.00 x 30.00 x 8.00 (914 x 762 x 203)	304	14	14	CP3630	CP3630G	34.20 x 28.20	869 x 716	34.50 x 28.50	876 x 724	2	1/4-turn	5.00	127
CSD36308SS6	36.00 x 30.00 x 8.00 (914 x 762 x 203)	316L	14	14	CP3630	CP3630G	34.20 x 28.20	869 x 716	34.50 x 28.50	876 x 724	2	1/4-turn	5.00	127

Corrosion-Resistant Enclosures

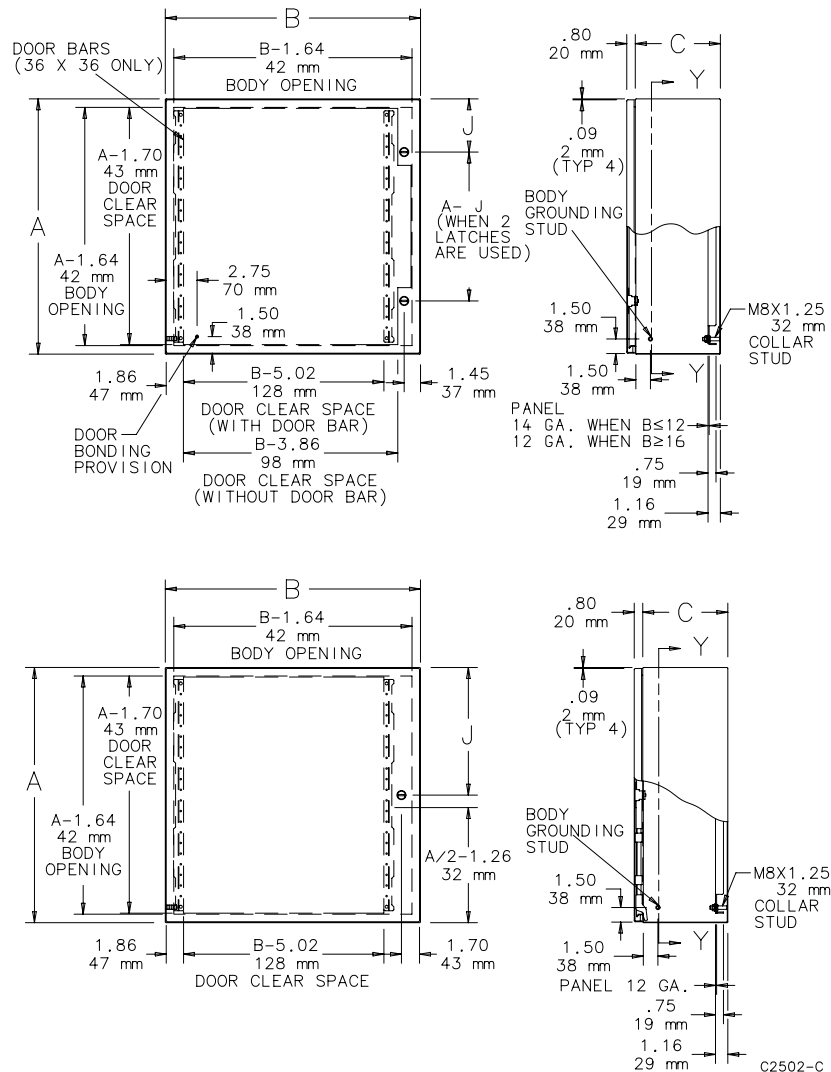
# CONCEPT® Stainless Steel Type 4X Wall-Mounted Enclosures

## Standard Sizes CONCEPT® Stainless Steel Single-Door Wall-Mount Enclosures (Cont.)

Catalog Number	A x B x C in. (mm)	Stain- less Steel Type	Door Ga.	Body Ga.	CONCEPT Panel Catalog Number	Conductive Panel Catalog Number	Panel Size D x E (in.)	Panel Size D x E (mm)	Mounting G x H (in.)	Mounting G x H (mm)	Latch (qty)	Latch (style)	J (in.)	J (mm)
<b>CSD202012SS</b>	20.00 x 20.00 x 12.00 (508 x 508 x 305)	304	14	14	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
<b>CSD202012SS6</b>	20.00 x 20.00 x 12.00 (508 x 508 x 305)	316L	14	14	CP2020	CP2020G	18.20 x 18.20	462 x 462	18.50 x 18.50	470 x 470	1	1/4-turn	10.00	254
<b>CSD242412SS</b>	24.00 x 24.00 x 12.00 (610 x 610 x 305)	304	14	14	CP2424	CP2424G	22.20 x 22.20	564 x 564	22.50 x 22.50	572 x 572	2	1/4-turn	5.00	127
<b>CSD242412SS6</b>	24.00 x 24.00 x 12.00 (610 x 610 x 305)	316L	14	14	CP2424	CP2424G	22.20 x 22.20	564 x 564	22.50 x 22.50	572 x 572	2	1/4-turn	5.00	127
<b>CSD302412SS</b>	30.00 x 24.00 x 12.00 (762 x 610 x 305)	304	14	14	CP3024	CP3024G	28.20 x 22.20	716 x 564	28.50 x 22.50	724 x 572	2	1/4-turn	5.00	127
<b>CSD302412SS6</b>	30.00 x 24.00 x 12.00 (762 x 610 x 305)	316L	14	14	CP3024	CP3024G	28.20 x 22.20	716 x 564	28.50 x 22.50	724 x 572	2	1/4-turn	5.00	127
<b>CSD362412SS</b>	36.00 x 24.00 x 12.00 (914 x 610 x 305)	304	14	14	CP3624	CP3624G	34.20 x 22.20	869 x 564	34.50 x 22.50	876 x 572	2	1/4-turn	5.00	127
<b>CSD362412SS6</b>	36.00 x 24.00 x 12.00 (914 x 610 x 305)	316L	14	14	CP3624	CP3624G	34.20 x 22.20	869 x 564	34.50 x 22.50	876 x 572	2	1/4-turn	5.00	127
<b>CSD363012SS</b>	36.00 x 30.00 x 12.00 (914 x 762 x 305)	304	14	14	CP3630	CP3630G	34.20 x 28.20	869 x 716	34.50 x 28.50	876 x 724	2	1/4-turn	5.00	127
<b>CSD363012SS6</b>	36.00 x 30.00 x 12.00 (914 x 762 x 305)	316L	14	14	CP3630	CP3630G	34.20 x 28.20	869 x 716	34.50 x 28.50	876 x 724	2	1/4-turn	5.00	127

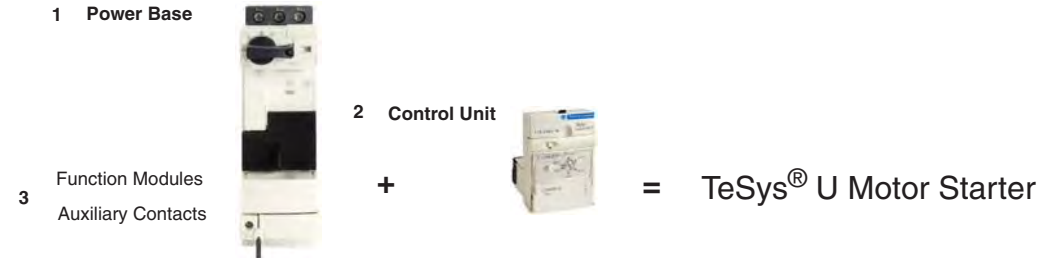
Purchase panels separately.

