ELEMECH INC.
ELECTRICAL AND MECHANICAL ENGINEERING SERVICES

Submittal

Product Catalog Information

Customer:
Huber Technology

Job Name:
WICHITA, KS

Strainpress Control Panel

Arranged By:
EleMech, Inc.
2275 White Oak Circle
Aurora, IL, 60502

Project Engineer:
Adam Juodis

Date:
02/13/19

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Submittal Comments

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ELEMECH INC.
ELECTRICAL AND MECHANICAL ENGINEERING SERVICES

Submittal Comments

Project Name: **Wichita, KS**
Project Number: **HBR7628**
Customer Project: **73004052**
Panel Type: **Strainpress Control panel**

February 8, 2019

The following comments are regarding the Wichita, KS Strainpress Revision 0 Submittal:

1. Quantity (1) Strainpress electrical and (1) Strainpress pneumatic panels have been provided.

2. The control panel has been designed for use with a 480VAC-3Ph-60Hz supply.

3. The control panel enclosures are rated NEMA 4X wall mounted and will not be suitable for installation in a classified/hazardous area.

4. An Allen Bradley MicroLogix 1400 PLC and a PanelView 800 OIU have been provided and will be programmed with the following software:
   - PLC: RSLogix 500 (Latest Version)
     - Ladder Diagram type only
   - OIU: Connected Components Workbench (Latest Version)
     - EleMech standard programming

5. The electrical control panel will include a “System Ready” dry contact for remote monitoring. This contact needs to be interlocked with the sludge feed to the Strainpress. If the “System Ready” contact is open the feed needs to stop. If the contact is closed the system is ready to receive sludge.

6. There will be no provisions to power or control an air compressor from the Strainpress control panel. Air supply to pneumatic panels shall be by others.

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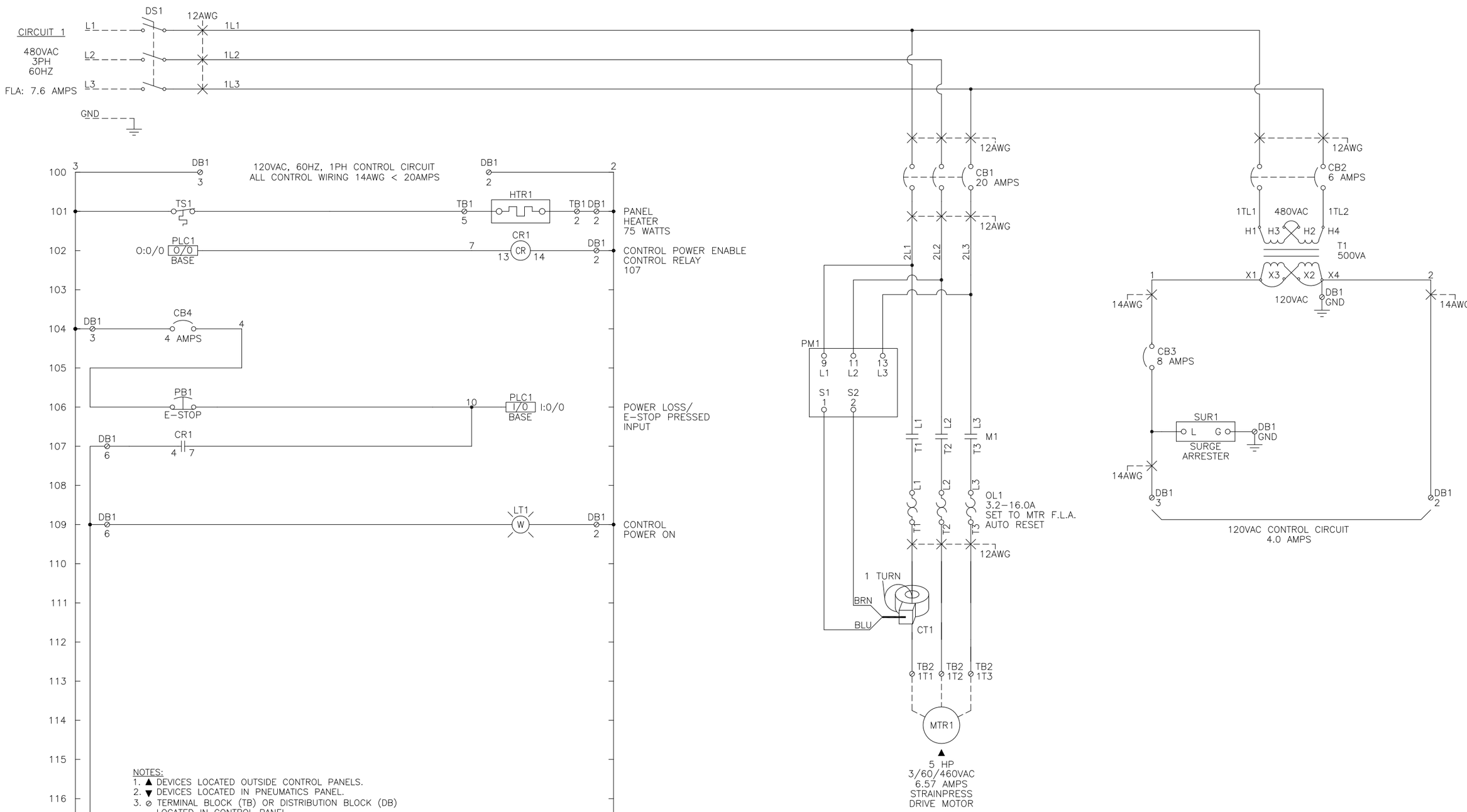
Electrical Drawings

C

ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Section: C	
Section Name: Electrical Drawings	Date: 2/8/2019	Job Number: HBR7628	Page # 1/1
	By: JAP		



NOTES:
1. ▲ DEVICES LOCATED OUTSIDE CONTROL PANELS.
2. ▼ DEVICES LOCATED IN PNEUMATICS PANEL.
3. ⊘ TERMINAL BLOCK (TB) OR DISTRIBUTION BLOCK (DB) LOCATED IN CONTROL PANEL.
4. □ TERMINAL BLOCK (TB) OR DISTRIBUTION BLOCK (DB) LOCATED IN PNEUMATICS PANEL.
5. – –FIELD WIRING.
6. NAMEPLATES AND LEGENDPLATES SHALL BE WHITE WITH BLACK LETTERS.
7. ELEMECH RESERVES THE RIGHT TO CHANGE, AS NECESSARY, THE SPACING, ORIENTATION, AND PHYSICAL LOCATION OF DEVICES IN ORDER TO OPTIMIZE THE DESIGN.
8. LOCAL MOTOR DISCONNECT SWITCHES SHALL BE PROVIDED BY OTHERS IF REQUIRED BY LOCAL REGULATIONS.
9. JUNCTION BOXES ARE NOT SHOWN AND SHALL BE PROVIDED BY OTHERS AS NECESSARY.

WIRE COLORS:
BLK – POWER
BLK – 120VAC HOT
WHT – 120VAC NEUTRAL
RED – 120VAC CONTROL
YEL – REMOTE
GRN – GROUND
BLU – DC POSITIVE/CONTROL
WHT/BLU – DC NEUTRAL

DATE	REVISION	NO.	BY	CK	APP

DESIGNED AJ
DETAILED
CHECKED CCC
APPROVED
DATE 02/07/19

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STRAINPRESS
CONTROL PANEL

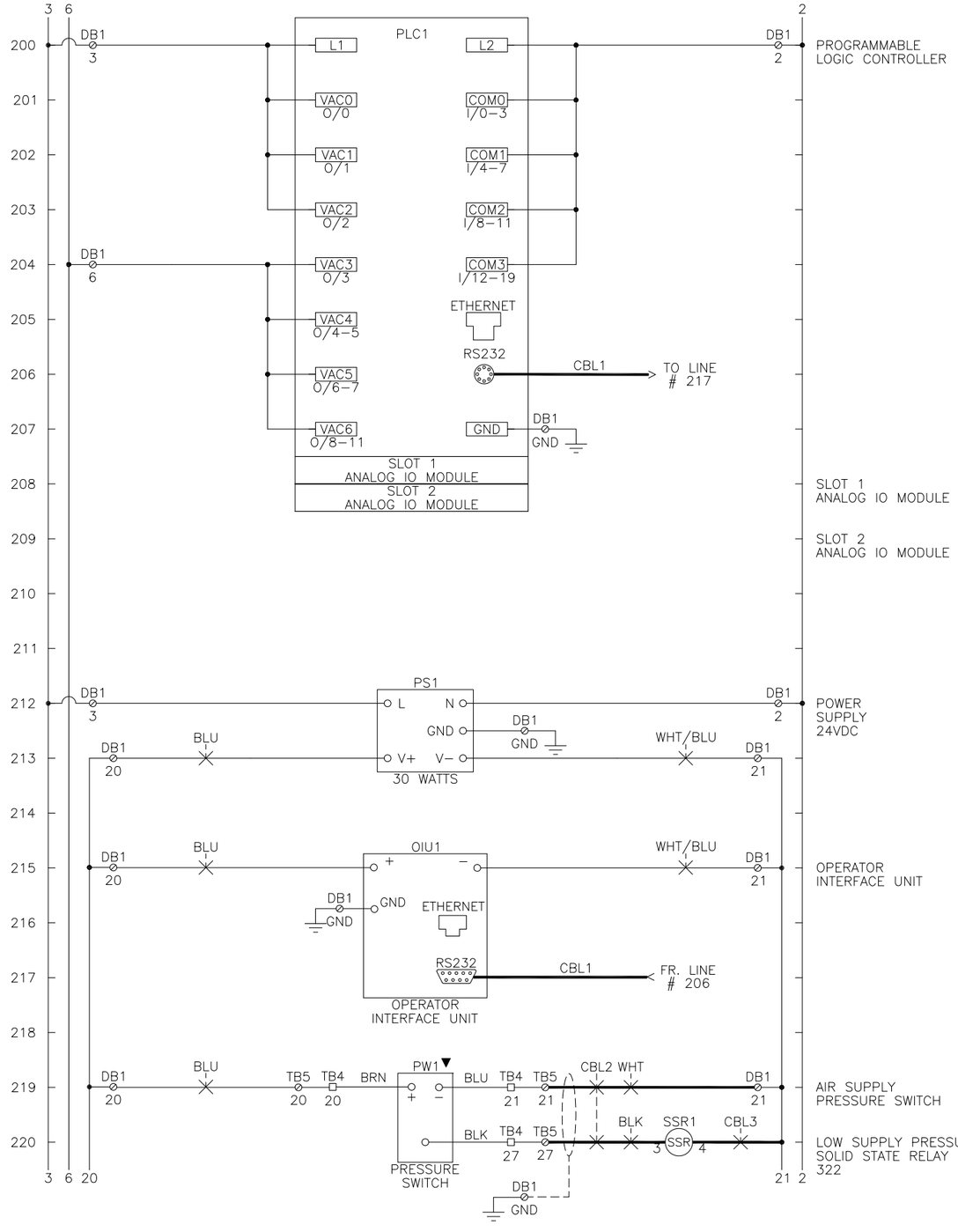
WICHITA, KS

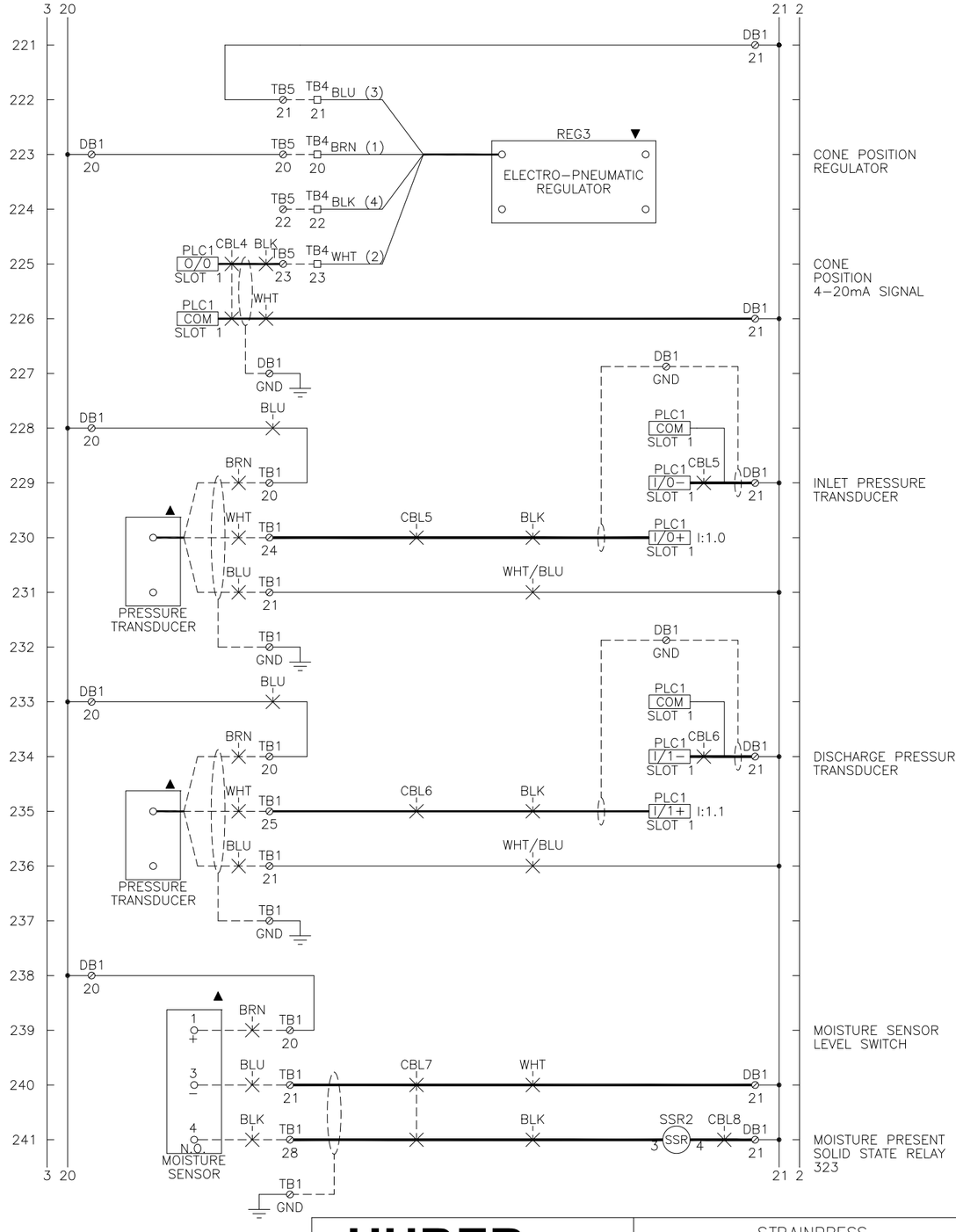
SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A1

SHEET 1 OF 9





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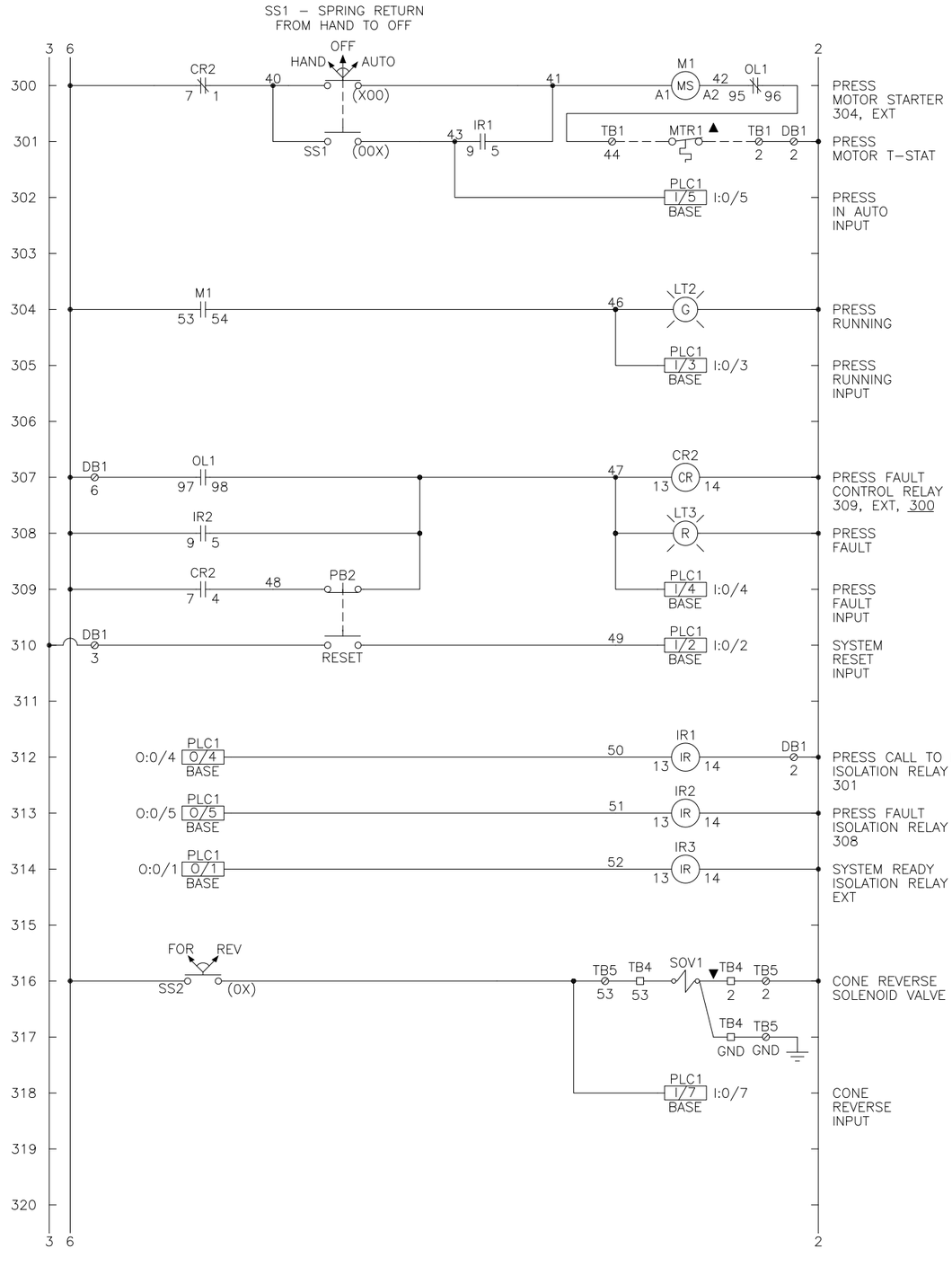
STRAINPRESS CONTROL PANEL