Optional NEMA style steel and stainless steel panels require conversion kit catalog number CCPM4.



The TeSys U motor starter is integrated, simple to choose and to install, consisting of a control unit snapped in a power base. TeSys U can be configured to fit specific applications as well. Optional accessories: reverser, current limiter, predictive maintenance options and communication options.

To get details information about TeSys U, visit our web at [www.us.schneider-electric.com/TeSysU](http://www.us.schneider-electric.com/TeSysU).



Selecting TeSys U Motor Starters in Three Steps

Table 18.108: Step 1. Select Power Base (Only two different bases up to 32 amps.)

Control Connection	Max. Current (Amps)	Three Phase (HP max.)				Single Phase (HP max.)		Self-Protected Power Base	
		200/208 V	220/240 V	460 V	575/600 V	120 V	240 V	Catalog Number	\$ Price
With screw terminations	12	3	3	7.5	10	1.5	2	LUB12	246.00
	32	10	10	20	25	2	5	LUB32	345.00

Table 18.109: Step 2. Select Control Unit □

Setting Range (Amps)	Standard 3-phase Class 10 trip ▼	\$ Price	Advanced 3-phase Class 10 trip ▼	\$ Price	Advanced single-phase Class 10 trip ▼	\$ Price	Advanced 3-phase Class 20 trip ▼	\$ Price
0.15–0.6	LUCAX6**	120.00	LUCBX6**	150.00	LUCCX6**	150.00	LUCDX6**	150.00
0.3–1.4	LUCA1X**	120.00	LUCB1X**	150.00	LUCC1X**	150.00	LUCD1X**	150.00
1.25–5.0	LUCA05**	120.00	LUCB05**	150.00	LUCC05**	150.00	LUCD05**	150.00
3–12	LUCA12**	120.00	LUCB12**	150.00	LUCC12**	150.00	LUCD12**	150.00
4.5–18 Δ	LUCA18**	120.00	LUCB18**	150.00	LUCC18**	150.00	LUCD18**	150.00
8–32 Δ	LUCA32**	120.00	LUCB32**	150.00	LUCC32**	150.00	LUCD32**	150.00

▼ Complete catalog number by adding appropriate code from voltage code table below. For example: LUCAX6FU.

Δ Control units for 4.5–18 and 8–32 can be used ONLY with 32 amp rated power bases (LUB32 / LU2B32).

□ The control unit contains solid state overload relay and control power source for TeSys U. For more details on the different control units, their functions, and placement on the power base, see 18-29

Table 18.110: Voltage Codes

Volts	24	48–72	110–240
DC	BL◇	—	—
AC	B	—	—
DC or AC	—	ES★	FU

◇ DC voltage with range of 0.90 to 1.10 of nominal.

★ 48–72 Vdc; 48 Vac

Table 18.111: Step 3. Select Auxiliary Contacts (optional)

Auxiliary Contact Blocks										
Terminals	Contact Indicates	Contact Normal Status	Contact State for Each Mode▲						Catalog Number	\$ Price
			Off	Ready	Run	Short Circuit Trip	Overload Trip (Manual Reset)	Overload Trip (Remote/ Auto Reset)■		
Screw	Ready condition	N.O.	O	I	I	O	O	I	LUA1C11	34.5
	Fault condition	N.C.	I	I	I	O	O	I		
Screw	Ready condition	N.O.	O	I	I	O	O	I	LUA1C20	
	Fault condition	N.O.	O	O	O	I	I	O		
Auxiliary Contact Function Modules										
Screw	Pole state	2 N.O.	O	O	I	O	O		LUFN20	34.5
Screw	Pole state	1 N.O. and 1 N.C.	O	I	I	O	O	I	LUFN11	
Screw	Pole state	2 N.C.	I	I	O	I	I		LUFN02	

▲ I—indicates closed contact; O—indicates open contact

■ Requires multifunction or advanced control unit plus fault differentiation module LUFDA10.

Accessory	Quick Description	For details & selection, see pages:
Current Limiter	Increases the breaking capacity to 130kA @ 460 V	18-30
Reverser	Stacked or side mounted	18-30
Line phase barrier	Required for use as a self-protected combination starter (UL508E)	18-30
Multifunction Control Unit	Has functions for monitoring and predictive maintenance	18-30
Function modules	Fault differentiation, Thermal overload, Motor load indication	18-30
Communication modules	Integrates into existing networks, major protocols are available	18-31
Soft Starter + TeSys U	Use Altistart U01Soft Starter with TeSys U	18-32
Powerbus	Use TeSys U with a prewired system	18-31
Configuration and connection accessories	PowerSuite software, busbar, external handle	18-31

Accessories ..... pages 18-29 to 18-31  
Dimensions ..... page 18-50

18 IEC CONTACTORS AND STARTERS



Power Base



Control Unit



Auxiliary Contact






E164862  
CCN NLDX



LR43364  
Class 3211 08



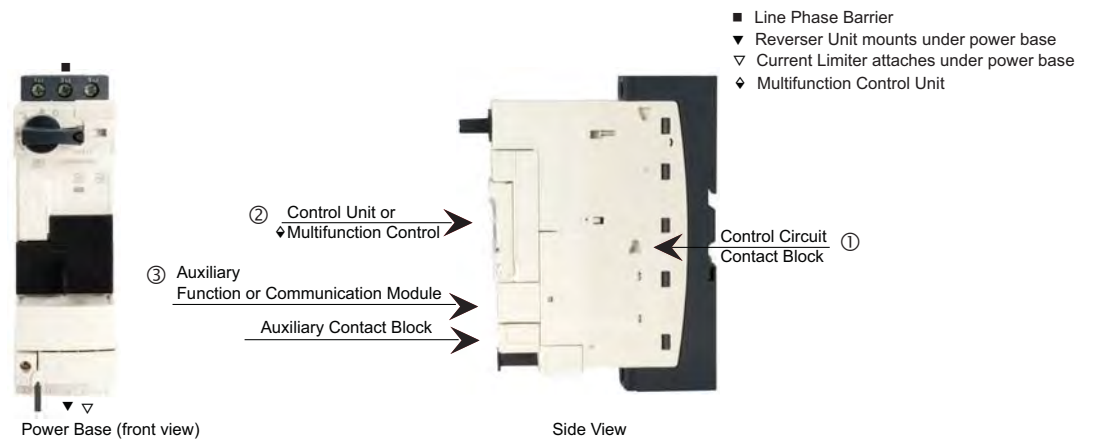
**Table 18.112: Control Units and Functions**

					
	Standard	Advanced	Multifunction		
Reference	LUCA	LUCB	LUCC	LUCD	LUCM
Protection type					
Class 10					
Class 20					
Class 5...30					
Single Phase: LUCC Class 10 only					
Protection functions					
Short circuit					
Over current					
Thermal overload					
Phase loss					
Phase imbalance					
Ground fault					
Under load, long start, jam					
Control functions					
Manual reset					
Automatic or local/remote reset					
Fault differentiation					
Thermal alarm					
Motor load display					
Fault history					
Alarm Threshold adjustment					
Tripping test					

■ = built-in the control unit  
 ▼ = works with the related function modules (see Table 18.119 on page 30)

**Power Base and plug-in accessories**

Find below where to install the accessories to the power base. Only one accessory can be installed in each location.





**Table 18.119: Communication Modules** ★▼

Module	Description	For use with:	Operation Requirements	Catalog Number	\$ Price
AS-Interface Communication	Allows the TeSys U starter to be connected directly to the network using AS-Interface protocols.	Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC pre-wired connector	Requires separate 24 Vdc power supply and AS-Interface network	ASILUFC5	188.00
AS-Interface V2 Communication	Allows the TeSys U starter to be connected directly to the network using AS-Interface V2 protocols.	Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC pre-wired connector	Requires separate 24 Vdc power supply and AS-Interface V2 network	ASILUFC51	188.00
Modbus® Communication Protocol	Allows the TeSys U starter to be connected directly to the network using Modbus protocols.	Advanced or multi-function control units (24 Vdc only) and LU9BN11C or LU9MRC pre-wired connector	Requires separate 24 Vdc power supply	LULC033	218.00
Advantys™ STB Communication	Allows the TeSys U starter to be connected to the network using the Advantys STB protocol	Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL pre-wired connector	Requires separate 24 Vdc power supply	LULC15	218.00
CANopen Communication	Allows the TeSys U starter to be connected to the network using the Can Open protocol	Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL pre-wired connector	Requires separate 24 Vdc power supply	LULC08	218.00
Beckhoff Communication	Allows the TeSys U starter to be connected to the network using the Beckhoff protocol	Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL pre-wired connector	Requires separate 24 Vdc power supply	LULC14	218.00
Profibus Communication	Allows the TeSys U starter to be connected to the network using the Profibus protocol	Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL pre-wired connector	Requires separate 24 Vdc power supply	LULC07	218.00
DeviceNet® Communication	Allows the TeSys U starter to be connected to the network using the Device Net protocol	Advanced or multi-function control units (24 Vdc only) and LU9BN11L or LU9MRL pre-wired connector	Requires separate 24 Vdc power supply	LULC09	218.00

■ Communication capabilities can be integrated into existing automation architecture via a variety of protocols.  
 ♦ See 18-29 for placement on the power base.

**Configuration and Connection Accessories**

**Table 18.120: Control Circuit Accessories** △

Accessory	Application	Technical Data	Mounting	Catalog Number	\$ Price	
Control circuit contact block	Switches control circuit power via LUB® handle (NEC430-74 compliance)	5 amp at 600 Vac 5 amp at 250 Vdc	Side mounting to LUB® and LU2B® only	LUA8E20	71.00	
Through-the-door operating mechanism	Use in enclosures 7.5 to 20 inches deep. Use with LUB® only.	—	—	LU9AP00	125.00	
Operating handle (NEMA 12)	Use with LU9AP00	Black / Blue	Enclosure door	LU9AP11	31.50	
		Red / Yellow	Enclosure door	LU9AP12	31.50	
Control circuit filters	Use with electronic or triac output controllers	Up to 150 VAC max.	Directly to coil terminals	Non-reversing	LUA4F11	39.30
				Reversing	LUA4F12	39.30

‡ See page 29 for placement on the power base.

**Table 18.121: PowerSuite Configuration Software and Accessories**

Item▲	Catalog Number	\$ Price■
PowerSuite software	VW3A8104	225.00
PC connection kit	VW3A8106	113.00
Pocket PC connection kit	VW3A8111	143.00

▲ For complete details on all components included with each item, refer to Catalog #8502CT0201.  
 ■ Items under Discount Schedule CP4C.

**Powerbus**

**Table 18.122: GV2 Cabling Accessories—Bus Bars**

Description	Application	Pitch	Standard Pack	Catalog Number	\$ Price Each
3-Pole, 63 A Bus Bar	For feeding 2 GV2 starters or TeSys U	45	1	GV2G245	23.30
		54	1	GV2G254	23.30
		72	1	GV2G272	23.30
	For feeding 3 GV2 starters or TeSys U	45	1	GV2G345	28.70
		54	1	GV2G354	28.70
		72	1	GV2G445	34.20
For feeding 4 GV2 starters or TeSys U	45	1	GV2G454	34.20	
	54	1	GV2G472	34.20	
	72	1	GV2G554	34.20	

Additional accessories and components are available, including:

- Mounting accessories
- Gateways
- Cabling accessories
- Magelis® remote display unit

For the complete line of TeSys U-Line motor starter accessories and all technical details (specifications, wiring diagrams, etc.) pertaining to the product line, refer to Catalog 8502CT0201.

As part of the Type T designs are MultiTap units having a variety of primary voltages on just one transformer. Our Universal Control Transformer will provide 120 V, or near 120, power from all common primary voltages: 208 to 600 V, and is listed as voltage code D50.

**Key to Price Column Headings**

Voltage Code  
Primary Voltages  
Secondary Voltages  
Key for Dimensions & Accessory

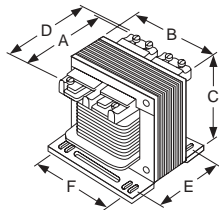


Figure 1

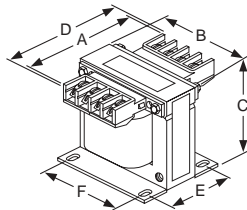


Figure 2

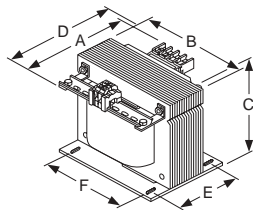


Figure 3

**Type T MultiTap™**

UL/ CSA/ NOM VA	CE VA	Type	D18 208/277/380 95/115 II	D20 208/230/460 115 II	D95 208/240/480 120 II	D32 230/460/575 95/115 II	D33 380/400/415 115/230 I	D50 240/416/480/600 99/120/130 IV	D19 208/240/277/380/480 24 III	D52 380/400/415 12/24 I
50	50	T50	\$ 59.	\$ 59.	\$162.	\$ 59.	\$ 59.	\$ 99.	\$ 59.	\$162.
75	75	T75	62.	62.	164.	62.	62.	107.	62.	164.
100	100	T100	65.	65.	174.	65.	65.	110.	65.	174.
150	150	T150	86.	86.	243.	86.	86.	115.	86.	243.
200	200	T200	111.	111.	242.	111.	111.	131.	111.	242.
250	160	T250	117.	117.	245.	117.	117.	143.	117.	245.
300	200	T300	137.	137.	256.	137.	137.	156.	137.	256.
350	250	T350	143.	143.	297.	143.	143.	161.	143.	297.
500	300	T500	160.	160.	300.	160.	160.	206.	160.	300.
750	500	T750	223.	223.	331.	223.	223.	239.	223.▲	331.▲
1000	630	T1000	263.	263.	423.	263.	263.	313.	263.▲	423.▲

▲ See Control Transformer Catalog: 9070C19901 for Dimensions different than Digest.