WICHITA, KS

SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A2



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STRAINPRESS CONTROL PANEL

WICHITA, KS

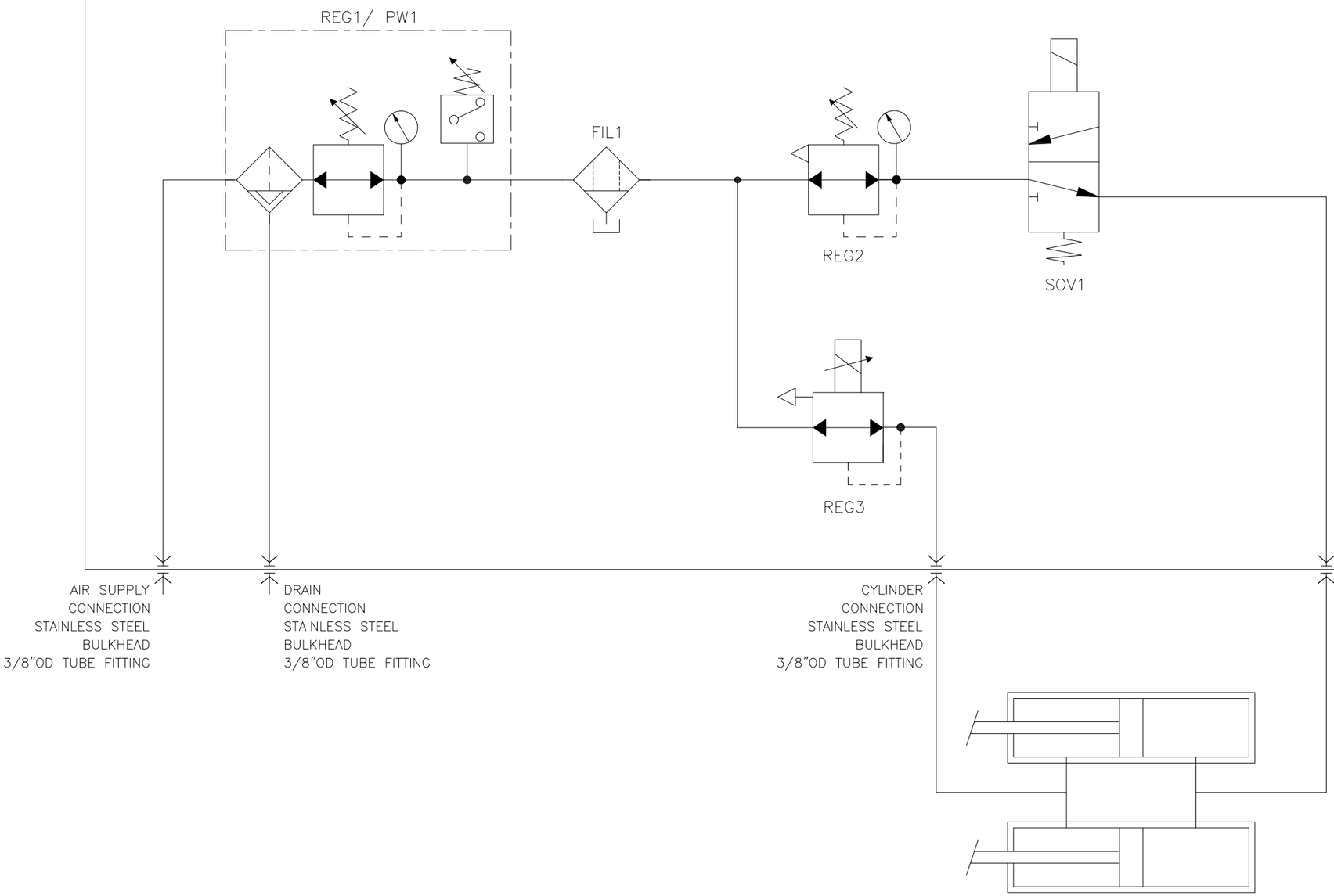
SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A3

PNEUMATIC
CONTROL PANEL

NOTE: ALL AIR LINES WILL BE 3/8" BLUE POLYURETHANE TUBING.



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STRAINPRESS
CONTROL PANEL

WICHITA, KS

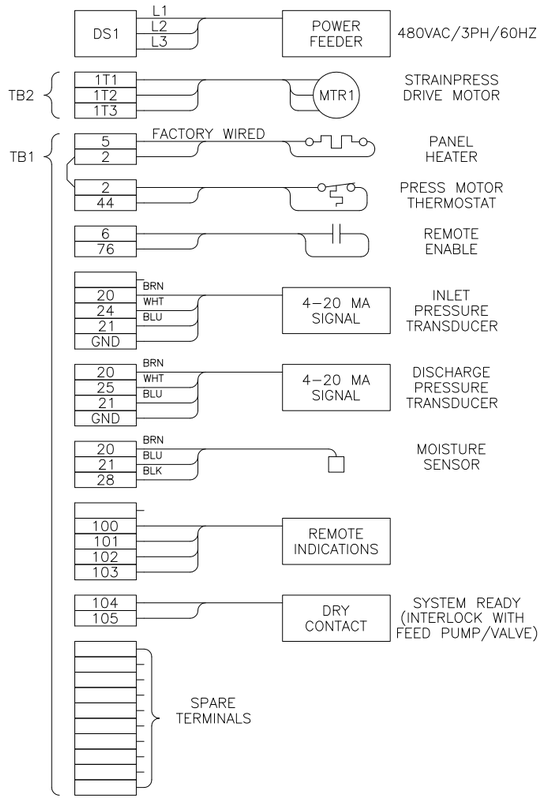
SCALE: NONE

PROJECT NUMBER: 73004052

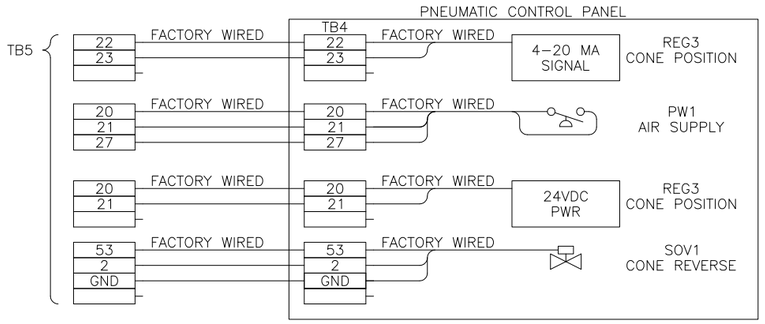
DRAWING NO: HBR7628A4

FIELD WIRING DIAGRAM

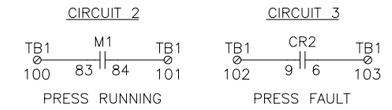
WARNING:
DAMAGE RESULTING FROM INSTALLATION OF TOP ENTRY CONDUIT WILL VOID WARRANTY.
- USE PROPER FITTINGS, MYERS TYPE 4 OR EQUAL
- PROTECT INTERIOR DEVICES FROM INSTALLATION DEBRIS
- CONDUIT MUST BE SEALED WATERTIGHT TO PREVENT WATER ENTRY



FIELD WIRING DIAGRAM



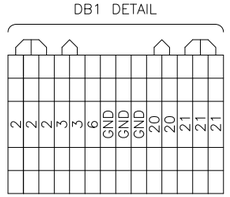
DRY CONTACT OUTPUTS



MAX. CONTROLLED LOAD: 10A @ 120VAC

NOTE: BRANCH CIRCUIT PROTECTION PROVIDED BY OTHERS PER N.E.C.

DB1 DETAIL



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STRAINPRESS CONTROL PANEL

WICHITA, KS

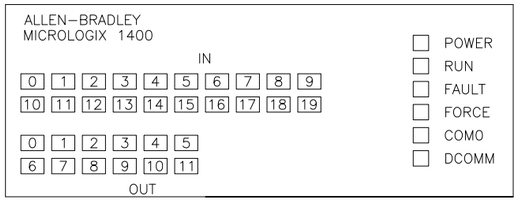
SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A5

DEVICE SETTINGS

PLC – I/O



PLC INPUTS

I/0	POWER LOSS/E–STOP
I/1	SPARE
I/2	SYSTEM RESET
I/3	PRESS RUNNING
I/4	PRESS FAULT
I/5	PRESS IN AUTO
I/6	SPARE
I/7	CONE REVERSE
I/8	MOISTURE PRESENT
I/9	LOW AIR SUPPLY PRESSURE
I/10	SPARE
I/11	PRESS PERMISSIVE
I/12	SPARE
I/13	SPARE
I/14	SPARE
I/15	SPARE
I/16	SPARE
I/17	SPARE
I/18	SPARE
I/19	SPARE

PLC OUTPUTS

O/0	CONTROL POWER ENABLE
O/1	SYSTEM READY
O/2	SPARE
O/3	SPARE
O/4	PRESS CALL TO RUN
O/5	PRESS FAULT
O/6	SPARE
O/7	SPARE
O/8	SPARE
O/9	SPARE
O/10	SPARE
O/11	SPARE

PLC STATUS BITS

S:1/8 – FAULT OVERRIDE AT POWERUP = 1

PLC ANALOG INPUTS – SLOT NO.1

IN0	INLET PRESSURE
IN1	DISCHARGE PRESSURE

PLC ANALOG OUTPUTS – SLOT NO.1

OUT0	CONE POSITION
OUT1	SPARE

PLC ANALOG INPUTS – SLOT NO.2

IN0	PRESS LOAD
IN1	SPARE

PLC ANALOG OUTPUTS – SLOT NO.2

OUT0	SPARE
OUT1	SPARE

PLC1 – SETPOINTS

REGISTER NUMBER	DESCRIPTION	FACTORY SETTING	RANGE
F8:50	START DIFFERENTIAL PRESSURE	7 PSI	0–20 PSI
F8:51	START INLET PRESSURE	20 PSI	0–35 PSI
F8:52	HIGH INLET PRESSURE	35 PSI	0–43 PSI
F8:53	INLET PRESSURE 4mA SCALING	–7 PSI	–7–200 PSI
F8:54	INLET PRESSURE 20mA SCALING	200 PSI	–7–200 PSI
F8:55	DISCHARGE PRESSURE 4mA SCALING	–7 PSI	–7–200 PSI
F8:56	DISCHARGE PRESSURE 20mA SCALING	200 PSI	–7–200 PSI
N7:0	MAINTAINED HIGH INLET PRESSURE FAULT TIME	30 SEC.	1–300 SEC.
N7:1	HIGH INLET PRESSURE RECOVERY TIME	30 SEC.	1–300 SEC.
N7:2	HIGH INLET PRESSURE FAULT COUNT RESET TIME	300 SEC.	1–300 SEC.
N7:3	HIGH INLET PRESSURE ATTEMPTS TO CLEAR FAULT	3 COUNTS	1–10 COUNTS
N7:4	STRAINPRESS OFF DELAY TIME	20 SEC.	1–300 SEC.
N7:5	STRAINPRESS OVER–TORQUE DELAY TIME	1 SEC.	1–30 SEC.
N7:6	HIGH MOISTURE FAULT DELAY TIME	60 SEC.	1–300 SEC.
N7:7	LOW AIR SUPPLY PRESSURE DELAY TIME	120 SEC.	1–300 SEC.
N7:10	DISCHARGE PRESSURE GREATER THAN INLET DELAY TIME	15 SEC.	0–999 SEC.
F8:57	CYLINDER MIN. CONTROL PRESSURE	0%	0–100%
F8:58	CYLINDER MAX CONTROL PRESSURE	100%	0–100%
F8:59	STRAINPRESS MIN. POWER	20%	0–100%
F8:60	STRAINPRESS MAX POWER	80%	0–100%
F8:61	STRAINPRESS OVER–TORQUE FAULT	80%	0–100%

NOTES:
1. THE ABOVE IS A PARTIAL LISTING OF SETPOINTS. ONLY THE SETPOINTS THAT ARE SHOWN ABOVE SHALL BE ALTERED IN THE FIELD.

DEVICE SETTINGS

PLC1 – COMMUNICATIONS SETUP

PARAMETER	VALUE
DRIVER	DF1 FULL DUPLEX
BAUD RATE	9600
PARITY	NONE
STOP BITS	1
ERROR DETECTION	CRC

PARAMETER	VALUE
IP ADDRESS	10.0.0.1
SUBNET MASK	255.255.255.0
GATEWAY ADDRESS	0.0.0.0

OIU1 – COMMUNICATIONS SETUP

PARAMETER	VALUE
DRIVER	DF1 FULL DUPLEX
BAUD RATE	9600
PARITY/STOP BITS	NONE/1
ERROR DETECTION	CRC
HANDSHAKING	OFF

PM1 – SETTINGS

WINDOW NUMBER	FUNCTION DESCRIPTION	DEFAULT	FACTORY SETTING
04	PARAMETER LOCK	369	
05	MONITOR TYPE	OVERLOAD	
11	MAIN ALARM	100%	
12	PRE–ALARM	100%	
21	MAIN ALARM MARGIN	16%	
22	PRE–ALARM MARGIN	8%	
31	START–UP DELAY	2 SEC.	
32	RESPONSE DELAY	0.5 SEC.	
33	HYSTERESIS	0%	
41	MOTOR RATED POWER	2.9 HP	5.0 HP
42	MOTOR RATER CURRENT	5.6 AMP	6.5 AMPS
61	MAIN ALARM LATCHED	OFF	
62	ALARM AT ZERO CURRENT	OFF	
63	MAIN ALARM (NO/NC)	NO	
64	PRE–ALARM (NO/NC)	NO	
65	ADVANCE RELAY OPERATION	0	
81	REMOTE DIGITAL INPUT	RES	
91	ANALOG OUTPUT	0.20	4.20 (ON)
92	ANALOG OUTPUT LOW	0%	
93	ANALOG OUTPUT HIGH	100%	

NOTES:
1. FACTORY SETTING '*' NOTES PARAMTERS SET IN THE FIELD.
2. RELAYS CHANGE TO PROGRAMMED STATE ON POWER–UP.
3. THE ABOVE IS A PARTIAL PARAMETER LIST AND THEIR SETTINGS. FOR A COMPLETE LIST REFER TO THE OWNERS MANUAL.

PW1 – SETTINGS

PARAMETER	DESCRIPTION	DEFAULT	FACTORY SETTING
P–	PRESSURE SETTING	50 PSI	75 PSI

SETPOINT CHANGE INSTRUCTIONS:
1. PRESS THE "S" KEY. THE DISPLAY SHOULD FLASH "P–".
2. USE THE UP AND DOWN ARROW KEYS TO ADJUST THE PRESSURE SETPOINT.
3. PRESS THE "S" KEY TO SAVE SETTING.

REG3 – SETPOINTS

PARAMETER	DESCRIPTION	DEFAULT	FACTORY SETTING
F_1	MIN. PRESSURE	0 PSI	0 PSI
F_2	MAX. PRESSURE	100 PSI	80 PSI

SETPOINT CHANGE INSTRUCTIONS:
1. PRESS AND HOLD THE "∇" KEY. THE DISPLAY SHOULD FLASH "Loc".
2. PRESS THE "S" KEY. THE DISPLAY SHOULD READ "unL".
3. PRESS THE "S" KEY TO CYCLE BETWEEN THE SETPOINTS.
4. USE THE UP AND DOWN ARROW KEYS TO ADJUST A SETPOINT.
5. PRESS THE "S" KEY TO SAVE SETTING.
6. PRESS AND HOLD THE "Δ" KEY. THE DISPLAY SHOULD FLASH "unL".
7. PRESS THE "S" KEY. THE DISPLAY SHOULD READ "Loc".

TS1 – SETTINGS

HEATER ON/OFF	60 °F

DEVICE SETTINGS

PLC1 – SCADA COMMUNICATIONS

REGISTER NUMBER	DESCRIPTION	NORMAL STATE	ACTIVE STATE	DATA TYPE	FUNCTION
N25:0	PLC1 BASE DISCRETE INPUTS	0	1	BIT	READ
N25:1	PLC1 BASE DISCRETE INPUTS	0	1	BIT	READ
N25:2	PLC1 BASE DISCRETE OUTPUTS	0	1	BIT	READ
F28:0	PRESS INLET PRESSURE(PSI)	–	–	REAL	READ
F28:1	PRESS DISCHARGE PRESSURE(PSI)	–	–	REAL	READ
F28:2	PRESS LOAD(%)	–	–	REAL	READ

NOTES:
1. THE ABOVE IS A LISTING OF BITS BEING MESSAGED FROM THE MAIN PANEL TO THE SCADA SYSTEM.

						DESIGNED	AJ
						DETAILED	
						CHECKED	CCC
						APPROVED	
DATE	REVISION	NO.	BY	CK	APP	DATE	02/07/19

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STRAINPRESS CONTROL PANEL

WICHITA, KS | SCALE: NONE

PROJECT NUMBER: 73004052 | DRAWING NO: HBR7628A6 | SHEET 6 OF 9

SEQUENCE OF OPERATION

CONTROL POWER ON–DELAY:
EACH TIME THE CONTROL PANEL POWER SUPPLY IS CYCLED, THE PLC WILL ALLOW ALL SOLID STATE DEVICES TO FULLY ENERGIZE BEFORE ENABLING THE CONTROL POWER CIRCUIT.

SYSTEM READY INTERLOCK:
THE SYSTEM READY INTERLOCK CONTROL RELAY WILL BE ENERGIZED WHEN THE FOLLOWING CONDITIONS ARE SATISFIED. THE SYSTEM READY CONTROL RELAY NEEDS TO BE INTERLOCKED WITH THE SLUDGE FEED PUMP CALL TO RUN SIGNAL.

1. STRAINPRESS SELECTOR IS IN THE AUTO POSITION.
2. STRAINPRESS MOTOR STARTER THERMAL OVERLOAD IS NOT TRIPPED.
3. STRAINPRESS NOT IN OVERTORQUE CONDITION.
4. SLUDGE INLET PRESSURE IS BELOW THE HIGH PRESSURE SET–POINT.
5. SCREENINGS DISCHARGE MOISTURE FAULT IS NOT ACTIVATED.
6. PNEUMATIC SYSTEM AIR SUPPLY IS HEALTHY.
7. ALL EMERGENCY STOPS ARE IN OPERABLE POSITIONS.
8. THE REMOTE ENABLE SIGNAL HAS BEEN RECEIVED.

STRAINPRESS MODES OF OPERATION:
HAND: WHEN THE STRAINPRESS HAND–OFF–AUTO SELECTOR IS IN THE HAND POSITION, THE STRAINPRESS WILL RUN CONTINUOUSLY. THE STRAINPRESS SELECTOR WILL SPRING RETURN FROM HAND TO OFF.
AUTO: WHEN STRAINPRESS SELECTOR IS IN THE AUTO POSITION AND THE SYSTEM READY INTERLOCK IS ENERGIZED, THE STRAINPRESS WILL START TO RUN DUE TO THE FOLLOWING CONDITIONS.

1. THE DIFFERENCE BETWEEN THE SLUDGE INLET AND DISCHARGE PRESSURE HAS REACHED THE START DIFFERENTIAL PRESSURE SET–POINT.
2. THE SLUDGE INLET PRESSURE HAS REACHED THE START INLET PRESSURE SET–POINT.

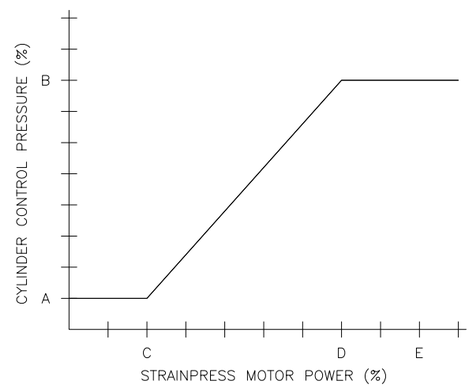
ONCE A START CONDITION IS RECEIVED, THE STRAINPRESS WILL START TO RUN CONTINUOUSLY. ONCE THE ABOVE PRESSURE CONDITIONS ARE REMOVED, THE STRAINPRESS WILL CONTINUE TO RUN FOR A TIME SET IN THE STRAINPRESS OFF–DELAY TIMER.

EMERGENCY STOP:
THE STRAINPRESS WILL STOP IMMEDIATELY AND THE SYSTEM READY INTERLOCK WILL BE REMOVED IF ANY OF THE E–STOP PUSHBUTTONS ARE PRESSED. IN ORDER TO RESUME OPERATION, ALL E–STOPS MUST BE RESET AND THE SYSTEM RESET PUSHBUTTON MUST BE PRESSED.

SEQUENCE OF OPERATION

PNEUMATIC CYLINDER AIR PRESSURE REGULATOR:
WHEN THE STRAINPRESS STARTS TO RUN, THE STRAINPRESS POWER MONITOR WILL PROVIDE A 4–20mA SIGNAL PROPORTIONAL TO MOTOR LOAD FROM 0–100% MOTOR NAMEPLATE POWER. THIS ANALOG SIGNAL WILL BE USED BY THE ELECTRO–PNEUMATIC REGULATOR TO ADJUST THE AMOUNT OF AIR PRESSURE SUPPLIED TO THE CONTROL SIDE OF THE PNEUMATIC CYLINDERS. THE AIR PRESSURE SUPPLIED TO THE CYLINDERS DURING NORMAL OPERATION WILL BE AS DETAILED BELOW. AS THE MOTOR POWER FLUCTUATES BETWEEN, THE MINIMUM AND MAXIMUM POWER SET–POINTS, THE CYLINDER CONTROL PRESSURE WILL INCREASE AND DECREASE BETWEEN THE MINIMUM AND MAXIMUM CONTROL PRESSURE SET–POINTS.

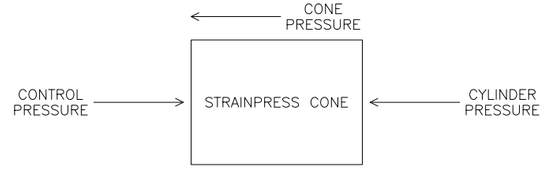
CYLINDER CONTROL PRESSURE VS. MOTOR POWER



MOTOR POWER / CONTROL PRESSURE SCALING SET–POINTS:
A. CYLINDER MINIMUM CONTROL PRESSURE
B. CYLINDER MAXIMUM CONTROL PRESSURE
C. STRAINPRESS MINIMUM POWER
D. STRAINPRESS MAXIMUM POWER
E. STRAINPRESS HIGH POWER FAULT

PNEUMATIC CYLINDER REVERSE MODE:
WHEN THE PRESS CONE SELECTOR IS IN THE REVERSE POSITION, THE CONE REVERSE SOLENOID VALVE WILL BE ENERGIZED AND THE CONTROL PRESSURE WILL BE SET TO 100%.

CONE PRESSURE DIAGRAM



NOTE: CONE PRESSURE = CYLINDER PRESSURE – CONTROL PRESSURE

SEQUENCE OF OPERATION

FAULTS:
STRAINPRESS MOTOR OVERLOAD – WHEN THE STRAINPRESS MOTOR OVERLOAD IS SENSED, THE STRAINPRESS WILL STOP IMMEDIATELY, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED AND THE STRAINPRESS FAULT LIGHT WILL BE ENERGIZED.

STRAINPRESS MOTOR OVER–TORQUE – WHEN THE STRAINPRESS OVER–TORQUE IS SENSED, THE STRAINPRESS WILL STOP IMMEDIATELY, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED AND THE STRAINPRESS FAULT LIGHT WILL BE ENERGIZED.

SLUDGE INLET HIGH PRESSURE ALARM – WHEN HIGH PRESSURE IS SENSED AT THE SLUDGE INLET, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED. THE ALARM CONDITION WILL RESET AND THE SYSTEM WILL RESUME NORMAL OPERATION ONCE NORMAL PRESSURE HOLDS FOR THE TIME SET IN THE HIGH INLET PRESSURE RECOVERY TIMER.

SLUDGE INLET HIGH PRESSURE SHUTDOWN – WHEN HIGH PRESSURE IS SENSED AT THE SLUDGE INLET AND IS MAINTAINED FOR THE TIME SET IN THE MAINTAINED HIGH INLET PRESSURE FAULT TIME, THE STRAINPRESS WILL STOP IMMEDIATELY, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED AND THE STRAINPRESS FAULT LIGHT WILL BE ENERGIZED.

WHEN HIGH PRESSURE IS SENSED AT THE SLUDGE INLET THE NUMBER OF TIMES SET IN THE HIGH INLET PRESSURE ATTEMPTS TO CLEAR FAULT WITHIN THE TIME SET IN THE HIGH INLET PRESSURE FAULT COUNT RESET TIMER, THE STRAINPRESS WILL STOP IMMEDIATELY, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED AND THE STRAINPRESS FAULT LIGHT WILL BE ENERGIZED.

AIR SUPPLY LOW PRESSURE – WHEN LOW AIR PRESSURE IS SENSED IN THE PNEUMATIC CONTROL SYSTEM FOR THE TIME SET IN THE LOW AIR SUPPLY PRESSURE DELAY TIME, THE STRAINPRESS WILL STOP IMMEDIATELY, THE STRAINPRESS READY INTERLOCK WILL BE REMOVED. AIR SUPPLY LOW PRESSURE WILL NOT PREVENT HAND OPERATION.

SCREENINGS DISCHARGE HIGH MOISTURE – WHEN MOISTURE IS SENSED IN THE SCREENINGS DISCHARGE CHAMBER AND MAINTAINED FOR THE TIME SET IN THE HIGH MOISTURE FAULT DELAY, THE STRAINPRESS WILL STOP IMMEDIATELY AND THE STRAINPRESS READY INTERLOCK WILL BE REMOVED. HIGH MOISTURE WILL NOT PREVENT HAND OPERATION.

ALL OF THE ABOVE FAULTS CAN BE RESET BY PRESSING THE SYSTEM RESET PUSHBUTTON.

OIU – INFORMATION:

1. THE OIU WILL DISPLAY THE ELAPSED MOTOR RUN TIMES.
2. ALL ADJUSTABLE SET–POINTS MAY BE ACCESSED AND ADJUSTED THROUGH THE OIU.
3. ALL PRESENT FAULTS WILL BE DISPLAYED ON THE OIU.
4. THE HISTORY OF ALL PAST FAULTS CAN BE ACCESSED THROUGH THE OIU.
5. STRAINPRESS MOTOR LOAD WILL BE DISPLAYED ON THE OIU.
6. SLUDGE INLET PRESSURE WILL BE DISPLAYED ON THE OIU.
7. SLUDGE DISCHARGE PRESSURE WILL BE DISPLAYED ON THE OIU.
8. SLUDGE DISCHARGE PRESSURE GREATER THAN INLET PRESSURE WARNING WILL BE DISPLAYED ON THE OIU.

DATE	REVISION	NO.	BY	CK	APP

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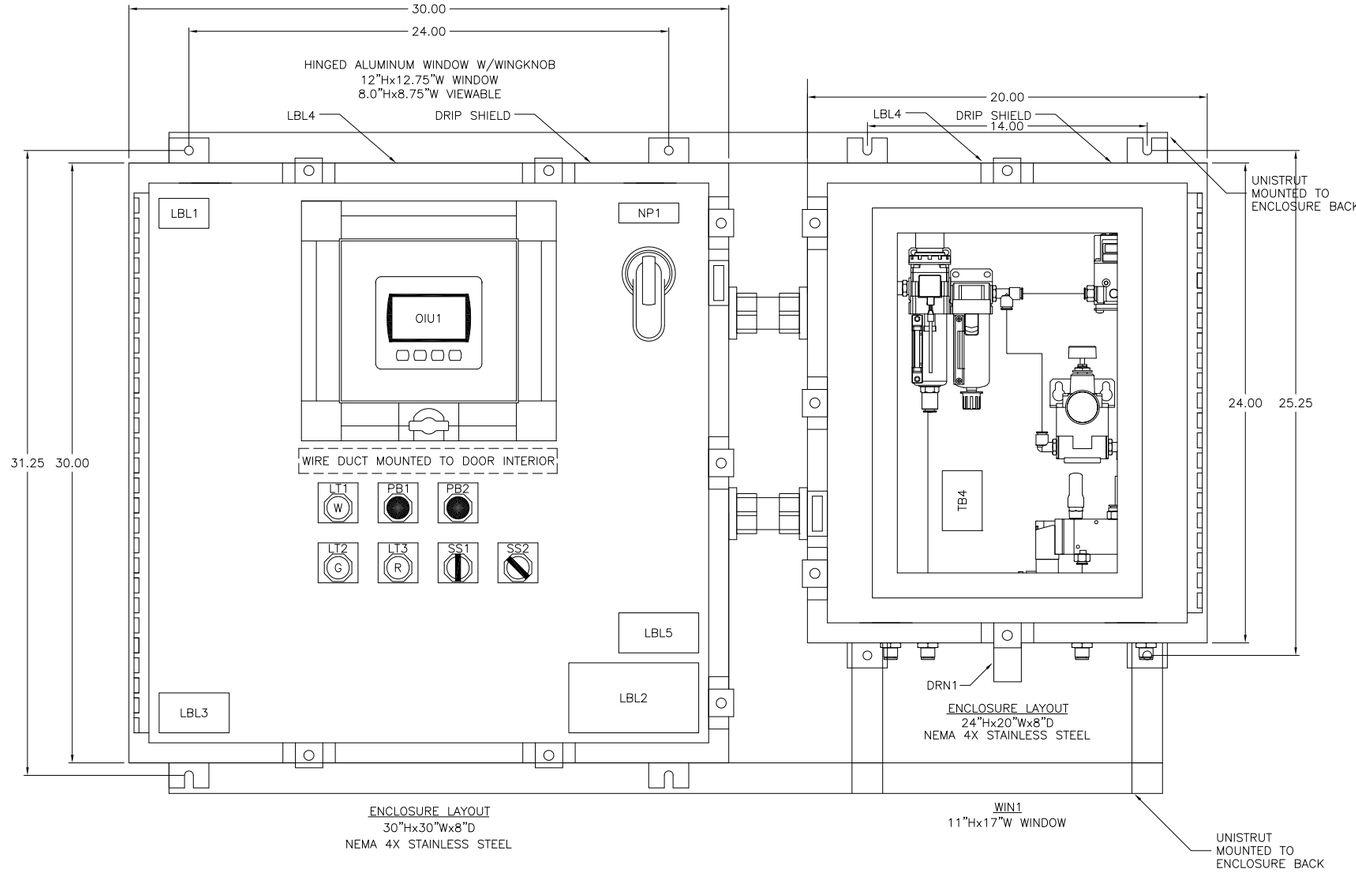
STRAINPRESS CONTROL PANEL

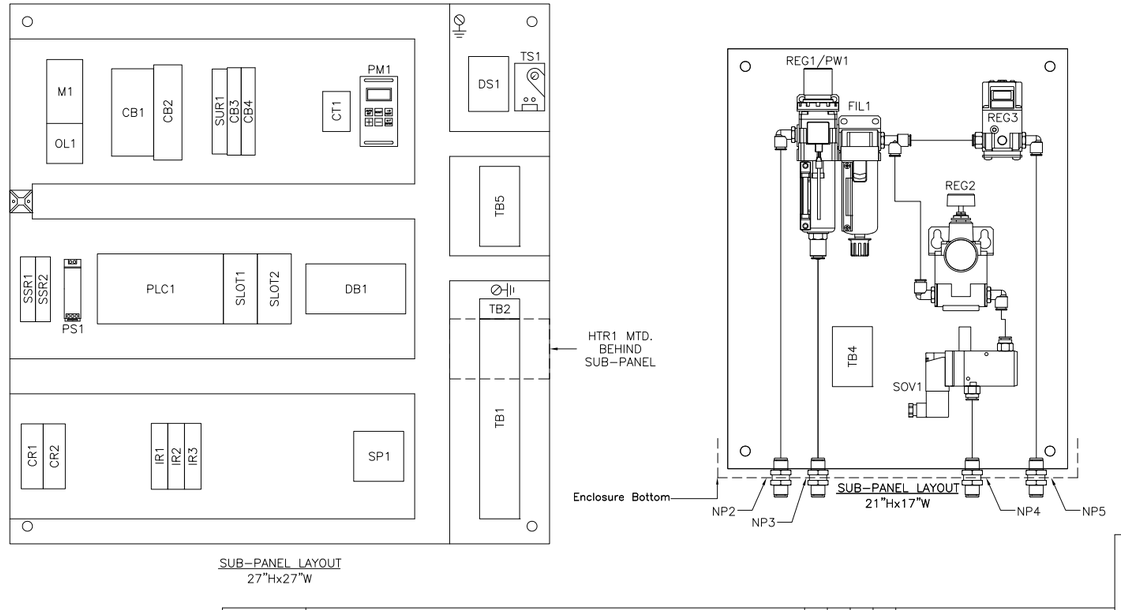
WICHITA, KS

SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A7





PILOT DEVICE LEGEND PLATES:
LT1 – CONTROL POWER ON
LT2 – PRESS RUNNING
LT3 – PRESS FAULT
PB1 – EMERGENCY STOP
PB2 – SYSTEM RESET
SS1 – PRESS HAND–OFF–AUTO
SS2 – PRESS CONE FOR–REV

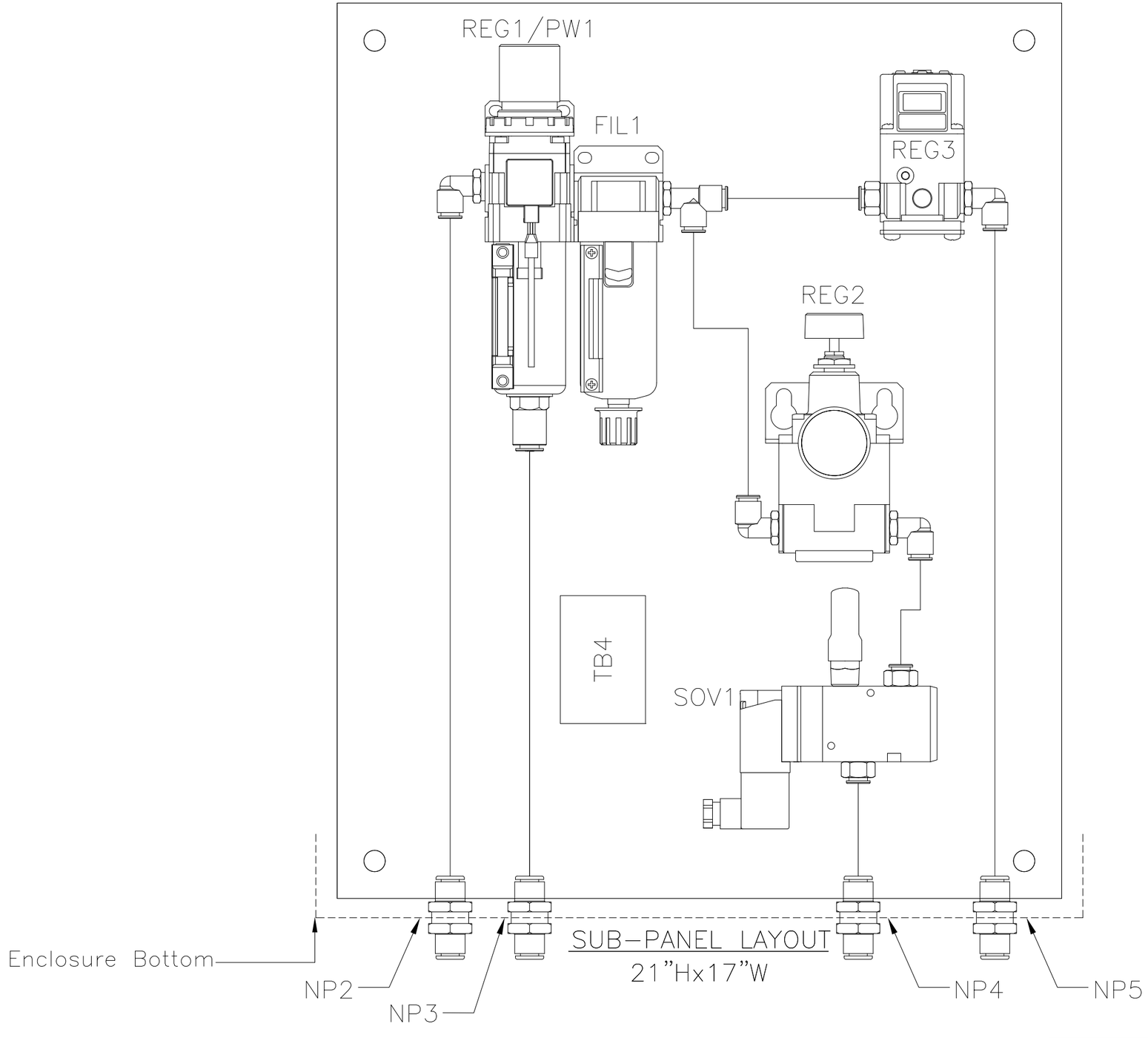
NAMEPLATES:
NP1 – 480VAC–3PH–60HZ
NP2 – AIR SUPPLY CONNECTION
NP3 – DRAIN CONNECTION
NP4 – CYLINDER CONNECTION
NP5 – CONTROL CONNECTION

LABEL DESCRIPTION:
LBL1 – WARNING: MULTIPLE SUPPLY SOURCES
OPEN ALL DISCONNECTS BEFORE SERVICING EQUIPMENT OR OTHER UNIT WIRING
LBL2 – DANGER HIGH VOLTAGE
ENTRY BY QUALIFIED PERSON ONLY
LBL3 – ELEMECH ELECTRICAL CONTROL SYSTEMS
LBL4 – WARNING DAMAGE RESULTING FROM INSTALLATION OF TOP ENTRY CONDUIT WILL VOID WARRANTY
– USE PROPER FITTINGS, MEYERS TYPE 4 OR EQUAL
– PROTECT INTERIOR DEVICES FROM INSTALLATION DEBRIS
– CONDUIT MUST BE SEALED WATERTIGHT TO PREVENT WATER ENTRY
LBL5 – DANGER ARC FLASH AND SHOCK HAZARD
FOLLOW ALL REQUIREMENTS NFPA 70E FOR SAFE WORK PRACTICES AND FOR PERSONAL PROTECTIVE EQUIPMENT.