Type Dimension Key				A		B		C		D♦		E		F		Slots		Fig.	Weight (lbs)
I	II	III	IV	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm		
T25	T50	...	...	3.09	78.5	3.00	76.2	2.58	65.5	3.84	97.5	2.00	50.8	2.50	63.5	.20x.38	5.1x9.7	1	2.5
...	...	T25	...	4.00	101.6	3.43	87.1	2.64	67.0	4.80	121.9	2.00	50.8	2.50	63.5	.20x.48	5.1x12.2	2	3.5
...	...	T50	T50	4.19	106.4	3.43	87.1	2.89	73.4	4.99	126.7	2.38	60.5	2.81	71.4	.20x.48	5.1x12.2	2	4.0
T75	T100	...	...	3.34	84.8	3.38	85.8	2.89	73.4	4.09	103.9	2.38	60.5	2.81	71.4	.20x.48	5.1x12.2	1	3.8
T150	T200	T75	T100	3.59	91.2	3.75	95.3	3.20	81.3	4.34	110.2	2.88	73.2	3.13	79.5	.20x.38	5.1x9.7	1	5.5
...	...	T75	T100	4.88	124.0	3.75	95.3	3.20	81.3	5.68	144.2	2.88	73.2	3.13	79.5	.20x.38	5.1x9.7	2	7.2
T250	...	T150	T100	5.25	133.4	3.75	95.3	3.25	82.6	6.05	153.6	2.88	73.2	3.13	79.5	.20x.38	5.1x9.7	2	7.1
T300	T200	T200	T150	4.70	119.4	4.50	114.3	3.80	96.5	5.50	139.7	2.56	65.0	3.75	95.3	.20x.38	5.1x9.7	2	8.5
T350	T250	T300	T250	5.09	129.3	4.50	114.3	3.80	96.5	5.89	149.6	3.00	76.2	3.75	95.3	.20x.38	5.1x9.7	2	10.5
T500	T350	T350	T300	5.46	138.7	4.50	114.3	3.80	96.5	6.26	159.0	3.56	90.4	3.75	95.3	.28x.56	7.1x14.2	2	11.9
T750	T500	T500	T350	5.66	143.8	5.25	133.4	4.43	112.5	6.46	164.0	3.43	87.1	4.38	111.3	.28x.56	7.1x14.2	2	11.0
T1000	T750	T750	T500	6.04	153.4	5.25	133.4	4.43	112.5	6.84	173.7	4.31	109.5	4.38	111.3	.28x.56	7.1x14.2	2	20.6
T1500	T1000	T1000	T1000	5.81	147.6	7.06	179.3	6.16	156.5	6.61	167.9	4.13	104.9	5.81	147.6	.28x.56	7.1x14.2	2	34.0
T2000	T1500	T1500	T1500	7.04	178.8	7.06	179.3	6.16	156.5	7.84	199.1	4.56	115.8	5.81	147.6	.28x.56	7.1x14.2	2	47.0
T3000	T2000	T2000	T2000	6.86	174.2	9.00	228.6	8.46	214.9	7.26	184.4	4.63	117.6	7.63	193.8	.44x.69	11.2x17.5	3	60.0
T5000	T3000	T3000	T3000	8.73	221.7	9.00	228.6	8.46	214.9	9.13	231.9	6.56	166.6	7.63	193.8	.44x.69	11.2x17.5	3	89.0

♦ Dimension with FINGERSAFE® Covers



# 300 Series

All Units Available in AC and DC Voltages



### Features

- Highest Quality
- Competitively Priced
- Long Lifetime
- Models for All Applications
- All Necessary Approvals
- Private Branding Available
- Available in AC and DC

### Applications

- Control Panels
- Gen-Sets
- Compressors
- Pumps
- Medical Equipment
- Air Conditioning

#### Approvals:

- UL Recognized (E171200)
- CE Mark
- RoHS Compliant

### Mechanical Data






Display:	AC: 5 integers, 2 decimals DC: 6 integers, 1 decimal without reset
Digit Height:	0.16" (4mm)
Digit Color:	Integer: white on black Decimal: 50 Hz – red on black Decimal: 60 Hz – black on white
Counting Range:	AC: 99,999.99 h, DC: 999,999.9 h
Reading Accuracy:	AC: 1/100 h (36 sec) DC: 1/10 h (6 min)
Weight:	1 oz
Housing Color/Marking:	Standard Black/Neutral

### Electrical Data

Operating Voltage (AC):	24, 48, 60, 110, 120, 220, 230, 240, 400 VAC ± 10%, 50 or 60 Hz
Operating Voltage (DC):	6-12, 12-36, 36-80, 110, 220 VDC ± 10%
Current Consumption:	AC: max. 8 mA DC: max. 9 mA
Connection:	Screw Connection, 1/4" Spade

### Ambient Conditions

Operating Temperature:	AC: -13°F to +176°F DC: -4°F to +158°F
Storage Temperature:	AC: -40°F to +176°F DC: -4°F to +158°F
Relative Humidity:	Max. 80% at 77°F
Protection:	NEMA 1 (IP40 Front) NEMA 4X (IP67 Front) NEMA 6P (IP67 - Totally Sealed Housing)

Ordering Data	 300	 301	 302	 303	 304
Mounting	Flush With Retainer Bracket	Flush With Retainer Bracket	Flush With Two #6 Screws	Flush With Three #8 Screws	Flush With Retainer Bracket
Ordering	HMA 300 (AC) HMD 300 (DC) Voltage/Frequency	HMA 301 (AC) HMD 301 (DC) Voltage/Frequency	HMA 302 (AC) HMD 302 (DC) Voltage/Frequency	HMA 303 (AC) HMD 303 (DC) Voltage/Frequency	HMA 304 (AC) HMD 304 (DC) Voltage/Frequency

Note: Specify 1/4" spade or screw terminals

# Duplexors ARA and ARB Series

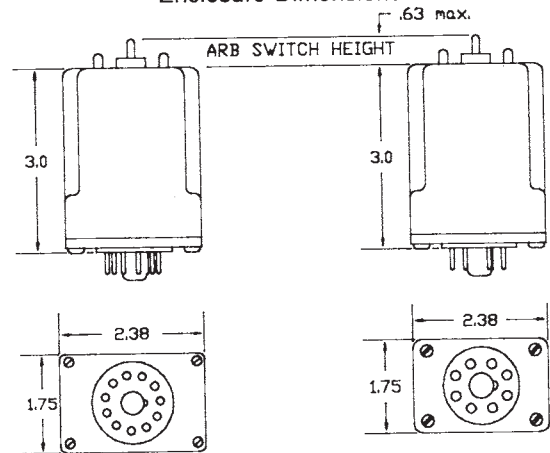


## Operation

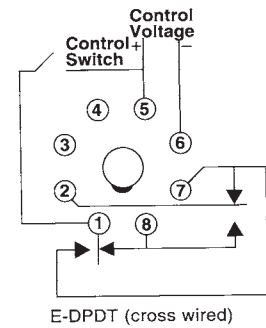
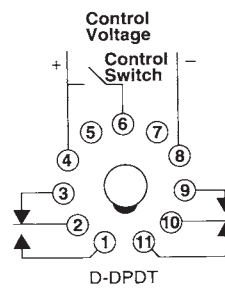
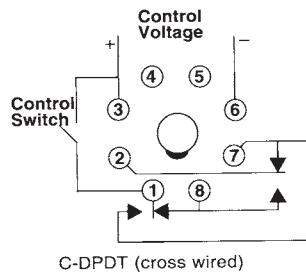
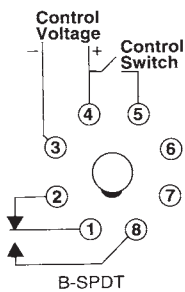
The Duplexor is used in control panels where two loads are required to alternate to provide equal run time on the loads. The alternating action is initiated by a control switch, which is common with one side of the control voltage. The output contacts will change states each time the control switch is opened, thus alternating the two loads. The LED indicators show the position of the output relay.

The ARA series is the standard Duplexor providing automatic alternating sequence. The ARB has the automatic sequencing feature plus the option of locking it into one sequence. A three position switch permits the field selection of normal duplexing action, locking in the A-B sequence, or B-A sequence.