						DESIGNED	AJ
						DETAILED	
						CHECKED	CCC
						APPROVED	
DATE	REVISION	NO.	BY	CK	APP	DATE	02/07/19

HUBER TECHNOLOGY
9735 NorthCross Center Court, Suite A
Huntersville, NC 28078
Tel. 704-949-1010
info@hhusa.net

STRAINPRESS CONTROL PANEL
WICHITA, KS
SCALE: NONE
PROJECT NUMBER: 73004052
DRAWING NO: HBR7628A8



NAMEPLATES:
NP2 – AIR SUPPLY CONNECTION
NP3 – DRAIN CONNECTION
NP4 – CYLINDER CONNECTION
NP5 – CONTROL CONNECTION

						DESIGNED	AJ
						DETAILED	
						CHECKED	CCC
						APPROVED	
DATE	REVISION	NO.	BY	CK	APP	DATE	02/07/19

HUBER
TECHNOLOGY
9735 NorthCross Center Court, Suite A
Huntersville, NC 28078
Tel. 704-949-1010
info@hhusa.net

STRAINPRESS
CONTROL PANEL

WICHITA, KS

SCALE: NONE

PROJECT NUMBER: 73004052

DRAWING NO: HBR7628A9

Bill of Materials

D

ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Section: D	
Section Name: Bill of Materials	Date: 2/8/2019	Job Number: HBR7628	Page # 1/1
	By: JAP		

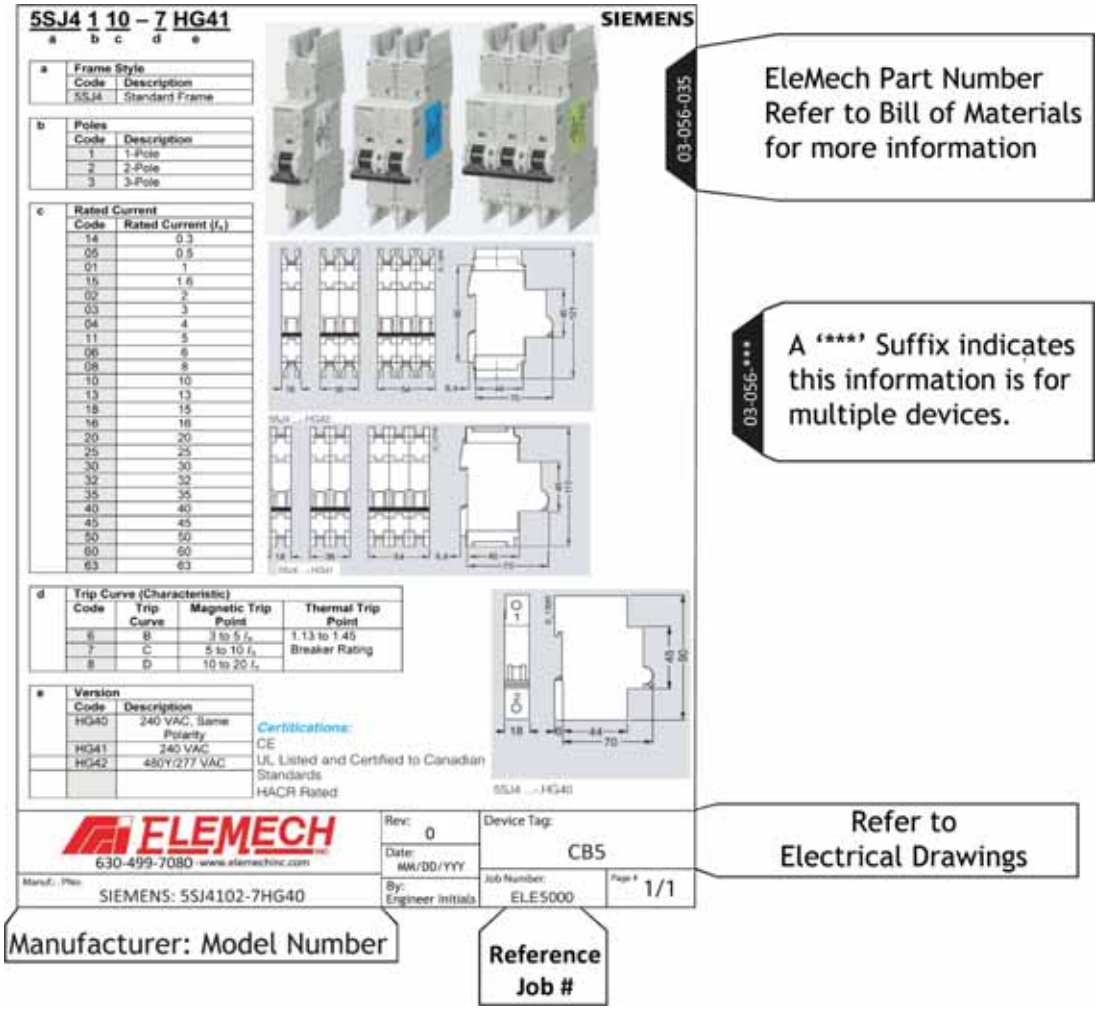
Item No	Component	Description	Manufacturer Part Number	QTY	Device
Strainpress Control Panel (Quantity: 1)					
1	00-000-000	Wire, Hardware, Wire labels, etc.	EleMech: Miscellaneous	1	
2	10-069-000	Wireway Duct Cover, 1.5"W, 6 Ft. Section, w/Panduit F Series	Panduit: C1.5WH6	8	
3	10-069-001	Wireway Duct Cover, 1"W, 6 Ft. Section, w/Panduit F Series	Panduit: C1WH6	3	
4	10-069-005	Wireway Duct, 1.5"Wx3"H, 6 Foot Section	Panduit: F1.5X3WH6	8	
5	10-069-007	Wireway Duct, 1"Wx3"H, 6 Foot Section	Panduit: F1X3WH6	3	
6	15-213-001	Unistrut, 10' Stick, Galvin. Steel, 1 5/8" Sq, Slotted	B-Line: B22SGALV10	2	
7	15-213-002	Unistrut, Spring Nut, 3/8 x 16, For Channels 1-3/8" - 1-5/8"	B-Line: N228	12	
8	15-213-005	Unistrut, Two Hole Flat Plate, Zinc Plated	B-Line: B129-ZN	2	
9	25-000-A001	Legendplate Assembly, Yellow E-Stop, Standard Encl.	EleMech: 25-000-A001 Assembly	1	
10	25-000-A002	Legendplate Assembly, White, Black Text, Standard Encl.	EleMech: 25-000-A002 Assembly	6	
11	25-000-A019	Nameplate Assembly, White: Power Supply - 3/60/480VAC	EleMech: 25-000-A019 Assembly	1	
12	42-063-007	Terminal Block, Din Rail, 35MM Wide, 15 High, 2 Meters Long	Iboco: Omega 3 AF	1	
13	51-000-062	Wire, MTW Type, 600V, 105°C, CSA/UL1015, Tinned Copper	EleMech: 51-000-062	1	
14	52-000-000	Label, Underwriters Laboratories 508A, w/Decal Set	EleMech: 508A	1	
15	03-058-156	Circuit Breaker, 3 Pole, 480VAC, 20A, 10kA, UL489, Type D	Square D: M9F43320	1	CB1
16	03-058-121	Circuit Breaker, 1 Pole, 240VAC, 4A, 14kA, UL489, Type C	Square D: M9F42104	1	CB4
17	57-005-000	Cable, Comm., PC DB9 to PLC 8 Pin Mini-Din, 6.5 Ft.	Allen-Bradley: 1761-CBL-PM02	1	CBL1
18	06-058-011	Control Relay, 3PDT,120VAC, 11Pin Spade, Indicator, Operator	Square D: RXM3AB2F7	2	CR1,2
19	06-058-012	Control Relay, Bus Jumper, 2-Pole, w/Telemec. RXM Relay	Square D: RXZ S2	1	CR1,2
20	38-058-003	Socket, 11 Pin Spade, Din, Screw Term., 3Tier, 250V w/3-Pole	Square D: RXZE2S111M	2	CR1,2
21	34-024-000	PM, Current Xfmr, 1PH, 0.4-10A, Din Rail, CTM10, w/EL-FI	Emotron: 01-2471-10	1	CT1
22	07-063-000	Distribution Block, End Cover, 4 Pole, 300V,10A, w/WK4E\U\VB	Wieland: 07.311.4053.1	2	DB1
23	07-063-001	Distribution Block, Jumper, 4 Pole, 300V,10A, w/WK4E\U\VB	Wieland: Z7.210.3427	3	DB1
24	07-063-002	Distribution Block, Single Pole, 10A, 300V, WK4E\U\VB	Wieland: 57.404.6955.1	11	DB1
25	09-001-A010	Disconnect Assembly, Non-Fused, 60 Amp, NEMA 4X, 8-10" Depth	ABB: OT63F3 Assembly	1	DS1
26	11-000-340	Enclosure Drip Shield, Stainless Steel, Per Inch	EleMech: 11-000-340	30	EN1
27	11-000-A042	Wind Kit, Alum/Hinge, Wing Knob w/out Frame, 12.75"H x 12"W	EleMech: 11-000-A042	1	EN1
28	11-035-035	Enclosure, NEMA 4X, 304SS, 30"Hx30"Wx8"D, C. Hinge	Hoffman: A-30H3008SSLP	1	EN1
29	11-035-135	Sub-Panel, Painted Steel, w/30"Hx30"W C. Hinge Encl	Hoffman: A-30P30	1	EN1

Item No	Component	Description	Manufacturer Part Number	QTY	Device
30	53-017-002	Conduit, Hub, 1 1/2", NEMA 4X, (Non-Standard)	Crouse Hines: ST-5	4	EN1,2
31	53-054-013	Conduit, Nipple, 1 1/2xCLS", 304SS, (Non-Standard)	RJ Keck: SS4N112CL	2	EN1,2
32	15-011-000	Ground Lug, 14AWG - 4AWG	Blackburn: L70	2	GND
33	17-451-000	Heater, Silicone, Flat, 120VAC, 75 Watts, w/12" Lead, UL/CSA	Tempco: SHS80707	1	HTR1
34	52-137-003	Label, Caution: Heater Element, 1.5"Wx0.75"H, White/Red	Nameplate Tech: 52-137-003	1	HTR1
35	06-058-024	Control Relay, SPDT,120VAC, 5Pin Spade, Operator, 15A	Square D: RPM12F7	3	IR1-3
36	06-058-027	Control Relay Retension Clip, w/Telemec. RPM 1-Pole Relay	Square D: RPZR235	3	IR1-3
37	38-058-009	Socket, 5 Pin Spade, Din Mount, Screw Term., w/ RPM 1-Pole	Square D: RPZF1	3	IR1-3
38	52-137-002	Label, Multiple Supply Sources, Warning, 2.5"Wx1.5"H, Yellow	Nameplate Tech: 52-137-002	1	LBL1
39	52-137-000	Label, High Voltage, Danger, 2.25"Wx4.0"H, White/Black/Red	Nameplate Tech: 52-137-000	1	LBL2
40	32-005-046	Lens, Pilot Light, White, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26W	1	LT1
41	32-005-048	Pilot light, NEMA 4X, 120VAC, Transformer, No Lens	Allen-Bradley: 800H-PR16	3	LT1-3
42	32-005-044	Lens, Pilot Light, Green, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26G	1	LT2
43	32-005-045	Lens, Pilot Light, Red, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26R	1	LT3
44	22-005-003	Contactor, 3PH, Non-Rev., 23 Amp, 1NO Aux., 120VAC Coil	Allen-Bradley: 100-C23D10	1	M1
45	22-005-011	Aux. Contact, Top mounted, 4NO, w/A-B 100C/104C	Allen-Bradley: 100-FA40	1	M1
46	25-000-A010	Nameplate Assembly, White, Black Text, 1"Hx3"W	EleMech: 25-000-A010 Assembly	1	NP1
47	26-005-075	OIU, PV800, 4", NEMA 4X, 24VDC, Color, Touch, Ethernet	Allen-Bradley: 2711R-T4T	1	OIU1
48	HBR-164-P009	Program, OIU, Panelview 800 4", Standard	EleMech: HBR-164-P009	1	OIU1
49	28-005-038	Overload Relay, 3PH, Adj Class, 3.2-16A, w/100-C09...C23	Allen-Bradley: 193-EEDB	1	OL1
50	29-005-117	Pushbutton, E-Stop, NEMA 4X, Oper+1NC, Twist Rel. Red Head	Allen-Bradley: 800H-TFRXT6D2	1	PB1
51	02-005-004	Contact Block, 1NC, w/A-B 800 Series	Allen-Bradley: 800T-XD2	1	PB2
52	29-005-002	Pushbutton, NEMA 4X, Oper+1NO, Flush Head, Black	Allen-Bradley: 800H-AR2D1	1	PB2
53	33-005-048	MicroLogix 1100/1200/1400, Combo Analog 2-Input/2-Output	Allen-Bradley: 1762-IF2OF2	2	PLC1
54	33-005-154	MicroLogix 1400, 20-120V In, 12-Rly Out, 2-232, Eth, 120VAC	Allen-Bradley: 1766-L32AWA	1	PLC1
55	HBR-164-P001	Program, PLC, MicroLogix 1400, Standard	EleMech: HBR-164-P001	1	PLC1
56	34-024-009	PM, EL-FI M20 3PH, 380-500VAC, 2)SPST Out, 4/20mA Out	Emotron: 01-2520-40	1	PM1
57	37-323-009	Power Supply, 30W, 85-264VAC IN, 24VDC OUT, NEC Class 2	Delta: DRS-24V30W1NZ	1	PS1
58	13-000-A000	Spare Parts Box Assembly, Din Rail Mount	EleMech: 13-000-A000 Assembly	1	SP1
59	39-005-010	Selector Switch, Nema 4X, 3 Pos. Spring Fr. Left, 1NO-1NC	Allen-Bradley: 800H-JR4A	1	SS1

Item No	Component	Description	Manufacturer Part Number	QTY	Device
60	39-005-001	Selector Switch, NEMA 4X, 2 Pos. Maintained, 1NO-1NC	Allen-Bradley: 800H-HR2A	1	SS2
61	06-109-000	Control Relay, Solid State, 4-32VDC IN, 12-280VAC Out SPST	Crouzet: 84 130 108	2	SSR1,2
62	40-012-001	Surge Suppressor, 1 Pole, 120VAC, 200kA SCCR, DIN	Bussman: BSPM1120S2G	1	SUR1
63	41-018-A070	Control Transformer Assembly, 480-120VAC, 500VA, w/C-Breaker	Cutler-Hammer: C0500E2A Assembly	1	T1,CB2,3
64	42-063-000	Terminal Block, Labels, Custom Printed, w/WK4/U	Wieland: 04.242.6353-CUSTOM	118	TB,DB
65	42-063-001	Terminal Block, End Plate, Gray, w/WK4/U	Wieland: 07.311.0155.0	4	TB,DB
66	42-063-003	Terminal Block, Single Pole, 30A, 600V, 6MM Wide, WK4/U	Wieland: 57.504.0055.0	48	TB,DB
67	42-063-004	Terminal Block, Ground, 30A, 600V, 6MM Wide, w/WK4/U	Wieland: 57.504.9055.0	6	TB,DB
68	42-063-009	Terminal Block, End Clamp, w/WKN10/U	Wieland: Z5.522.8553	7	TB,DB
69	42-063-015	Terminal Block, Jumper, w/WK4/U, 02 pole, Insulated	Wieland: Z7.281.1227	1	TB1
70	42-063-008	Terminal Block, Labels, Blank, w/WK4/U-(600 tags per box)	Wieland: Z4.242.6353	30	TB1,5
71	46-034-000	Thermostat, for heater control, N.C.contact, 6 amp,30-140 F.	Stego: 01140.9-00	1	TS1
Strainpress Pneumatic Control Panel (Quantity: 1)					
72	94-255-009	Tubing, 3/8"OD, Polyurethane, Blue, 100 Foot Roll	SMC USA: TIUB11BU-33	1	
73	11-008-A000	Enclosure Drain Breather, 1/2"NPT, Assembly	Appleton: ECDB50B Assembly	1	DRN1
74	11-000-340	Enclosure Drip Shield, Stainless Steel, Per Inch	EleMech: 11-000-340	20	EN2
75	11-035-023	Enclosure, NEMA 4X, 304SS, 24"Hx20"Wx8"D, C. Hinge	Hoffman: A-24H2008SSLP	1	EN2
76	11-035-132	Sub-Panel, Painted Steel, w/24"Hx20"W C. Hinge Encl	Hoffman: A-24P20	1	EN2
77	11-035-211	Wind Kit, Nema 4,4X,12 & 13, Stainless Steel 17x11	Hoffman: A-PWK1711NFSS	1	EN2
78	94-255-003	Mist Separator, 0-145PSI, 3/8"NPT, w/ Metal Bowl	SMC USA: AFM30-N03B8Z-A	1	FIL1
79	94-255-005	Fitting, Male Connector, Straight, 3/8"OD Tube x 3/8"MNPT	SMC USA: KQ2H11-36AS	3	FIT
80	94-255-006	Fitting, Male Elbow, 3/8"OD Tube x 3/8"MNPT	SMC USA: KQ2L11-36AS	4	FIT
81	94-255-008	Fitting, Bulkhead, Union, SS, w/ 3/8"OD Tube x 3/8"OD Tube	SMC USA: KQG2E11-00	4	FIT
82	94-255-020	Fitting, Male Run Tee, 3/8"OD x 3/8" OD x 3/8" NPT	SMC USA: KQ2Y11-36AS	1	FIT
83	25-000-A010	Nameplate Assembly, White, Black Text, 1"Hx3"W	EleMech: 25-000-A010 Assembly	4	NP2-5
84	94-255-004	Regulator, 0-120PSI, 3/8"NPT, w/ Filter and pressure switch	SMC USA: AW30-NO3BDE3-8Z	1	REG1
85	94-255-021	Regulator, 30 Series Spacer	SMC USA: Y300	1	REG1
86	94-255-002	Regulator, 0-115PSI, 3/8"NPT, w/ Gauge	SMC USA: IR3020-N03BG	1	REG2
87	94-255-019	Regulator, Electro-Pneumatic, 130psi, 4-20mA, 4wire, 24VDC	SMC USA: ITV2050-02N3CL4-Q	1	REG3
88	74-255-005	Solenoid Valve, 3 port 2 Pos., 3/8" NPTF, 120VAC, N.O.	SMC USA: VP542K-3DZ1-03TB	1	SOV1

Item No	Component	Description	Manufacturer Part Number	QTY	Device
89	74-255-007	Solenoid Valve, Muffler, 3/8" NPT Port, 30 dB Reduction	SMC USA: AN30-NO3	1	SOV1
90	42-063-000	Terminal Block, Labels, Custom Printed, w/WK4/U	Wieland: 04.242.6353-CUSTOM	20	TB4
91	42-063-001	Terminal Block, End Plate, Gray, w/WK4/U	Wieland: 07.311.0155.0	1	TB4
92	42-063-003	Terminal Block, Single Pole, 30A, 600V, 6MM Wide, WK4/U	Wieland: 57.504.0055.0	12	TB4
93	42-063-004	Terminal Block, Ground, 30A, 600V, 6MM Wide, w/WK4/U	Wieland: 57.504.9055.0	1	TB4
94	42-063-008	Terminal Block, Labels, Blank, w/WK4/U-(600 tags per box)	Wieland: Z4.242.6353	6	TB4
95	42-063-009	Terminal Block, End Clamp, w/WKN10/U	Wieland: Z5.522.8553	2	TB4

Catalog Cuts



ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag:	
	Date: 2/8/2019		
Manuf.: . PNo: Catalog Cuts	By: JAP	Job Number: HBR7628	Page # 1/1

C1.5WH6

PANDUIT

10-069-000

- **Base and covers sold separately**
- Non-slip cover design incorporates integral high friction lining to inhibit cover movement
- Cover flush with base provides greater wire capacity and improves aesthetics
- Easy cover removal makes changes to wiring quick and easy
- Available in various colors

Part Number	C1.5WH6
RoHS Compliancy Status	Compliant
Part Description	Covers duct to protect wires, improve aesthetics and provides greater wire capacity. Base and covers sold separately.
Product Type	Type C Cover for Flush Cover Wiring Duct
Material	Lead-Free PVC
Color	White
Length (ft.)	6
Length (m)	1.82
CE Compliant	Yes
Pricing Description	Duct Cover, PVC, 1.5"W X 6', White

C1WH6

PANDUIT

10-069-001

- **Base and covers sold separately**
- Non-slip cover design incorporates integral high friction lining to inhibit cover movement
- Cover flush with base provides greater wire capacity and improves aesthetics
- Easy cover removal makes changes to wiring quick and easy
- Available in various colors

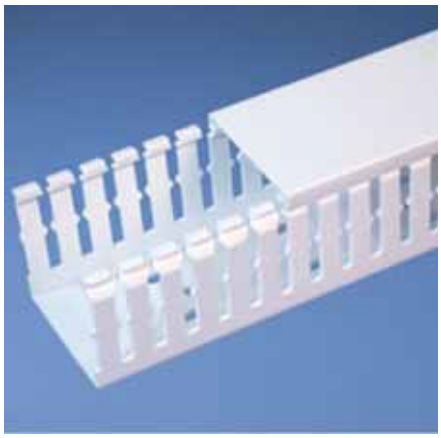
Part Number	C1WH6
RoHS Compliancy Status	Compliant
Part Description	Covers duct to protect wires, improve aesthetics and provides greater wire capacity. Base and covers sold separately.
Product Type	Type C Cover for Flush Cover Wiring Duct
Material	Lead-Free PVC
Color	White
Length (ft.)	6
Length (m)	1.82
CE Compliant	Yes
Pricing Description	Duct Cover, PVC, 1"W X 6', White

Panduit Wiring Duct Approvals and Compliances

F1.5X3WH6

PANDUIT

10-069-005



Specifications

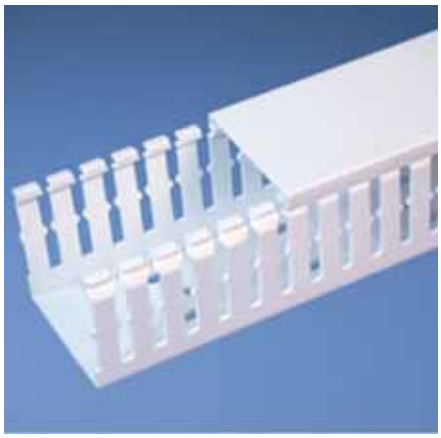
- Made of lead-free PVC
- UL Recognized continuous use temperature: 122°F (50°C)
- UL94 Flammability Rating of V-0
- Conforms with NFPA 79-2002 section 14.3.1 requirement for flame retardant material
- Available in Light Gray and White
- Provided with mounting holes

• Part Number	F1.5X3WH6
• RoHS Compliancy Status	Compliant
• Part Description	Narrow finger, slotted wiring duct.
• Material	Lead–Free PVC
• Color	White
• CSA Certified	Yes
• Length (ft.)	6
• CE Compliant	Yes
• CE Marking	Yes
• Duct Size W x H (In.)	1.75 x 3.12
• Duct Size W x H (mm)	44.5 x 79.2
• Mounting Method	Standard Mounting Holes
• Pricing Description	Slotted Duct,PVC,1.5"X3"X6',White

F1X3WH6

PANDUIT

10-069-007



Specifications

- Made of lead-free PVC
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- Available in Light Gray and White
- Provided with mounting holes

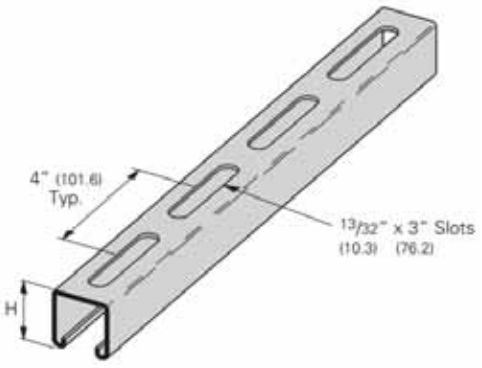
Part Number	F1X3WH6
RoHS Compliancy Status	Compliant
Part Description	Narrow finger, slotted wiring duct.
Material	Lead–Free PVC
Color	White
CSA Certified	Yes
Length (ft.)	6
CE Compliant	Yes
CE Marking	Yes
Duct Size W x H (In.)	1.26 x 3.12
Duct Size W x H (mm)	32.0 x 79.2
Mounting Method	Standard Mounting Holes
Pricing Description	Slotted Duct,PVC,1"X3"X6',White

Panduit Wiring Duct Approvals and Compliances

B11S thru B56S
S Type Channel

• For beam loads use 90% of Channel Loading Chart

Part No.	Thickness	Height H In.	Height H mm	Weight Lbs./Ft.	Weight kg/m
B11S	12 Ga. (2.6)	3 1/4"	(82.5)	2.94	(4.37)
B12S	12 Ga. (2.6)	2 7/16"	(61.9)	2.36	(3.51)
B22S	12 Ga. (2.6)	1 5/8"	(41.3)	1.79	(2.66)
B24S	14 Ga. (1.9)	1 5/8"	(41.3)	1.32	(1.96)
B26S	16 Ga. (1.5)	1 5/8"	(41.3)	1.06	(1.58)
B32S	12 Ga. (2.6)	1 3/8"	(34.9)	1.59	(2.36)
B42S	12 Ga. (2.6)	1"	(25.4)	1.33	(1.98)
B52S	12 Ga. (2.6)	13/16"	(20.6)	1.16	(1.72)
B54S	14 Ga. (1.9)	13/16"	(20.6)	.89	(1.32)
B56S	16 Ga. (1.5)	13/16"	(20.6)	.79	(1.17)

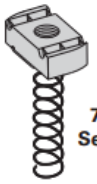


B-Line by EATON

15-213-***

Spring Nut

Part No.	Thread Size	Fits Channel Sizes
N721	#8-32	B11 & B12
N221	#8-32	B22, B24, B26, B32
N521	#8-32	B42, B52, B54, B56
N727	#10-32	B11 & B12
N227	#10-32	B22, B24, B26, B32
N527	#10-32	B42, B52, B54, B56
N722	#10-24	B11 & B12
N222	#10-24	B22, B24, B26, B32
N522	#10-24	B42, B52, B54, B56
N724	1/4-20	B11 & B12
N224	1/4-20	B22, B24, B26, B32
N524	1/4-20	B42, B52, B54, B56
N723	5/16-18	B11 & B12
N223	5/16-18	B22, B24, B26, B32
N523	5/16-18	B42, B52, B54, B56
N728	3/8-16	B11 & B12
N228	3/8-16	B22, B24, B26, B32
N528	3/8-16	B42, B52, B54, B56
N726	7/16-14	B11 & B12
N226	7/16-14	B22, B24, B26, B32
N526	7/16-14	B42, B52, B54, B56
N725	1/2-13	B11 & B12
N225	1/2-13	B22, B24, B26, B32
N525	1/2-13	B42, B52, B54, B56
N755	5/8-11	B11 & B12
N255	5/8-11	B22, B24, B26, B32
N555	5/8-11	B42, B52, B54, B56
N775	3/4-10	B11 & B12
N275	3/4-10	B22, B24, B26, B32
N575	3/4-10	B42, B52, B54, B56
N778	7/8-9	B11 & B12
N278	7/8-9	B22, B24, B26, B32


700 Series


200 Series


500 Series

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Rev: 0

Date: 2/8/2019

By: JAP

Device Tag:

Manuf.: . PNo: B-LINE: B22SGALV10

Job Number: HBR7628

Page # 1/1

Flat Plate Fittings

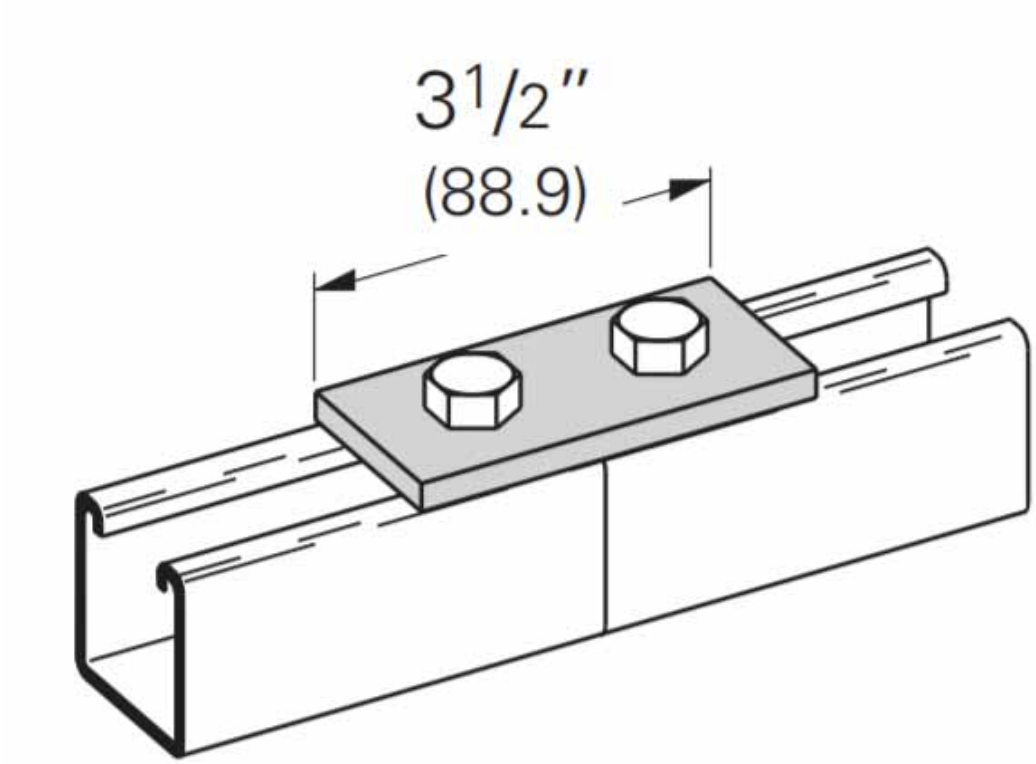
B-Line by EATON

15-213-005

B129
Two Hole Splice Plate

- Standard finishes: ZN, GRN
- Wt./C 37 Lbs. (16.8 kg)

PA ZN GRN



ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag:	
	Date: 2/8/2019		
Manuf.: . PNo: B-LINE: B129-ZN	By: JAP	Job Number: HBR7628	Page # 1/1

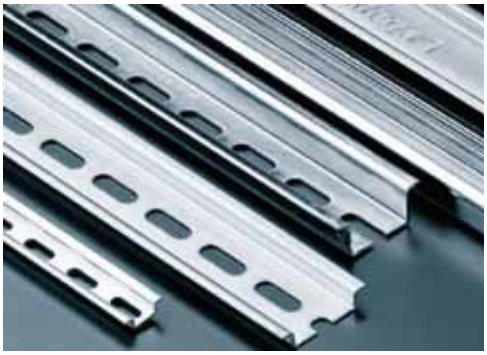
DIN RAILS

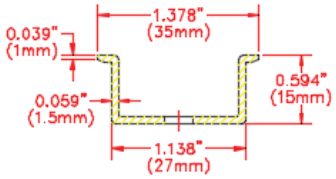
IBOCO Integrated Panel Management

42-063-007

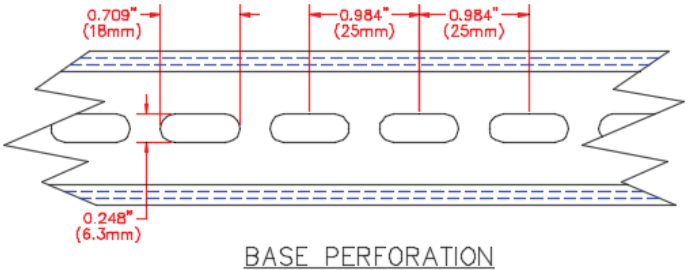
Catalog Number	Lengths per Pack
G1	12
G1F	12
G1F1	24
OMEGA 2F	20
OMEGA 2F1	40*
OMEGA 3	20
OMEGA 3F	20
OMEGA 3F1	40*
OMEGA 3FD	20
OMEGA 3A	10
OMEGA 3AF	10
OMEGA 3AF1	20*
OMEGA 3AFD	10
OMEGA 3B	10
OMEGA 3B1	10*
OMEGA 75	2

Treated with galvanic zinc plating and passivation (gal Zn 8c according to Din 50960)
Minimum thickness 6 microns
Standard length: 2 meters (6'6¾")

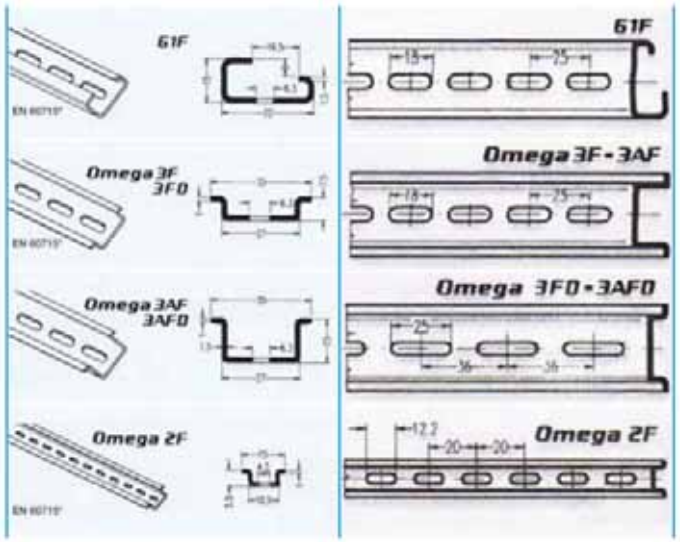


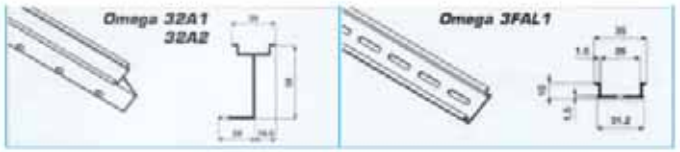


FRONT SECTION



BASE PERFORATION





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Manuf.: . PNo: IBOCO: OMEGA 3 AF	Rev: 0	Device Tag:	
	Date: 2/8/2019		
	By: JAP	Job Number: HBR7628	Page # 1/1

Wire – MTW Type

51-000-062

CONDUCTORS:
- 22 AWG - 8AWG Stranded Tinned Copper per ASTM B-33
- 22 AWG - 10 AWG Solid Tinned Copper per ASTM M-33

INSULATION:
- Color-Coded Polyvinyl Chloride (PVC)

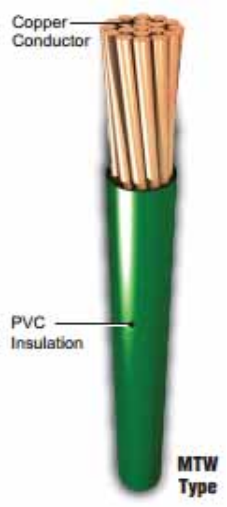
TEMPERATURE RANGE/ VOLTAGE RATING:
- UL 1011/1015/1028/BC-5W2: 105°C/600V
- UL MTW: 90°C/600V
- CSA AWM I A/B & TEW: 105°C/600V

FLAME COMPLIANCES:
- UL VW-1
- CSA FT-1

INDUSTRY APPROVALS:
- UL Standard 758 - Styles 1011/1015/1028/1032/1230/1231/1335/1344
- UL Standard 1063 - MTW
- UL Standard 1426 - BC-5W2: 16 AWG - 8 AWG
- CSA AWM I A/B & TEW
- UL THHW
- UL CT Tray Rated
- SAE J378

STANDARD COLORS:
- Black, Orange, Blue, Violet, White, Yellow, Brown, Green/Yellow, Red, Green, Gray

OPTIONS:
- Stripes available upon request (minimums may apply)
- Other copper constructions available upon request (minimums may apply)



Catalog Number	Description
F22027	22 AWG (7/.0096) TC AWM 1015
F20037	20 AWG (10/30) TC AWM 1015
F18054	18 AWG (16/30) TC AWM 1015
F16032	16 AWG (26/30) TC AWM 1015
F14037	14 AWG (41/30) TC AWM 1015
F12024	12 AWG (65/30) TC AWM 1015
F10012	10 AWG (105/30) TC AWM 1015
F08010	8 AWG (7X19/29) TC AWM 1028

TEW/MTW Wire (Tinned Copper) Applications:

- This tinned copper hook up wire may be used for wiring of machine tools, appliances, and control cabinets.

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Rev: 0	Device Tag:		
Date: 2/8/2019			
Manuf.: . PNo: ELEMECH: 51-000-062	By: JAP	Job Number: HBR7628	Page # 1/1

Multi 9

Schneider Electric

03-058-***

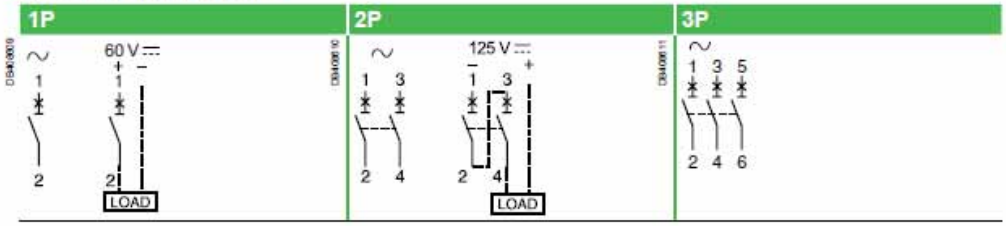
UL 489 / CSA C22.2 No 5 / IEC/EN 60947-2 / GB 14048-2

C60BP are multi-standard miniature circuit breakers and branch circuit protection as defined by UL 489. It combines following functions:

- circuit protection against short-circuit currents
- circuit protection against overload currents
- tripping and fault indication by the addition of auxiliaries.