Enclosure Dimensions



Contact/Wiring Configurations

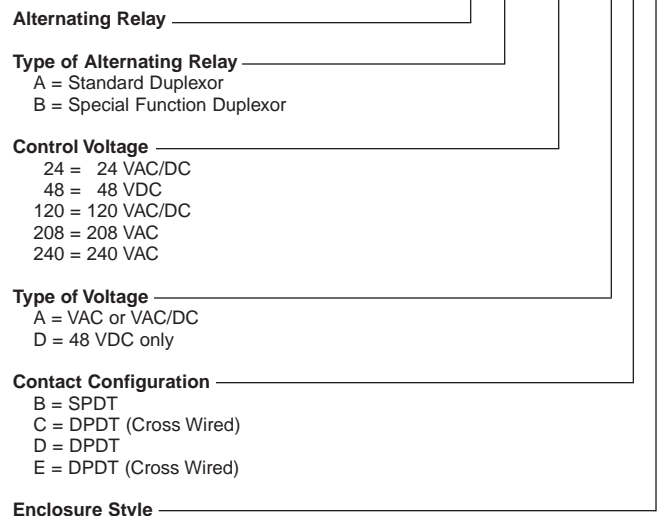


## Specifications

- Control Voltage: 24, 120 VAC/DC, 208, 240 VAC, 50/60Hz, 48 VDC, ±10%
- Control Switch Current: 1 mA
- Contact Rating: 10 Amps @ 240 VAC, Resistive 1/8 hp @ 120 VAC, 1/4 hp @ 240 VAC Inductive, 360 VA @ 240 VAC, Inductive
- Power Required: 3 VA (Approximately)
- Temperatures
  - Operate: -20°C to +55°C
  - Storage: -45°C to +85°C
- Duty Cycle: Continuous
- Life Expectancy
  - Mechanical: 10,000,000 Operations (Minimum)
  - Electrical: 100,000 Operations @ Rated Load
- Indicators: LED Shows Output Position
- Enclosure Style: 'A' Lexan® Dust Cover
- Terminations: Industrial Plug-in
- Agency Approval: UL and Canadian UL Recognition; File #E55826

## General Order Information Code

**ARA-120-ABA**



**Zelio® IEC Style—17.9 mm wide**

**Table 23.119: RE11 Modular Timers—17.9 mm wide (Multi-range timers offering 7 selectable ranges)**



RE11RLMU

Functions	Supply Voltages	Rated Current	Catalog Number	\$ Price
<b>Output 1 C/O contact</b>				
On delay	24 Vdc, 24–240 Vac	8A	RE11RAMU	51.00
Interval	24 Vdc, 24–240 Vac	8A	RE11RHMU	51.00
Asymmetrical repeat cycle	24 Vdc, 24–240 Vac	8A	RE11RLMU	63.00
Asymmetrical repeat cycle	12 Vac/Vdc	8A	RE11RLJU	89.00
One shot	24 Vdc, 24–240 Vac	8A	RE11RBMU	62.00
Off delay with control start	24 Vdc, 24–240 Vac	8A	RE11RCMU	62.00
Multi-function ▲	24 Vdc, 24–240 Vac	8A	RE11RMMU	74.00
Multi-function ▲	12–240 Vac/Vdc	8A	RE11RMMW	89.00
Multi-function ▲	12–240 Vac/Vdc	8A	RE11RMMWS	89.00
Multi-function ▲	12 Vac/Vdc	8A	RE11RMJU	89.00
Multi-function ■	24 Vdc, 24–240 Vac	8A	RE11RMEMU	89.00
Multi-function ▲	24 Vdc, 24–240 Vac	8A	RE11RMXMU	89.00

▲ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr

■ Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr

<b>Conforming to standards</b>		IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3)		
		cULus	File: E173076 CNN: NRNT	
			File: E173076 CNN: NRNT7	
<b>Approvals</b>		CSA	File: 217698 Class 3211 07	
		CE		
		GL except RE11 RMX MU and RE11 RME MU		
<b>Ambient air temperature around the device</b>	Storage	°F (°C)	-22 to +140 (-30 to +60)	
	Operation	°F (°C)	-4 to +140 (-20 to +60)	



RE11LHBM

**Table 23.120: RE11 Modular Timers—17.9 mm wide (Multi-function, dual function or single function)**

Functions	Supply Voltages	Rated Current	Catalog Number	\$ Price
<b>Solid state output</b>				
On delay	24–240 Vac/Vdc	0.7A	RE11LAMW	54.00
Interval	24–240 Vac	0.7A	RE11LHBM	51.00
Off delay with control contact	24–240 Vac	0.7A	RE11LCBM	62.00
Asymmetrical repeat cycle	24–240 Vac	0.7A	RE11LLBM	89.00
Multi-function	24–240 Vac	0.7A	RE11LMBM	74.00

Timing ranges: 0.1–1 s, 1–10 s, 0.1–10 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr

<b>Conforming to standards</b>		IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3)		
		cULus	File: E173076 CNN: NRNT	
			File: E173076 CNN: NRNT7	
<b>Approvals</b>		CSA	File: 217698 Class: 3211 07	
		CE		
<b>Ambient air temperature around the device</b>	Storage	°F (°C)	-22 to 140 (-30 to +60)	
	Operation	°F (°C)	-4 to 140 (-20 to +60)	

**Table 23.121: RE48 Panel Mount Timers (For required socket, refer to the catalog section)**



RE48A TM12MW

Functions	Supply Voltages	Rated Current	Catalog Number	\$ Price
Single function: on delay, two relay outputs	24–240 Vac/Vdc	2 x 5 A	RE48ATM12MW	87.00
Repeat cycle: two relay outputs	24–240 Vac/Vdc	2 x 5 A	RE48ACV12MW	104.00
Multi-function: on delay, one shot, off delay, repeat cycle	24–240 Vac/Vdc	2 x 5 A	RE48AML12MW	102.00
Multi-function: on delay and interval, two relay outputs, of which one selectable and instantaneous	24–240 Vac/Vdc	2 x 5 A	RE48AMH13MW	102.00

<b>Conforming to standards</b>		IEC 61812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC directive (89/336/EEC + IEC 60669-2-3)		
		cURus	File: E173076 CNN: NRNT2	
			File: E173076 CNN: NRNT8	
<b>Approvals</b>		CSA	File: 217698 Class: 3211 07	
		CE, C-Tick, GL		
		RoHS compliant as of date code 0625		
<b>Ambient air temperature around the device</b>	Storage	°F (°C)	-40 to 158 (-40 to +70)	
	Operation	°F (°C)	-4 to 122 (-20 to +50)	

**Table 23.122: REXL Miniature Plug-in Timers (For required socket, refer to the catalog section)**



Function	Supply Voltages	4 pole			2 pole		
		Rated Current	Catalog Number	\$ Price	Rated Current	Catalog Number	\$ Price
Single function (On-Delay)	12 Vdc	3A	REXL4TMJD	66.00	5A	REXL2TMJD	63.00
	24 Vdc ♦	3A	REXL4TMBD	66.00	5A	REXL2TMBD	63.00
	24 Vac 50/60 Hz ♦	3A	REXL4TMB7	66.00	5A	REXL2TMB7	63.00
	120 Vac 50/60 Hz	3A	REXL4TMF7	66.00	5A	REXL2TMF7	63.00
	230 Vac 50/60 Hz	3A	REXL4TMP7	66.00	5A	REXL2TMP7	63.00
<b>Timing Ranges</b>		0.1–1 s, 1–10 s, 0.1–1 min, 1–10 min, 0.1–1 hr, 1–10 hr, 10–100 hr					

For 48 Vac supply, additional resistor 390 ohm 4 W / 24 V

♦ For 48 Vac supply, additional resistor 560 ohm 2 W / 24 V

**Approvals:**



File CCN E173076 NRNT2  
File CCN E173076 NRNT8



File Class 217698 321107



IEC 61812-1

RoHS Compliant as of date code 0625

# RSB1A120F7

## PLUG-IN RELAY 250VAC 12AMP RSB +OPTIONS



List Price \$3.50 USD

Availability **Stock Item: This item is normally stocked in our distribution facility.**