Number of 18 mm (0.71 in.) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 489 / CSA C22.2 No 5				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	60 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	0.5 to 35	10	14	14	10	-	3	10	20
	40 to 63	-	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~		240 V ~	125 V ⎓	440 V ~	415 V ~	240 V ~	125 V ⎓
2P	1 to 25	10		14	10	6	10	20	-
	30 to 35	10		14	-	6	10	20	-
3P	1 to 35	10		14	-	6	10	20	-
2P/3P	40 to 63	-		10	-	6	10	20	-

Electrical diagrams



Catalogue numbers

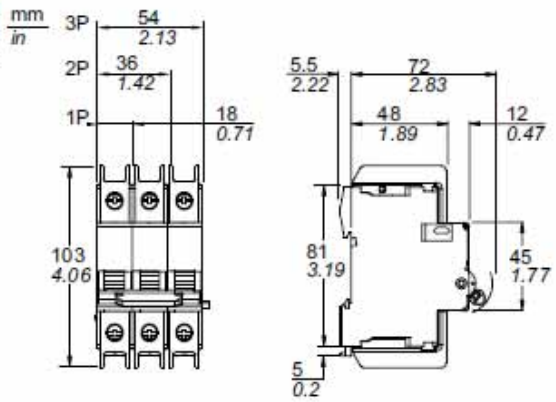
Tunnel terminal connection

Type	UL489 and CSA voltages	1P				2P			3P		
Auxiliaries		Remote indication and tripping, see page 43									
Rating (In)		Curve Z	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules
C60BP											
0.5	480Y/277 V and 240 V	M9F44170	M9F42170	M9F43170	2	-	-	4	-	-	6
1		M9F44101	M9F42101	M9F43101		M9F42201	M9F43201		M9F42301	M9F43301	
2		M9F44102	M9F42102	M9F43102		M9F42202	M9F43202		M9F42302	M9F43302	
3		M9F44103	M9F42103	M9F43103		M9F42203	M9F43203		M9F42303	M9F43303	
4		M9F44104	M9F42104	M9F43104		M9F42204	M9F43204		M9F42304	M9F43304	
5		M9F44105	M9F42105	M9F43105		M9F42205	M9F43205		M9F42305	M9F43305	
6		M9F44106	M9F42106	M9F43106		M9F42206	M9F43206		M9F42306	M9F43306	
8		M9F44108	M9F42108	M9F43108		M9F42208	M9F43208		M9F42308	M9F43308	
10		M9F44110	M9F42110	M9F43110		M9F42210	M9F43210		M9F42310	M9F43310	
15		M9F44115	M9F42115	M9F43115		M9F42215	M9F43215		M9F42315	M9F43315	
20		M9F44120	M9F42120	M9F43120		M9F42220	M9F43220		M9F42320	M9F43320	
25		M9F44125	M9F42125	M9F43125		M9F42225	M9F43225		M9F42325	M9F43325	
30		M9F44130	M9F42130	M9F43130		M9F42230	M9F43230		M9F42330	M9F43330	
35		M9F44135	M9F42135	M9F43135		M9F42235	M9F43235		M9F42335	M9F43335	
40	240 V only	M9F44140	M9F42140	M9F43140	2	M9F42240	M9F43240	4	M9F42340	M9F43340	6
45		M9F44145	M9F42145	M9F43145		M9F42245	M9F43245		M9F42345	M9F43345	
50		M9F44150	M9F42150	M9F43150		M9F42250	M9F43250		M9F42350	M9F43350	
63		M9F44163	M9F42163	M9F43163		M9F42263	M9F43263		M9F42363	M9F43363	

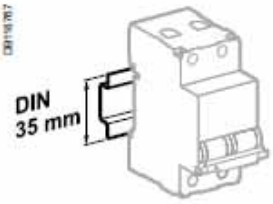
Weight (g / oz)

Circuit-breaker	
Type	C60BP
1P	130 g / 4.58 oz
2P	260 g / 9.17 oz
3P	390 g / 13.76 oz

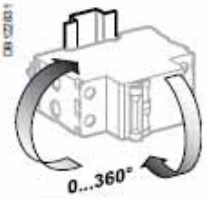
Dimensions (mm / inches)



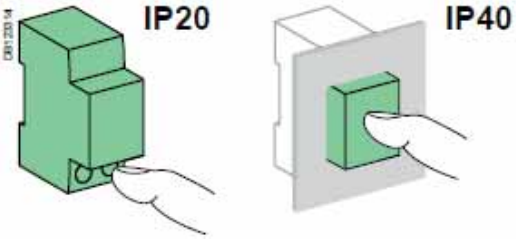
C60BPTunnel terminal



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Main characteristics			
Insulation voltage (Ui)			500 V
Service breaking capacity (Ics)		In alternating current	75 % of Icu
		In direct current	100 % of Icu
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		25°C / 77°F
Magnetic tripping	Z curve	In alternating current	3 In ± 20 %
		In direct current	4.2 In ± 20 %
	C curve	In alternating current	8.5 In ± 20 %
		In direct current	12 In ± 20 %
	D curve (=K curve)	In alternating current	12 In ± 20 %
		In direct current	17 In ± 20 %

Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	10,000 cycles
	Mechanical	20,000 cycles
Operating temperature		-30°C to +70°C / -22°F to 158°F
Storage temperature		-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

Zelio® Plug-in Relays
RXM

Telemecanique

06-058-011


RXM●AB2F7

RXM Miniature Relays (page 4)

2 pole relays; 12 A, 1/2 hp (IEC rating = 12 A)
3 pole relays; 10 A, 1/3 hp (IEC rating = 10 A)
4 pole relays; 8 A, 1/3 hp (IEC rating = 6 A)
4 pole relays; 3 A (low level), 1/16 hp (IEC rating = 3 A)

- Mechanical "relay status" indicator on all relays
- Pilot light option available
- Manual operator optional for all relays
- Built-in marking area

Insulation characteristics

Rated insulation voltage (Ui)		250 V (IEC), 300 V (UL, CSA)
Rated impulse withstand voltage (Uimp)		3.6 kV (1.2/50 µs)
Dielectric strength (rms voltage)	Between coil and contact	2,500 Vac
	Between poles	2,500 Vac
	Between contacts	1,500 Vac

Contact characteristics

Relay type			**RXM2AB●●●**	**RXM3AB●●●**	**RXM4AB●●●**
Number and type of contacts (see page 12)			DPDT	3PDT	4PDT
Contact materials			AgNi		
Conventional thermal current (Ith)	For ambient temperature ≤ 131 °F (55 °C)		12 A	10 A	6 A
Rated operational current	Conforming to IEC in utilization category AC-1	N.O.	12 A	10 A	6 A
		N.C.	6 A	5 A	3 A
	Conforming to UL Resistive @277 Vac, hp @120 Vac		12 A, 1/2 hp	10 A, 1/3 hp	8 A, 1/3 hp
Maximum operating rate In operating cycles/hour	No load		18,000		
	Under load		1,200		
Switching voltage	Maximum		250 Vac/Vdc		
Switching capacity	Minimum		10 mA on 17 V		
	Maximum		3,000 VA	2,500 VA	1,500 VA
Utilization coefficient			20%		
Mechanical durability in millions of operating cycles			10		
Electrical durability in millions of operating cycles	Resistive load		0.1		

Coil characteristics

Average consumption		AC	1.2 VA
		DC	0.9 W
Drop-out voltage threshold		AC	> 0.15 Uc
		DC	> 0.1 Uc
Operating time (response time)	Between coil energization and making of the N.O. contact	AC	20 ms
		DC	20 ms
	Between coil de-energization and making of the N.C. contact	AC	20 ms
		DC	20 ms

Coil voltage Uc			**12 V**	**24 V**	**48 V**	**110 V**	**120 V**	**125 V**	**220 V**	**230 V**	**240 V**
Relay coil voltage codes			**JD**	**BD**	**ED**	**FD**	**—**	**GD**	**MD**	**—**	**—**
DC	Average resistance at 68 °F (20 °C) ± 10%		160 Ω	650 Ω	2,600 Ω	11,000 Ω	—	11,000 Ω	14,000 Ω	—	—
	Operating voltage limits	Min.	9.6 V	19.2 V	38.4 V	88 V	—	100 V	176 V	—	—
		Max.	13.2 V	26.4 V	52.8 V	121 V	—	138 V	242 V	—	—
Relay coil voltage codes			**—**	**B7**	**E7**	**—**	**F7**	**—**	**M7**	**P7**	**U7**
AC	Average resistance at 68 °F (20 °C) ± 15%		—	180 Ω	770 Ω	—	4,430 Ω	—	15,000 Ω	15,000 Ω	15,500 Ω
	Operating voltage limits	Min.	—	19.2 V	38.4 V	—	96 V	—	176 V	184 V	192 V
		Max.	—	26.4 V	52.8 V	—	132 V	—	242 V	253 V	264 V

Environment

Dielectric strength	2000 V AC (between poles) 2000 V AC (between coil and contact) 1300 V AC (between contacts)
Product certifications	CSA GOST Lloyds UL
Standards	EN/IEC 61810-1 UL 508 CSA C22.2 No 14

Telemecanique

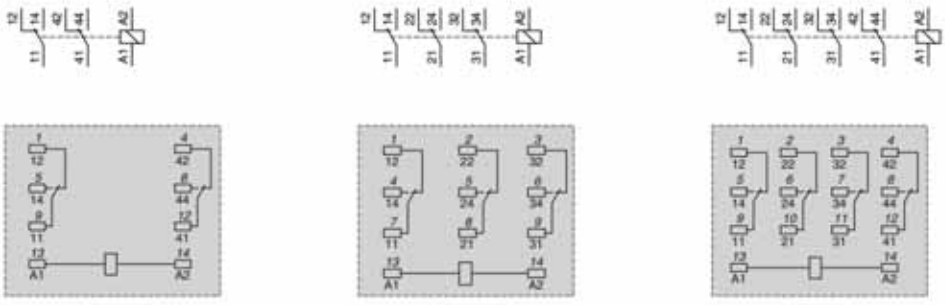
06-058-011

Miniature relays with lockable test button, without LED

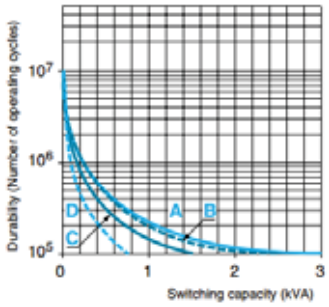
Coil Voltage	Number and type of contacts - Thermal current (Ith)								
	DPDT - 12 A			3PDT - 10 A			4PDT - 6 A		
	Catalog Number	Weight		Catalog Number	Weight		Catalog Number	Weight	
		lb.	kg		lb.	kg		lb.	kg
12 Vdc	RXM2AB1JD	0.082	0.037	RXM3AB1JD	0.084	0.038	RXM4AB1JD	0.080	0.036
24 Vdc	RXM2AB1BD	0.082	0.037	RXM3AB1BD	0.084	0.038	RXM4AB1BD	0.080	0.036
48 Vdc	RXM2AB1ED	0.082	0.037	RXM3AB1ED	0.084	0.038	RXM4AB1ED	0.080	0.036
110 Vdc	RXM2AB1FD	0.082	0.037	RXM3AB1FD	0.084	0.038	RXM4AB1FD	0.080	0.036
220 Vdc	—	—	—	—	—	—	RXM4AB1MD	0.080	0.036
24 Vac	RXM2AB1B7	0.082	0.037	RXM3AB1B7	0.084	0.038	RXM4AB1B7	0.080	0.036
48 Vac	RXM2AB1E7	0.082	0.037	RXM3AB1E7	0.084	0.038	RXM4AB1E7	0.080	0.036
120 Vac	RXM2AB1F7	0.082	0.037	RXM3AB1F7	0.084	0.038	RXM4AB1F7	0.080	0.036
230 Vac	RXM2AB1P7	0.082	0.037	RXM3AB1P7	0.084	0.038	RXM4AB1P7	0.080	0.036
240 Vac	—	—	—	—	—	—	RXM4AB1U7	0.080	0.036
Miniature relays with lockable test button, with LED (sold in lots of 10)									
12 Vdc	RXM2AB2JD	0.082	0.037	RXM3AB2JD	0.084	0.038	RXM4AB2JD	0.080	0.036
24 Vdc	RXM2AB2BD	0.082	0.037	RXM3AB2BD	0.084	0.038	RXM4AB2BD	0.080	0.036
48 Vdc	RXM2AB2ED	0.082	0.037	RXM3AB2ED	0.084	0.038	RXM4AB2ED	0.080	0.036
110 Vdc	RXM2AB2FD	0.082	0.037	RXM3AB2FD	0.084	0.038	RXM4AB2FD	0.080	0.036
125 Vdc	—	—	—	—	—	—	RXM4AB2GD	0.080	0.036
24 Vac	RXM2AB2B7	0.082	0.037	RXM3AB2B7	0.084	0.038	RXM4AB2B7	0.080	0.036
48 Vac	RXM2AB2E7	0.082	0.037	RXM3AB2E7	0.084	0.038	RXM4AB2E7	0.080	0.036
120 Vac	RXM2AB2F7	0.082	0.037	RXM3AB2F7	0.084	0.038	RXM4AB2F7	0.080	0.036
230 Vac	RXM2AB2P7	0.082	0.037	RXM3AB2P7	0.084	0.038	RXM4AB2P7	0.080	0.036

Miniature relays

RXM2●●●●●● RXM3●●●●●● RXM4●●●●●●

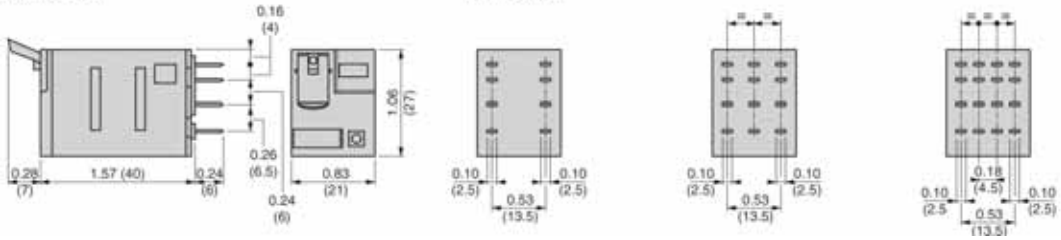


Resistive load AC



RXM ●●●●●● RXM 2 RXM 3 RXM 4

Common view Pin side view



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Manuf.: . PNo: SQUARE D: RXM3AB2F7	Rev: 0	Device Tag: CR1,2	
	Date: 2/8/2019		
	By: JAP	Job Number: HBR7628	Page # 2/2

RXZS2

bus jumper for Zelio Relay RXZ sockets with separate contacts

06-058-012

Main

Commercial Status	Commercialised
Range of product	Zelio Relay
Accessory / separate part type	Jumper
Accessory / separate part designation	Bus jumper
Sale per indivisible quantity	10

Complementary

Product compatibility	Socket RXZ
Accessory / separate part destination	All RXZ sockets with separate contacts
[Ith] conventional free air thermal current	5 A
Product weight	0.005 kg

Ordering and shipping details

Category	21128 - ZELIO ICE CUBE RELAY ACCESSORIES
Discount Schedule	CP2
GTIN	00785901924098
Nbr. of units in pkg.	10
Package weight(Lbs)	0.01
Stock Code	Stock - Normally stocked in distribution facility
Returnability	Y
Country of origin	CN

Sockets

Telemecanique

38-058-003

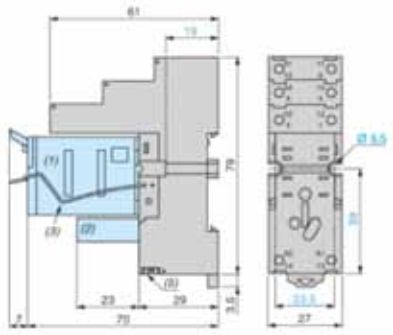
RXZE2S108M

Complementary

[Ith] conventional free air thermal current	12 A 5 A with bus jumper
[Ue] rated operational voltage	< 250 V
Tightening torque	<= 1 N.m (M3 screw(s))
Fixing mode	By screw mounting on panel Clip-on mounting on 35 mm symmetrical DIN rail
Marking	CE
Width	27 mm
Product weight	0.058 kg 0.07 kg

Environment

Standards	IEC 61984
Product certifications	CSA UL
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-40...55 °C
IP degree of protection	IP20 conforming to EN/IEC 60529
Dielectric strength	2500 V
RoHS EUR status	Compliant
RoHS EUR conformity date	0801



1 Relay
2 Protection Module
3 Carriage Stirrup
5 2 Links connection

Approvals for Sockets:

RXZE2S111M

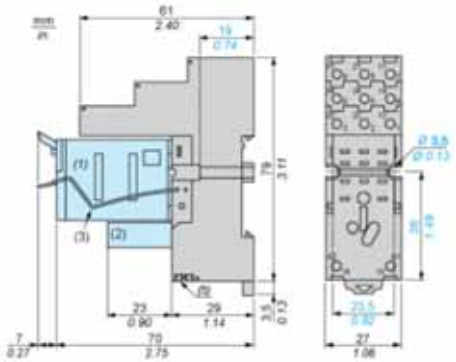
Complementary

[Ith] conventional free air thermal current	10 A 5 A with bus jumper
[Ue] rated operational voltage	< 250 V
Tightening torque	<= 1 N.m (M3 screw(s))
Fixing mode	By screw mounting on panel Clip-on mounting on 35 mm symmetrical DIN rail
Marking	CE
Width	27 mm
Product weight	0.066 kg

Environment

Standards	IEC 61984
Product certifications	CSA UL
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-40...55 °C
IP degree of protection	IP20 conforming to EN/IEC 60529
Dielectric strength	2500 V
RoHS EUR status	Compliant
RoHS EUR conformity date	0801

Dimensions



(1) Relays
(2) Protection module
(3) Maintaining clamp
(4) 2 elongated holes Ø 3.5 mm x 6.5 mm / Ø 0.13 in. x 0.25 in.
(5) 2 bus jumpers

Approvals for Sockets:

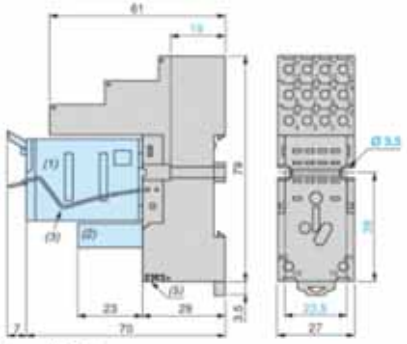
RXZE2S114M

Complementary

[Ith] conventional free air thermal current	10 A 5 A with bus jumper
[Ue] rated operational voltage	< 250 V
Tightening torque	<= 1 N.m (M3 screw(s))
Fixing mode	By screw mounting on panel Clip-on mounting on 35 mm symmetrical DIN rail
Marking	CE
Width	27 mm
Product weight	0.058 kg 0.07 kg

Environment

Standards	IEC 61984
Product certifications	CSA UL
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-40...55 °C
IP degree of protection	IP20 conforming to EN/IEC 60529
Dielectric strength	2500 V
RoHS EUR status	Compliant
RoHS EUR conformity date	0801



1 Relay
2 Protection Module
3 Carriage Stirrup
5 2 Links connection

Approvals for Sockets:

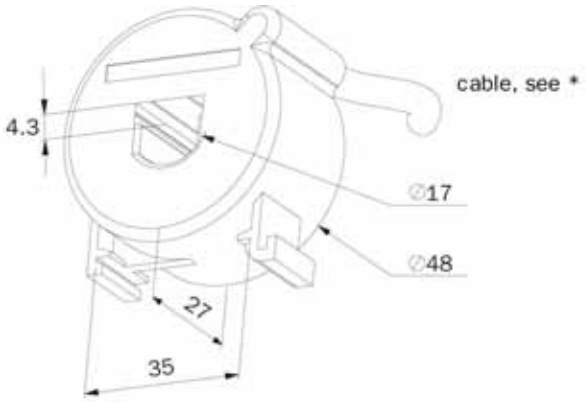
emotron

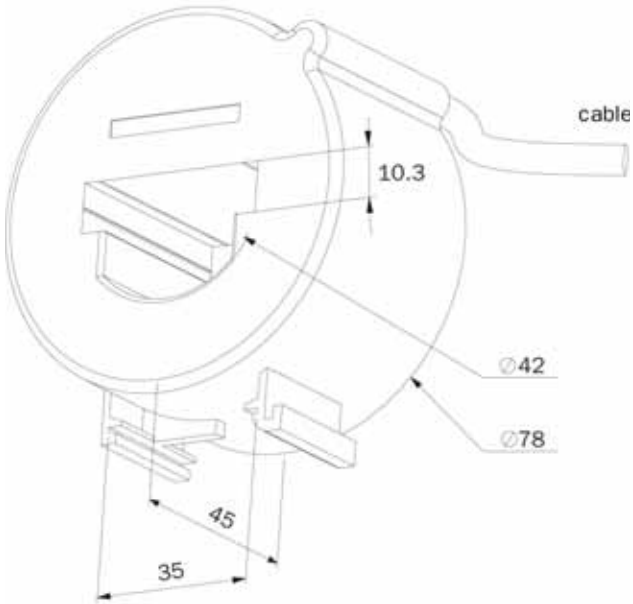
34-024-000

EL-FI CTM
Current Transformer Monitor
(FOR MOUNTING ON STANDARD DIN-RAIL 35MM)

c UL us LISTED

Fig.	Type	I prim	I sec.	Part number	Suitable to;
1	CTM010	10A	0.055A	01-2471-10	M10, M20, DCM
1	CTM025	25A	0.055A	01-2471-20	M10, M20, DCM
1	CTM050	50A	0.055A	01-2471-30	M10, M20, DCM
2	CTM100	100A	0.055A	01-2471-40	M10, M20, DCM