### Technical Characteristics

Description (Individual)	Interface Relay
Contact Configuration	1 NO/1 NC
Contact Arrangement	SPDT
Relay Type	Interface
Electrical Connection	Printed Circuit Board (PCB)
Mounting Style	Plug-In Socket
Contact Materials	Silver Alloy (AgNi)
Coil Voltage	120 VAC
Coil Resistance	10200 Ohms
Average Consumption	0.75 VA
Rated Operational Current (IEC)	12A (NO) - 6A (NC)
Drop-out Voltage Threshold	0.15 U <sub>c</sub>
Switching Capacity (Minimum)	5mA@60V
Conventional Thermal Current	12A
Maximum Switching Voltage	400 VAC - 300 VDC
Rated Insulation Voltage	400V (IEC)
Nominal Load (Resistive)	12A@250VAC - 12A@28VDC
Mechanical Durability	30 million operating cycles
Switching Capacity (Maximum)	3000 VA
Certifications	UL Recognized Component - CSA Certified - CE Marked - RoHS Compliant
Operating Time (Response Time)	(NO) AC: 12ms DC: 9ms (NC) AC: 10ms DC: 4ms
Electrical Durability (Resistive Load)	0.1 million operating cycles
Rated Impulse Withstand Voltage	3.6 kV
Ambient Air Temperature (Storage)	-40 to 185°F (-40 to 85°C)
Weight	0.03 lbs (0.014kg)
Type	RSB
Lockable Test Button	No
LED Indicator	No
Dielectric Strength - Between Coil and Contact	5000 VAC
Specifications	Sold in lots of 10
Ambient Air Temperature (Operation)	-40 to 158°F (-40 to 70°C)
Dielectric Strength - Between Poles	2500 VAC
Maximum Operating Rate (Under Load)	600 operating cycles/hour

Generated: 07/27/2012 09:14:11

Shock Resistance	5g (opening) 10g (closing)
Dielectric Strength - Between Contacts	1000 VAC
Degree of Protection	IP 40 conforming to IEC/EN 60529
Maximum Operating Rate (No Load)	72000 operating cycles/hour




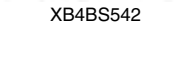


## Shipping and Ordering

---

Category	21127 -
Discount Schedule	CP2
GTIN	00785901618096
Package Quantity	10
Weight	0.03 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	AT




As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.

**Table 19.52: Non-Illuminated Emergency Stop Mushroom Head Push Buttons, Ø 40 mm (Red) (screw clamp terminal connections)**

Shape of Head	Type of Push	Type of Contact		Catalog Number (Components)	\$ Price
		N.O.	N.C.		
 XB4BT845	Trigger action push-pull▲	1	1	XB4BT845 (ZB4BZ105 + ZB4BT84)	92.00
 XB4BS8445	Trigger action turn-to-release▲	1	1	XB4BS8445 (ZB4BZ105 + ZB4BS844)	150.00
 XB4BS9445	Trigger action Key release ▲ (No. 455)	1	1	XB4BS9445 (ZB4BZ105 + ZB4BS944)	150.00
 XB4BT42	Push-pull	—	1	XB4BT42 (ZB4BZ102 + ZB4BT4)	62.00
 XB4BS542	Turn-to-release	—	1	XB4BS542 (ZB4BZ102 + ZB4BS54)	100.00
 XB4BS142	Key release (No. 455)	—	1	XB4BS142 (ZB4BZ102 + ZB4BS14)	134.00

▲ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator.

**Table 19.53: Non-Illuminated Selector Switches and Key Switches (screw clamp terminal connections)■**

Shape of Head	Type of Operator	Type of Contact		Number and Type of Positions	Catalog Number (Components)	\$ Price
		N.O.	N.C.			
 XB4BD33	Standard lever, black	1	—	2-maintained	XB4BD21 (ZB4BZ101 + ZB4BD2)	46.00
		1	1	2-maintained	XB4BD25 (ZB4BZ105 + ZB4BD2)	62.00
		2	—	3-maintained	XB4BD33 (ZB4BZ103 + ZB4BD3)	62.00
				3-momentary to center	XB4BD53 (ZB4BZ103 + ZB4BD5)	68.00
 XB4BJ33	Extended lever, black	1	—	2-maintained	XB4BJ21 (ZB4BZ101 + ZB4BJ2)	46.00
		2	—	3-maintained	XB4BJ33 (ZB4BZ103 + ZB4BJ3)	62.00
				3-momentary to center	XB4BJ53 (ZB4BZ103 + ZB4BJ5)	68.00
 XB4BG33	Key (No. 455)	1	—	2-maintained	XB4BG21 (ZB4BZ101 + ZB4BG2)	112.00
				2-momentary to left	XB4BG61 (ZB4BZ101 + ZB4BG6)	112.00
				3-maintained	XB4BG03 (ZB4BZ103 + ZB4BG0)	128.00
		2	—	3-maintained	XB4BG33 (ZB4BZ103 + ZB4BG3)	128.00

Note: The symbol  $\varnothing$  indicates key withdrawal position(s).

■ See page 19-22 for contact configurations.

Legends..... pages 19-29 to 19-31


**When ordering, please specify:**

- Quantity
- Catalog Number



**XB4BVB5**



**Pilot Lights with PROTECTED LED® (screw clamp terminal connections)**

Shape of Head	Supply Voltage	Color	Catalog Number (Components)	Price
	24 Vac/dc	White	XB4BVB1 (ZB4BVB1 + ZB4BV013)	<b>\$32.40</b>
		Green	XB4BVB3 (ZB4BVB3 + ZB4BV033)	
		Red	XB4BVB4 (ZB4BVB4 + ZB4BV043)	
		Yellow	XB4BVB5 (ZB4BVB5 + ZB4BV053)	
		Blue	XB4BVB6 (ZB4BVB6 + ZB4BV063)	
	110–120 Vac	White	XB4BVG1 (ZB4BVG1 + ZB4BV013)	<b>32.40</b>
		Green	XB4BVG3 (ZB4BVG3 + ZB4BV033)	
		Red	XB4BVG4 (ZB4BVG4 + ZB4BV043)	
		Yellow	XB4BVG5 (ZB4BVG5 + ZB4BV053)	
		Blue	XB4BVG6 (ZB4BVG6 + ZB4BV063)	



**XB4BV64**







**Pilot Lights for BA9s Bulb (screw clamp terminal connections)**

Shape of Head	Supply Voltage	Color	Catalog Number (Components)	Price
<b>Direct supply, for BA9s (incandescent, LED, neon) V ≤ 250 V, 2.4 W bulb (bulb not included)</b>				
	≤ 250 Vac/dc	White	XB4BV61 (ZB4BV6 + ZB4BV01)	<b>\$23.10</b>
		Green	XB4BV63 (ZB4BV6 + ZB4BV03)	
		Red	XB4BV64 (ZB4BV6 + ZB4BV04)	
		Yellow	XB4BV65 (ZB4BV6 + ZB4BV05)	
<b>Transformer type with 1.2 VA, 6 V secondary. BA9s incandescent bulb included</b>				
	110–120 Vac 50/60 Hz	White	XB4BV31 (ZB4BV3 + ZB4BV01)	<b>53.00</b>
		Green	XB4BV33 (ZB4BV3 + ZB4BV03)	
		Red	XB4BV34 (ZB4BV3 + ZB4BV04)	
		Yellow	XB4BV35 (ZB4BV3 + ZB4BV05)	