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Rev: 0	Device Tag: CT1		
Date: 2/8/2019			
Manuf.: . PNo: EMOTRON: 01-2471-10	By: JAP	Job Number: HBR7628	Page # 1/1

wieland

07-063-000

General Data

Part No: 07.311.4053.1
Description: End Cover – Black
Type of end plate – Yes
Snap in - Yes
Inflammability Class of insulation material acc. With UL94 – V0

ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag: DB1	
Manuf.: . PNo: WIELAND: 07.311.4053.1	Date: 2/8/2019	Job Number: HBR7628	Page # 1/1
	By: JAP		

wieland

Cross connectors, (jumper bars) uninsulated

07-063-001

Type	Part no.	Std. pack
WKM 4/15	**6 mm spacing Screw: M 3**	
2pole 9215 - 2	Z7.210.3227.0	50
3pole 9215 - 3	Z7.210.3327.0	50
4pole 9215 - 4	Z7.210.3427.0	50
5pole 9215 - 5	Z7.210.3527.0	50
6pole 9215 - 6	Z7.210.3627.0	50
70pole 9215 M-70	Z7.210.3027.0	10

General

Colour	Other
Type	Cross connector
Modular spacing	6 mm
Number of bridged clamps	4
Mounting method	Screwable
Insulated	No

Accessories

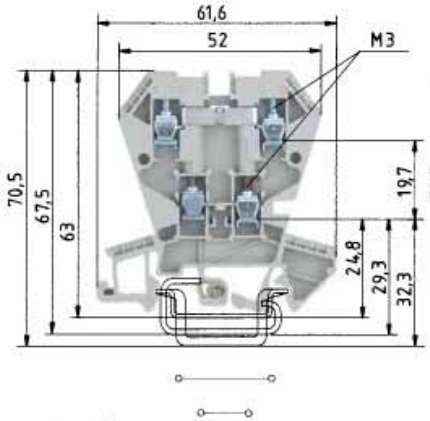
Type	Cross connector
Mounting method	Screwable
Insulated	No
Colour	Other
Number of bridged clamps	4
Modular spacing	6 mm

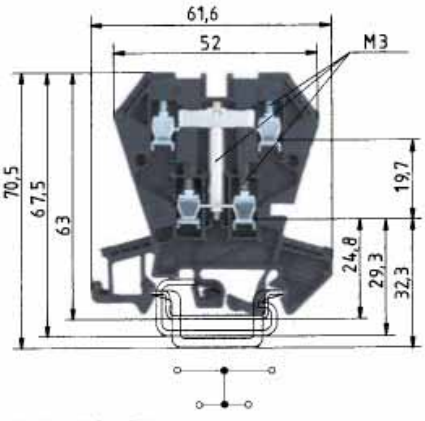
wieland

07-063-002

Multi-tier blocks with screw connection

selos





		WK 4 E/U				WK 4 E/U /VB			
0344 Ex II 2GD IM2		fine-stranded	solid	V	A	fine-stranded	solid	V	A
Ex e I/II		0.5-4mm²	0.5-4mm²	400V/6kV/3[3]	32	0.5-4mm²	0.5-4mm²	400V/6kV/3	32
EN 60947-7-1:2002									
EN 60947-7-2:2002									
UL ratings	Field/factory wiring	No. 22-10 AWG		300V	20	No. 22-10 AWG		300V	20
CSA ratings		No. 20-12 AWG		300V	10	No. 20-12 AWG		300V	10
KEMA 02 ATEX 2114 U[1]	EN 60079-0/EN 60079-7	0.5-4mm²	0.5-4mm²	275V	24/24[2]	0.5-4mm²	0.5-4mm²	275V	24
Width	Wire strip length	6mm			9mm	6mm			9mm
Approvals									

		Type	Part No.	Std. Pack	Type	Part No.	Std. Pack
Multi-tier block	gray	WK 4 E/U	57.404.7055.0	100			
Multi-tier block, vert. connected	black				WK 4 E/U/VB SCHWARZ	57.404.6955.1	100
Multi-tier ground block	green/yellow						
Function block	red						
Function block	orange						
Accessories							
1. Mounting rail TS 35, DIN rail 7.5 mm high	L = 2 m	35 x 27 x 7,5 EN 60715	98.300.0000.0	1	35 x 27 x 7,5 EN 60715	98.300.0000.0	1
Mounting rail TS 35, DIN rail, 15 mm high	L = 2 m	35 x 24 x 15 EN 60715	98.360.0000.0	1	35 x 24 x 15 EN 60715	98.360.0000.0	1
Mounting rail TS 32, G rail*	L = 2 m	9006 EN 60715 G-32	98.190.0000.0	1	9006 EN 60715 G-32	98.190.0000.0	1
2. End clamp with U-foot*	10mm wide	WE 1/U	Z5.523.5753.0	100	WE 1/U	Z5.523.5753.0	100
End clamp TS 35, with screw	8mm wide	9708/2 S 35	Z5.522.8553.0	100	9708/2 S 35	Z5.522.8553.0	100
End clamp TS 35, without screw	8mm wide	9708	Z5.522.7053.0	100	WEF 1/35	Z5.523.9353.0	100
3. End plate	gray	AP 4 E	07.311.4055.0	10	AP 4 E	07.311.4055.0	10
	blue						
4. Partition	gray	TW 4 E	07.311.5055.0	10	TW 4 E	07.311.5055.0	10
	blue						
5. Cross connector with screws	2 pole	9215-2	Z7.210.3227.0	50	9215-2	07.210.3227.0	1
for top tier	3 pole	9215-3	Z7.210.3327.0	50	9215-3	07.210.3327.0	1
	up to 6 pole	9215-6	Z7.210.3627.0	50	9215-6	07.210.3627.0	1
Jumper comb for lower tier block	2 pole	IVBS WK 4 E-2	Z7.256.4227.0	10	IVBS WK 4 E-2	Z7.256.4227.0	10
insulated, angled	up to 6 pole	IVBS WK 4 E-6	Z7.256.4627.0	10	IVBS WK 4 E-6	Z7.256.4627.0	10
Jumper comb for lower tier block	2 pole	IVB WK 4 E-2	Z7.255.2227.0	10	IVB WK 4 E-2	Z7.255.2227.0	10
insulated, straight	up to 6 pole	IVB WK 4 E-6	Z7.255.2627.0	10	IVB WK 4 E-6	Z7.255.2627.0	10
6. Partition plate with marking facility							
7. Single cover with marking facility		AD VB 4/15 GELB	04.326.2953.8	10	AD VB 4/15 GELB	04.326.2953.8	10
8. Cover with warning symbol over 4 blocks							

For more accessories see pages 60-77
For marking systems see pages 70-75

[1] Please note the mounting instructions on the cover page.
[2] With end plates 500 V/6 kV/3
[3] Ratings to adjacent feed-through blocks of the same series and size
[4] For the current carrying capability of the mounting rail see AT catalog section ***facts*** & DATA.
[5] With/without jumper
* Do not use in Ex environments.

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Rev: 0	Device Tag: DB1		
Date: 2/8/2019			
Manuf.: . PNo: WIELAND: 57.404.6955.1	By: JAP	Job Number: HBR7628	Page # 1/1

SwitchLine
Non-fusible disconnect switches
Compact, Heavy duty
16A – 2000A, 600V

09-001-A010

Catalog number	3 pole	OT16F3	OT25F3	OT40F3	OT63F3	OT80F3	OT30F3	OT60F3	OT100F3
General purpose amp rating	**A**	**20**	**30**	**40**	**60**	**80**	**30**	**60**	**100**
Catalog reference	Page #	1.10	1.10	1.10	1.10	1.10	1.11	1.11	1.11
Approvals①									
	2 pole	—	—	—	—	—	—	—	—
	3 pole	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.4	CSA C22.2 No.4	CSA C22.2 No.4
	4 pole	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.14	CSA C22.2 No.4	CSA C22.2 No.4	CSA C22.2 No.4
Technical ratings CSA,UL②									
Max operating voltage	V	600	600	600	600	600	600VAC / 250VDC	600VAC / 250VDC	600VAC / 250VDC
Max horsepower rating Three phase									
208V	HP	3	7.5	10	15	20	10	20	25
240V	HP	5	7.5	10	15	20	10	20	30
480V	HP	10	15	20	30	40	20	40	50
600V	HP	10	20	25	30	40	30	40	50
Single phase									
120V	HP	1	1.5	2	2	2	2	3	5
240V	HP	2	3	5	7.5	10	5	7.5	15
Technical ratings IEC②									
Rated insulation and operational voltage. AC20 and DC20③	V	750	750	750	750	750	750	750	750
Rated thermal current, I_{th}									
AC 20/DC 20 open	A	25	32	40	63	80	40	63	115
AC 20/DC 20 enclosed	A	25	32	40	63	80	40	63	115
AC 21A ≤ 500V	A	16	25	40	63	80	40	63	100
690V	A	16	25	40	63	80	40	63	100
Rated operational power AC23									
400/415V	kW	7.5	9	11	22	37	15	18.5	37
690V	kW	7.5	9	11	15	18.5	15	15	37
Physical characteristics									
Weight ④ 3 pole	Kg	0.11	0.11	0.11	0.27	0.27	0.36	0.36	0.36
Dimension 3 pole	H mm	68	68	68	91	91	100	100	100
	W mm	35	35	35	53	53	70	70	70
	D mm	56	56	56	72	72	75	75	75
Accessories									
Terminal lug kit		Integral	Integral	Integral	Integral	Integral	Integral	Integral	Integral
Terminal shroud		•	•	•	•	•	•	•	•
Auxiliary contact		•	•	•	•	•	•	•	•
Handle CSA/UL/NEMA type									
Type 1, 3R, 12		•	•	•	•	•	•	•	•
Type 1, 3R, 4, 4X, 12		•	•	•	•	•	•	•	•
Handle type									
Selector		•	•	•	•	•	•	•	•
Pistol		•	•	•	•	•	•	•	•
Conversion kits									
6 pole		•	•	•	•	•	•	•	•
Transfer		•	•	•	•	•	•	•	•
Bypass		•	•	•	•	•	•	•	•
Mechanical interlock		•	•	•	•	•	•	•	•
Electrical interlock		—	—	—	—	—	—	—	—

• = Available
— = Not available

CSA approved, UL listed, IEC rated, CE marked

① CSA 22.2 No.4 (UL98) —CSA File #LR58077, UL File # E101914 , CSA 22.2 No. 14 (UL508) —CSA File #LR58247, UL File # E63822

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Manuf.: . PNo: ABB: OT63F3 ASSEMBLY	Rev: 0	Device Tag: DS1	
	Date: 2/8/2019		
	By: JAP	Job Number: HBR7628	Page # 1/1

CONTINUOUS HINGE WITH CLAMPS TYPE 4X WALL-MOUNT ENCLOSURES

PENTAIR

11-035-035

ENCLOSURE CATALOG NUMBER	ENCLOSURE DIMENSIONS (IN.)	SUB-PANEL CATALOG NUMBER
A-AHBCSS6LP	A x B x C	A APB

NOTE: 6 indicates 316 Stainless Steel.

APPLICATION

For use in indoor and outdoor corrosive environments that require a water-tight seal, this enclosure's seamless foam-in-place gasket and screw-down clamps provide a secure seal against contaminants.

SPECIFICATIONS

- 14 gauge Type 304 or Type 316L stainless steel bodies and doors
- Seams continuously welded and ground smooth
- Seamless foam-in-place gasket
- Rolled lip around three sides of door
- Stainless steel door clamp assembly
- Hasp and staple for padlocking
- Door removed by pulling stainless steel continuous hinge pin
- Data pocket is high-impact thermoplastic
- Collar studs provided for mounting optional panels
- Exterior hardware on Type 316L stainless steel enclosures matches enclosure material
- Bonding provision on door; grounding stud on body

FINISH

Door, sides, top and bottom have smooth #4 brushed finish.

ACCESSORIES

See also Accessories.
Fast-Operating Clamp Assembly
Panels for Type 3R, 4, 4X, 12 and 13 Enclosures
Junction Box and Wall-Mount Enclosure Swing Out Panel Kit
Steel and Stainless Steel Window Kits
H2OMIT™ Vent Drains, Type 4X
H2OMIT™ Thermoelectric Dehumidifier

INDUSTRY STANDARDS

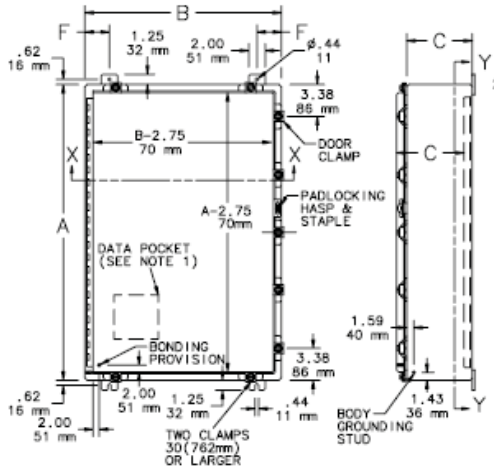
UL 508A Listed; Type 3R, 4, 4X, 12; File No. E61997
cUL Listed per CSA C22.2 No 94; Type 3R, 4, 4X, 12; File No. E61997

NEMA/EEMAC Type 3, 3R, 4, 4X, 12, 13
CSA File No. 42186: Type 4, 4X, 12
IEC 60529, IP66
Meets NEMA Type 3RX requirements

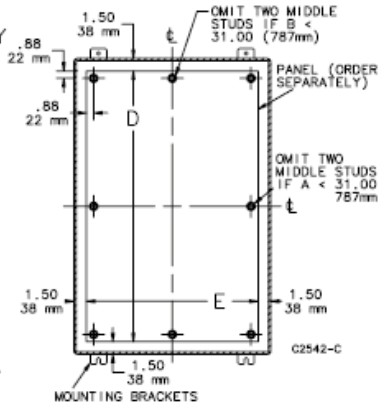
MODIFICATION AND CUSTOMIZATION

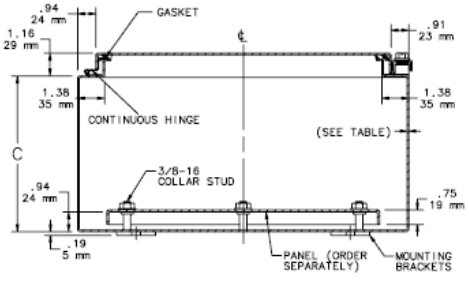
Hoffman excels at modifying and customizing products to your specifications. Contact your local Hoffman sales office or distributor for complete information.

BULLETIN: A4S



SECTION Y-Y





SECTION X-X

ELEMECH INC.
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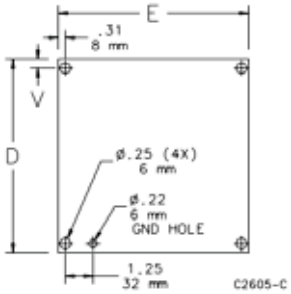
Rev:	Device Tag:
0	EN1
Date: 2/8/2019	
By: JAP	Job Number: HBR7628
Manuf.: . PNo: HOFFMAN: A-30H3008SSLP	Page # 1/1

SUB-PANELS FOR ENCLOSURES

PENTAIR

SUB-PANEL CATALOG NUMBER	SUB-PANEL DIMENSIONS (IN.)
A-DPESS	D x E



11-035-135

NOTE:

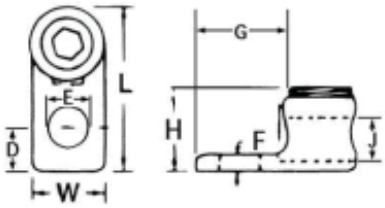
1. 6 indicates 316 Stainless Steel.
2. AL indicates Aluminum
3. G indicates Conductive Steel

Catalog Number	Material	Panel Size D x E (in.)	Panel Size D x E (mm)	Panel Gauge or Thickness	Edge Flanges	T (in.)	T (mm)	Number of Holes
A12P24	Painted steel	9.00 x 21.00	229 x 533	12 ga.	0	–	–	4
A12P24G	Conductive steel	9.00 x 21.00	229 x 533	12 ga.	0	–	–	4
A16P12	Painted steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12G	Conductive steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12SS6	Stainless Steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12AL	Aluminum	13.00 x 9.00	330 x 229	0.10 in./3 mm	0	–	–	4
A16P16	Painted steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16G	Conductive steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16SS6	Stainless Steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16AL	Aluminum	13.00 x 13.00	330 x 330	0.10 in./3 mm	0	–	–	4
A18P18	Painted steel	15.00 x 15.00	381 x 381	12 ga.	0	–	–	4
A18P18G	Conductive steel	15.00 x 15.00	381 x 381	12 ga.	0	–	–	4
A20P12	Painted steel	17.00 x 9.00	432 x 229	12 ga.	0	–	–	4
A20P12G	Conductive steel	17.00 x 9.00	432 x 229	12 ga.	0	–	–	4
A20P16	Painted steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16G	Conductive steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16SS6	Stainless Steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16AL	Aluminum	17.00 x 13.00	432 x 330	0.10 in./3 mm	0	–	–	4
A20P20	Painted steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20G	Conductive steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20SS6	Stainless steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20AL	Aluminum	17.00 x 17.00	432 x 432	0.10 in./3 mm	0	–	–	4
A24P16	Painted steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P16G	Conductive steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P16SS6	Stainless Steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P20	Painted steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20G	Conductive steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20SS6	Stainless Steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20AL	Aluminum	21.00 x 17.00	533 x 432	0.10 in./3 mm	4	0.75	19	4
A24P24	Painted steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24G	Conductive steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24SS6	Stainless Steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24AL	Aluminum	21.00 x 21.00	533 x 533	0.10 in./3 mm	2	0.75	19	4
A30P16	Painted steel	27.00 x 13.00	686 x 330	12 ga.	2	0.75	19	4
A30P16G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	2	0.75	19	4
A30P20	Painted steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20G	Conductive steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20SS6	Stainless Steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P24	Painted steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24G	Conductive steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24SS6	Stainless Steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24AL	Aluminum	27.00 x 21.00	686 x 533	0.10 in./3 mm	2	0.75	19	4
A30P30	Painted steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30G	Conductive steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30SS6	Stainless Steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A36P16	Painted steel	33.00 X 13.00	838 X 330	12 ga.	2	0.75	19	4
A36P16G	Conductive steel	33.00 x 13.00	838 x 330	12 ga.	2	0.75	19	4
A36P24	Painted steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24G	Conductive steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24SS6	Stainless Steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24AL	Aluminum	33.00 x 21.00	838 x 533	0.10 in./3 mm	2	0.75	19	6
A36P30	Painted steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30SS6	Stainless Steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30AL	Aluminum	33.00 x 27.00	838 x 686	0.10 in./3 mm	4	0.75	19	6
A36P36	Painted steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36G	Conductive steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36SS6	Stainless Steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A40P24	Painted steel	37.00 x 21.00	940 x 533	12 ga.	4	0.75	19	6

15-011-000

Copper Connectors
T&B Catalog Number: L70
UPC Number: 78378613002
Status: Active
Description:

Type L - Copper Single Conductor, One-Hole Mount for Conductor Range 14 Sol.-4 Str.



Features

	Cold forged from pure electrolytic copper with 99 percent conductivity.

General

Style	Type L - Copper Single Conductor, One-Hole Mount
Material	Copper
Wire Range	14 Sol.-4 Str.

Dimension Information

Length (inches)	1 1/8
Width (inches)	17/32
Height (inches)	35/64
D (inches)	9/32
E (inches)	9/32
F (inches)	3/32
G (inches)	21/32
J (inches)	9/32

Packaging

T&B Inner Pack	100
Package in Units	1000
T&B Sold in UOM	Each
T&B Weight Per UOM	3.32 lbs. per 100

Notes

	Available with screwdriver slot head screws only.
	UL 486A tested.