**XB4BV33**

**Illuminated Push Buttons, Momentary (screw clamp terminal connections)**

Shape of Head	Description	Type of Contact		Supply Voltage	Color of Push	Catalog Number (Components)	Price
		N.O.	N.C.				
<b>Flush</b>							
		1	1	24 Vac/dc	White	XB4BW31B5 (ZB4BW0B15 + ZB4BW313)	<b>\$54.00</b>
					Green	XB4BW33B5 (ZB4BW0B35 + ZB4BW333)	
					Red	XB4BW34B5 (ZB4BW0B45 + ZB4BW343)	
					Yellow	XB4BW35B5 (ZB4BW0B55 + ZB4BW353)	
					Blue	XB4BW36B5 (ZB4BW0B65 + ZB4BW363)	
				110–120 Vac	White	XB4BW31G5 (ZB4BW0G15 + ZB4BW313)	<b>54.00</b>
					Green	XB4BW33G5 (ZB4BW0G35 + ZB4BW333)	
					Red	XB4BW34G5 (ZB4BW0G45 + ZB4BW343)	
					Yellow	XB4BW35G5 (ZB4BW0G55 + ZB4BW353)	
					Blue	XB4BW36G5 (ZB4BW0G65 + ZB4BW363)	
	Direct supply for BA9s 2.4 W max. bulb not included	1	1	≤ 250 Vac/dc	White	XB4BW3165 (ZB4BW065 + ZB4BW31)	<b>44.90</b>
					Green	XB4BW3365 (ZB4BW065 + ZB4BW33)	
					Red	XB4BW3465 (ZB4BW065 + ZB4BW34)	
					Yellow	XB4BW3565 (ZB4BW065 + ZB4BW35)	
	Transformer type 1.2 VA, 6 V secondary. BA9s incandescent bulb included	1	1	110–120 Vac 50/60 Hz	White	XB4BW3135 (ZB4BW035 + ZB4BW31)	<b>74.00</b>
					Green	XB4BW3335 (ZB4BW035 + ZB4BW33)	
					Red	XB4BW3435 (ZB4BW035 + ZB4BW34)	
					Yellow	XB4BW3535 (ZB4BW035 + ZB4BW35)	
				230–240 Vac 50/60 Hz	White	XB4BW3145 (ZB4BW045 + ZB4BW31)	<b>74.00</b>
					Green	XB4BW3345 (ZB4BW045 + ZB4BW33)	
					Red	XB4BW3445 (ZB4BW045 + ZB4BW34)	
					Yellow	XB4BW3545 (ZB4BW045 + ZB4BW35)	
<b>Extended</b>							
		1	1	24 Vac/dc	White	XB4BW11B5 (ZB4BW0B15 + ZB4BW113)	<b>51.40</b>
					Green	XB4BW13B5 (ZB4BW0B35 + ZB4BW133)	
					Red	XB4BW14B5 (ZB4BW0B45 + ZB4BW143)	
					Yellow	XB4BW15B5 (ZB4BW0B55 + ZB4BW153)	
					Blue	XB4BW16B5 (ZB4BW0B65 + ZB4BW163)	
				110–120 Vac	White	XB4BW11G5 (ZB4BW0G15 + ZB4BW113)	<b>51.40</b>
					Green	XB4BW13G5 (ZB4BW0G35 + ZB4BW133)	
					Red	XB4BW14G5 (ZB4BW0G45 + ZB4BW143)	
					Yellow	XB4BW15G5 (ZB4BW0G55 + ZB4BW153)	
					Blue	XB4BW16G5 (ZB4BW0G65 + ZB4BW163)	

For additional information, reference Catalog #9001CT0001.



**XB4BA31**



**XB4BA4322**



**XB4BP51**



**XB4BL42**









**XB4BC21**




**XB4BL845**

**Non-Illuminated Push Buttons, Momentary (screw clamp terminal connections)**

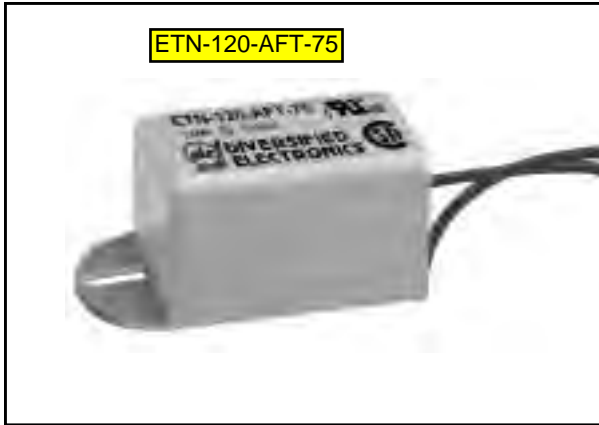
Shape of Head	Type of Push	Type of Contact		Marking	Color of Cap	Catalog Number (Components)	Price	
		N.O.	N.C.					
	Flush	1	...	...	Black	XB4BA21 (ZB4BZ101 + ZB4BA2)	<b>\$17.50</b>	
					Green	XB4BA31 (ZB4BZ101 + ZB4BA3)		
					Yellow	XB4BA51 (ZB4BZ101 + ZB4BA5)		
					Blue	XB4BA61 (ZB4BZ101 + ZB4BA6)		
		...	1	...	...	Red	XB4BA42 (ZB4BZ102 + ZB4BA4)	<b>17.50</b>
		1	1	...	Black	XB4BA25 (ZB4BZ105 + ZB4BA2)	<b>25.60</b>	
					Green	XB4BA35 (ZB4BZ105 + ZB4BA3)		
					Red	XB4BA45 (ZB4BZ105 + ZB4BA4)		
Yellow	XB4BA55 (ZB4BZ105 + ZB4BA5)							
Blue	XB4BA65 (ZB4BZ105 + ZB4BA6)							
	Flush	1	...	"I" (white)	Green	XB4BA3311 (ZB4BZ101 + ZB4BA331)	<b>20.30</b>	
	Flush	...	1	"O" (white)	Red	XB4BA4322 (ZB4BZ102 + ZB4BA432)	<b>20.30</b>	
	Flush with clear silicone boot (color of pusher unobscured)	1	...	...	Black	XB4BP21 (ZB4BZ101 + ZB4BP2)	<b>23.90</b>	
					Green	XB4BP31 (ZB4BZ101 + ZB4BP3)		
					Yellow	XB4BP51 (ZB4BZ101 + ZB4BP5)		
					Blue	XB4BP61 (ZB4BZ101 + ZB4BP6)		
...	1	...	...	Red	XB4BP42 (ZB4BZ102 + ZB4BP4)	<b>23.90</b>		
	Extended	...	1	...	Red	XB4BL42 (ZB4BZ102 + ZB4BL4)	<b>17.50</b>	
		1	1	...	Red	XB4BL45 (ZB4BZ105 + ZB4BL4)	<b>25.60</b>	
	Mushroom head Ø 40 mm	1	...	...	Black	XB4BC21 (ZB4BZ101 + ZB4BC2)	<b>25.70</b>	

**Two Button Push Buttons, Momentary (screw clamp terminal connections)**

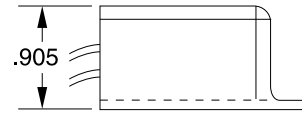
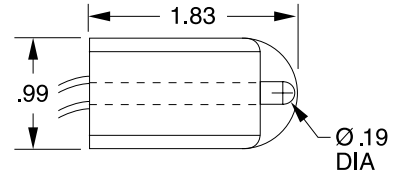
Shape of Head	Type of Push	Type of Contact		Degree of Protection	Catalog Number (Components)	Price
		N.O.	N.C.			
	One flush green push (marked "I") One extended red push (marked "O")	1	1	IP40	XB4BL845 (ZB4BZ105 + ZB4BL8434)	<b>\$31.50</b>

For additional information, reference Catalog #9001CT0001.

## Solid-State Flasher



### DIMENSIONS INCHES

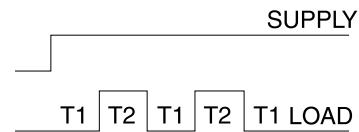


### FEATURES

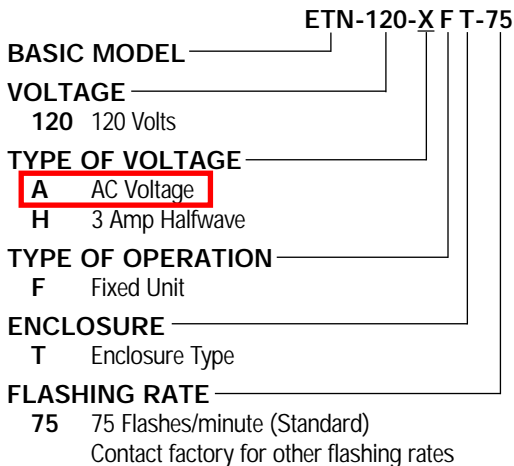
- Totally Solid-state
- 2-Wire Leads (Series Connection with Load)
- Totally Encapsulated Circuitry
- Molded Case with Built-In Mounting Feature
- High Inrush Capability
- Low Cost
- 1 Amp (Fullwave) and 3 Amp (halfwave) versions

### OPERATION

When supply voltage is applied, the OFF delay (T1) begins. Upon completion of the OFF delay, the load energizes and the ON delay (T2) begins. Upon completion of the ON delay, the load de-energizes and one cycle is complete. This ON/OFF cycling continues until the supply voltage is removed. The OFF delay always equals the ON delay.



### ORDERING INFORMATION



### SPECIFICATIONS

**TIMING ACTION:** Flasher, 50% Duty Cycle  
**TIMING RANGE:** Factory Fixed, (45-150) Flashes per minute ±20%

#### OUTPUT RATING: (SOLID STATE)

1 A Resistive (Fullwave) 10 A Maximum (Inrush)  
40 mA Minimum (Hold in Current)  
2.5 Volt Drop @ 1 A

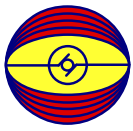
3 A Resistive (Halfwave) 10 A Maximum (Inrush)  
40mA Minimum (Hold in Current)  
1.1 Volt Drop @ 3 Amp

**SUPPLY VOLTAGE:** 120 VAC; ± 15%, 50/60  
**TERMINATIONS:** (2) 6 inch wires, 18 AWG, 300 Volt

**TEMPERATURES**  
 Operate: -4° to 140°F (-20° to +60°C) Free Air  
 Storage: -40° to 185°F (-40° to +85°C)

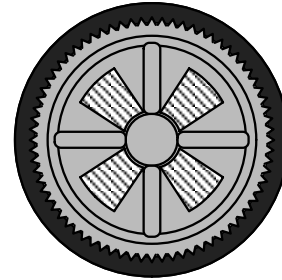
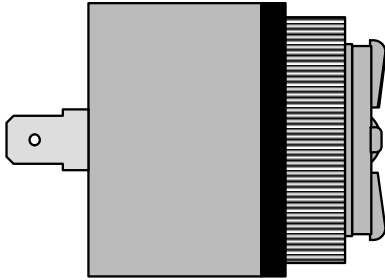
**MOUNTING:** No. 8 or No. 10 Screw

**ENCLOSURE:** Polycarbonate Case, Totally Encapsulated for Environmental Protection



## PIEZO SOUND ALARM

MODEL PW120A: 120VAC, PW24D: 24VDC, PW12D: 12VDC



**\*Designed for use with Ingram's SM120A Silence Module**

The PW series of panel mount piezo sound alarms was designed to be a cost-effective audible alarm for use in industrial control systems. It is molded from tough GE Valox. It is weatherproof and suitable for use in corrosive environments, outdoor and indoor.

### FEATURES

- Distinctive WARBLE tone cuts through ambient noise.
- UL Recognized for use in UL Type 3, 3R, 4X, 12 and 13 environments.
- Also meets NEMA 3, 3R, 4X, 12 and 13 requirements.
- All solid state construction = reliability.
- Encapsulated for durability and corrosion resistance.
- Molded from tough GE Valox.
- Low power consumption.
- Installs in 1.125" hole or 3/4" standard K.O.
- Comes with gasket installed.
- Available in Red or Black

### SPECIFICATIONS

- Sound output: 95dB min. @ 2 Feet.
- Resonant frequency 2.9± 0.5kHz
- Operating voltage:  
Model PW120A: 120VAC (40 to 130VAC)\*  
Model PW24D: 24VDC (10 to 28VDC)  
Model PW12D: 12VDC (4 to 15VDC)
- Maximum current draw:  
Model PW120A: 120VAC= 40mA  
Model PW24D: 24VDC= 30mA  
Model PW12D: 12VDC= 30mA
- Operating temperature: -20°C to 50°C
- Electrical connections: 1/4" Quick connect terminals.
- Fits panels up to 1/4" thick.
- Comes with manual volume Damper (removable)

## Visual Beacons



**Part Number**  
R7-XS-7

**Description**

Polycarbonate Beacon, 120V, 7W, 2" x 2", UL 4X  
R=Red, A=Amber, B=Blue, G=Green  
NITW - Industrial Control Panel Components



- \* 1/4" Quick Connect Terminals
- \* Single Hole Mount
- \* 12V available



**Part Number**  
R10-SM-10

**Description**

Polycarbonate Beacon, 120V, 10W, 2.5" x 2.5", UL 4X  
R=Red, A=Amber, B=Blue, G=Green  
NITW - Industrial Control Panel Components



- \* 1/4" Quick Connect Terminals
- \* Single Hole Mount
- \* 12V available



**Part Number**  
R15-MB-15

**Description**

Polycarbonate Beacon, 120V, 15W, 2.5" x 3.75", UL 4X  
R=Red, A=Amber, B=Blue, G=Green  
NITW - Industrial Control Panel Components



- \* 1/4" Quick Connect Terminals
- \* Single Hole Mount
- \* 12V and 24V available
- \* LED available in 120V or 24V



**Part Number**  
R25-LG-25

**Description**

Polycarbonate Beacon, 120V, 15W, 3.5" x 3.75", UL 4X  
R=Red, A=Amber, B=Blue, G=Green  
NITW - Industrial Control Panel Components



- \* 12" Pre-Wired Leads
- \* Single Hole Mount
- \* 12V and 24V available
- \* LED available in 120V or 24V



**Part Number**  
R40-XLS-25  
R40-XLS-40F

**Description**

Polycarbonate Beacon, 120V, 25W, 4.25" x 4.25", UL 4X  
Polycarbonate Beacon, 120V, 40W, 4.25" x 4.25", UL 4X, Flasher  
R=Red, A=Amber, B=Blue, G=Green  
NITW - Industrial Control Panel Components



- \* 12" Pre-Wired Leads
- \* Single Hole Mount
- \* 12V and 24V available
- \* LED available in 120V or 24V