Certifications

RoHS Compliance	Yes

Certifications

File Nbr:
E9809

For further technical assistance, please contact us...

Thomas & Betts - USA
8155 T&B Blvd.
Memphis, TN 38125
www.tnb.com

T&B Technical Support
MS 3B-50
8155 T&B Blvd.
Memphis, TN 38125

Hours: 7AM - 6PM CDT
Monday-Friday
Phone: (888) 862-3289
Fax: (901) 252-1321
Email:techsupport@tnb.com

Flexible Heaters

Flexible Heater Installation Methods

Flexible Heater Pressure Sensitive Adhesive (PSA)

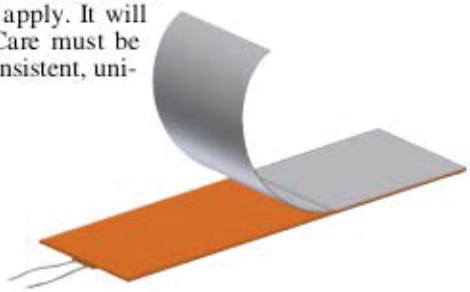
17-451-000

PSA

For ease of attachment specify PSA. Installation is simple: just peel off the protective liner and apply. It will adhere to most clean smooth surfaces. Care must be taken when installing to attain a smooth, consistent, uniform bond to achieve maximum results.

Maximum Temperature:
Continuous – 300°F (149°C)
Intermittent – 500°F (260°C)

Recommended Watt Density:
Under 5 W/in² (0.78 W/cm²)



PSA Plus

A layer of aluminum foil is vulcanized to the back of the heater for added heat dissipation prior to the application of PSA.

UL Recognized: U.S. & Canada E65652

CSA Certified: 043099

Tempco PN: **SHS80707**
SILICONE RUBBER HEATER
3.000" W x 5.000" L
12" Teflon® leads in location A
Wire construction
Pressure sensitive adhesive
75 watts, 120 volts

Tempco PN: **SHS80708**
SILICONE RUBBER HEATER
4.500" W x 6.500" L
12" Teflon® leads in location A
Wire construction
Pressure sensitive adhesive
150 watts, 120 volts

Zelio® Plug-In Relays

RPM power relays

Telemecanique

06-058-024

General characteristics

Conforming to standards			IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14
Product certifications			cULus File E164862 CCN NLDX, NLDX7; cURus File E164862 CCN NLDX2, NLDX8; CSA; CE; RoHS compliant
Ambient air temperature around the device	Storage	°C (F)	- 40... + 85 (-40... +185)
	Operation	°C (F)	- 40... + 55 (-40... +131)
Vibration resistance conforming to IEC/EN 60068-2-6	In operation		3 gn (10...150 Hz/± 1 mm / 5g/5 cycles)
	Not operating		5 gn (10...150 Hz/± 1 mm / 5g/5 cycles)
Degree of protection	Conforming to IEC/EN 60529		IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		15 gn
	Closing		15 gn
Protection category			RT I
Mounting position			Any

Insulation characteristics

Rated insulation voltage (Ui)	Conforming to IEC/EN 60947	V	250 (IEC), 300 (UL, CSA)
Rated impulse withstand voltage (Uimp)		kV	4 (1.2/50 µs)
Dielectric strength (rms voltage)	Between coil and contact	∼ V	1550
	Between poles	∼ V	1550
	Between contacts	∼ V	1500

Contact characteristics

Relay type				RPM1●●●	RPM2●●●	RPM3●●●	RPM4●●●
Number and type of contacts				1 C/O	2 C/O	3 C/O	4 C/O
Contact materials				AgNi			
Conventional thermal current (Ith)	For ambient temperature ≤ 55 °C		A	15			
Rated operational current in utilization categories AC-1 and DC-1	Conforming to IEC	NO	A	15			
		NC	A	7.5			
	Conforming to UL		A	15			
Switching current	Minimum		mA	10			
Switching voltage	Maximum		V	∼/⎓ 250 (IEC)			
	Minimum		V	17			
Nominal load (resistive)			A	15 / 250 ∼ V			
			A	15 / 28 ⎓ V			
Switching capacity	Maximum	∼	VA	3750			
		⎓	W	420			
	Minimum		mW	170			
Maximum operating rate In operating cycles/hour	No-load			18 000			
	Under load			1200			
Utilization coefficient				20 %			
Mechanical durability	In millions of operating cycles			10			
Electrical durability In millions of operating cycles	Resistive load			0.1		0.06	
	Inductive load			See curves below			

Electrical durability of contacts
Resistive load ∼

Reduction coefficient for inductive load ∼ (depending on power factor cos φ)

Maximum switching capacity on resistive load ⎓

Telemecanique

06-058-024

Power relays without LED (sold in lots of 10)

Control circuit voltge	Number and type of contacts - Thermal current (Ith)							
	1 C/O - 15 A		2 C/O - 15 A		3 C/O - 15 A		4 C/O - 15 A	
	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight
V		kg		kg		kg		kg
⎓ 12	RPM11JD	0.026	RPM21JD	0.036	RPM31JD	0.054	RPM41JD	0.071
⎓ 24	RPM11BD	0.026	RPM21BD	0.036	RPM31BD	0.054	RPM41BD	0.071
⎓ 48	RPM11ED	0.026	RPM21ED	0.036	RPM31ED	0.054	RPM41ED	0.071
⎓ 110	RPM11FD	0.026	RPM21FD	0.036	RPM31FD	0.054	RPM41FD	0.071
~ 24	RPM11B7	0.026	RPM21B7	0.036	RPM31B7	0.054	RPM41B7	0.071
~ 48	RPM11E7	0.026	RPM21E7	0.036	RPM31E7	0.054	RPM41E7	0.071
~ 120	RPM11F7	0.026	RPM21F7	0.036	RPM31F7	0.054	RPM41F7	0.071
~ 230	RPM11P7	0.026	RPM21P7	0.036	RPM31P7	0.054	RPM41P7	0.071

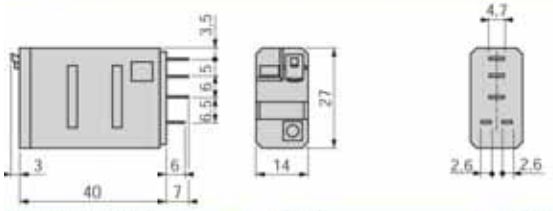
Power relays with LED (sold in lots of 10)

⎓ 12	RPM12JD	0.026	RPM22JD	0.036	RPM32JD	0.054	RPM42JD	0.071
⎓ 24	RPM12BD	0.026	RPM22BD	0.036	RPM32BD	0.054	RPM42BD	0.071
⎓ 48	RPM12ED	0.026	RPM22ED	0.036	RPM32ED	0.054	RPM42ED	0.071
⎓ 110	RPM12FD	0.026	RPM22FD	0.036	RPM32FD	0.054	RPM42FD	0.071
~ 24	RPM12B7	0.026	RPM22B7	0.036	RPM32B7	0.054	RPM42B7	0.071
~ 48	RPM12E7	0.026	RPM22E7	0.036	RPM32E7	0.054	RPM42E7	0.071
~ 120	RPM12F7	0.026	RPM22F7	0.036	RPM32F7	0.054	RPM42F7	0.071
~ 230	RPM12P7	0.026	RPM22P7	0.036	RPM32P7	0.054	RPM42P7	0.071

Dimensions (mm):

Power relays

RPM 1

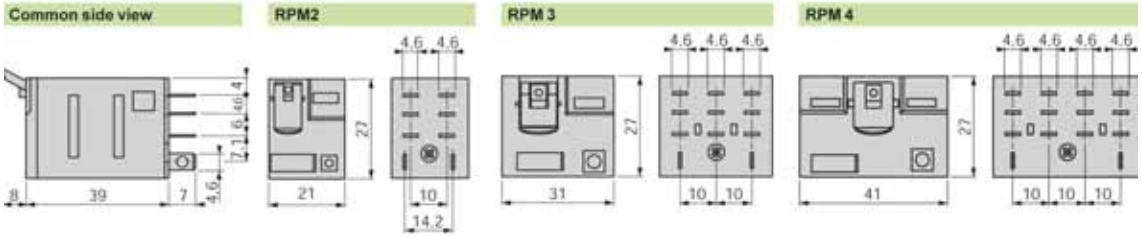


Common side view

RPM2

RPM 3

RPM 4



ELEMECH INC.
630-499-7080 · www.elemechinc.com

Rev: 0

Date: 2/8/2019

By: JAP

Device Tag: IR1-3

Job Number: HBR7628

Page # 2/2

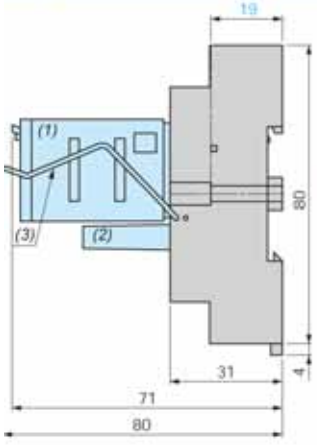
Manuf.: . PNo: SQUARE D: RPM12F7

Sockets

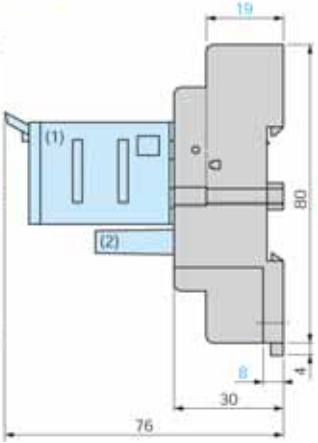
Telemecanique

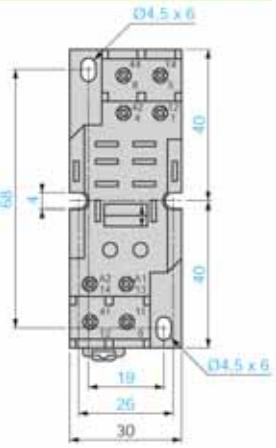
06-058-***

RPZF1

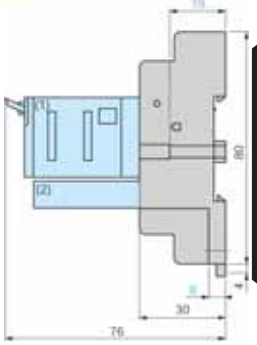


RPZF2





Common side view



Socket characteristics

	RPZF1	RPZF2	RPZF3	RPZF4
Socket type	RPM1●●●	RPM2●●●	RPM3●●●	RPM4●●●
Relay types used	RXM02●●● RXM04●●●	RXM02●●● RXM04●●●	RUW24●●●	RUW24●●●
Protection module types used				

Contact terminal arrangement		Mixed
Wire connection method		Screw clamp terminals
Product certifications		cURus File E172326 CCN SWIV2, SWIV8; CSA; CE; RoHS compliant
Conforming to standards		IEC 61984, CE

Electrical characteristics

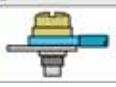
Conventional thermal current (Ith)	A	16
Maximum operating voltage	V	250 (IEC)

Insulation characteristics

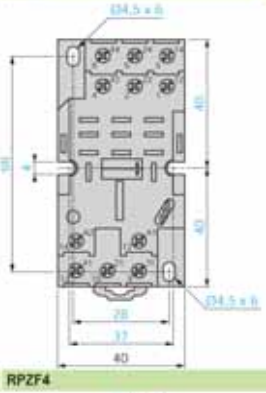
Between adjacent output contacts	Vrms	2500
Between input and output contacts	Vrms	2500
Between contacts and DIN rail	Vrms	2500

General characteristics

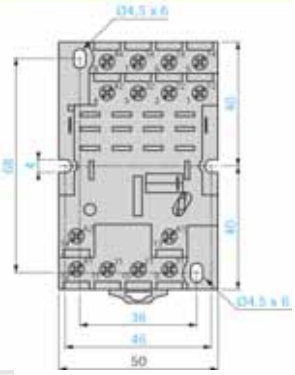
Ambient air temperature around the device	Operation		°C	- 40…+ 55	
	Storage		°C	- 40…+ 85	
Degree of protection	Conforming to IEC/EN 60529			IP 20	
Connection	Solid wire without cable end	1 conductor		0.5…1.5 mm² - AWG 20…AWG 16	0.5…2.5 mm² - AWG 20…AWG 14
		2 conductors		0.5…1.5 mm² - AWG 20…AWG 16	0.5…2.5 mm² - AWG 20…AWG 14
	Flexible wire with cable end	1 conductor		0.25…1 mm² - AWG 22…AWG 17	0.25…1.5 mm² - AWG 22…AWG 16
		2 conductors		0.25…1 mm² - AWG 22…AWG 17	0.25…1.5 mm² - AWG 22…AWG 16
Maximum tightening torque / Screw size			Nm	1 / M3 screw	1 / M3.5 screw
Mounting				35 mm DIN rail / panel mount	
Mounting on DIN rail				By red plastic clip	
Terminal referencing				IEC, NEMA	
Compatibility with the metal hold-down clip				Yes	No
Timer module compatibility				No	Yes
Protection module				RXM040W, RXM041●●, RXM021●●	RUW24●●
Clip-in ID tags				No	
Wire connection method	Screw clamp terminals				



RPZF3



RPZF4



Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Catalog number	Weight kg
Mixed	Screw clamp terminals	RPM1●●●	10	RPZF1	0.042
		RPM2●●●	10	RPZF2	0.054
		RPM3●●●	10	RPZF3	0.072
		RPM4●●●	10	RPZF4	0.094

c UL us

CSA

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Manuf.: . PNo: SQUARE D: RPZR235	Rev: 0	Device Tag: IR1-3	
	Date: 2/8/2019	Job Number: HBR7628	Page # 1/1
	By: JAP		

30.5 mm Push Buttons
Pilot Lights

Allen-Bradley

32-005-048

800 T ___ – P T ___ 16 G
a b c d e f g

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

c

Power Module Type		
800T Type 4/13	Description	800H Type 4/4X/13
Code		Code
P	Transformer (or dual input)	PR
Q	Full voltage/ Universal	QR

d

Lamp Test Options	
Code	Description
Blank	No test option
T	Push-to-test
D	Dual input — diode▲
DT	Dual input — transformer relay
Note: Push-to-test supplied with factory jumpered contact block.	

e

Illumination Options	
Code	Description
Blank	Incandescent
H	LED•

f

Voltage	
Transformer	
Code	Description
16	120V AC 50/60 Hz
26	240V AC 50/60 Hz
46	480V AC 50/60 Hz
56	600V AC 50/60 Hz
Full Voltage — Incandescent	
12	12V AC/DC
24	24V AC/DC
48	48V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Dual Input	
16	120V AC
24	24V AC/DC (Dual input diode only)

g

Lens Color		
Code	Color	Glass Code ▲
Blank	No lens	Blank
A	Amber	D
B	Blue	E
C	Clear	F
G	Green	H
R	Red	J
W	White	K

Specifications•

Electrical Ratings		
Contact ratings		Refer to the contact ratings tables on page 10-4.
Dielectric strength		2200V for one minute, 1300V for one minute (Logic Reed)
Electrical design life cycles		1 000 000 at max. rated load, 200 000 at max. rated load (Logic Reed)
Mechanical Ratings		
Vibration		10…2000 Hz, 1.52 mm displacement (peak-to-peak) max./ 10 G max. (except Logic Reed)
Shock		1/2 cycle sine wave for 11 ms ≥ 25 G (contact fragility) and no damage at 100 G
Degree of protection		Type 1/4/12/13 (800T); Type 1/4/4X/12/13 (800H); EN/IEC 60529 IP66/65
Mechanical design life cycles		
Push buttons	(Momentary, non-illuminated)	10 000 000 min.
	(Momentary, illuminated)	250 000 min.
	(Push-pull/twist-to-release)	250 000 min.
Selector switches	(Non-illuminated)	1 000 000 min.
	(Illuminated, key-operated)	200 000 min.
Potentiometers		25 000 min.
All other devices		200 000 min.
Contact operation		Shallow, mini, and low-voltage contact blocks: Slow, double make and break Logic Reed and sealed switch contact blocks: Single break magnetic
Wire gauge/Terminal screw torque		#18…14 AWG (#18…10 Max Duty) / 6…8 lb•in
Typical operating forces		
Operators without contact blocks		Flush, extended button, standard mushroom, jumbo plastic mushroom: 2 lbs max. Jumbo and extended aluminum mushroom head: 3.95 lbs max. Maintained selector switch: 3.6 in•lb max.
Spring return selector switches		3.6 in•lb to stop, 0.2 in•lb to return
Illuminated push buttons and push-to-test pilot lights		5 lb max.
2-position push-pull		8.0 lb max. push or pull
3-position push-pull		8 lb max. push to in position or pull to center position (15 lb max. pull to out position)
Twist-to-release or push-pull		9 lbs max. push or pull 30 in•oz max. twist, 6 in•oz minimum return
Potentiometer		Rotational torque 3…12 in•oz; stopping torque 12 in•lb (minimum)
Contact blocks	Standard	1 lb
	Logic Reed	1 lb max.
	Sealed switch	3 lb max. at 0.205 in. plunger travel
	Stackable sealed switch	1 lb max.
	MaxDuty	1.4 lb max.
	PenTUFF	1.4 lb max.
	Self Monitoring	1.6 lb
Environment		
Temperature range	Operating	-40…+131 °F (-40…+55 °C)
	Storage	-40…+185 °F (-40…+85 °C)
Note: Operating temperatures below freezing are based on the absence of moisture and liquids. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for use in lower temperature applications.		
Humidity		50…95% RH from 77…140 °F (25…60 °C) per Procedure IV of MIL-STD-810C, Method 507.1 cycling test

Replacement Color Caps

30.5 mm Accessories

Allen-Bradley

32-005-***

Color	800T/H Pilot Light Color Caps		
	Standard*	Push-to-Test*	18 mm
	Cat. No.	Cat. No.	Cat. No.
Amber	**800T-N26A**	**800T-N42**	**800T-N122A**
Blue	**800T-N26B**	**800T-N43**	**800T-N122B**
Clear	**800T-N26C**	**800T-N45**	800T-N122C
Green	**800T-N26G**	**800T-N41**	**800T-N122G**
Red	**800T-N26R**	**800T-N40**	**800T-N122R**
White	**800T-N26W**	**800T-N44**	**800T-N122W**

Allen-Bradley

Bulletin 100-C Contactors

22-005-003

100-C ___ D ___ ___

Rated Amps	N.O. Contacts	N.C. Contacts

V / Hz	120
60Hz	D

Ie		Ratings for Switching AC Motors - AC-2, AC-3, AC-4										Aux. Contacts			
[A]		kW (50 Hz)				HP (60 Hz)									
AC-3	AC-1		380V 415V			1∅		3∅							
460V	40°C	230V	400V	500V	690V	115V	230V	200V	230V	460V	575V	N.O.	N.C.	Cat. No.	*
9	25	3	4	4	4	1/3	1	2	2	5	7-1/2	1	0	100-C09⊗10	
												0	1	100-C09⊗01	
12	25	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	0	100-C12⊗10	
												0	1	100-C12⊗01	
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	10	1	0	100-C16⊗10	
												0	1	100-C16⊗01	
23	32	7.5	11	11	10	2	3	5	7-1/2	15	15	1	0	100-C23⊗10	
												0	1	100-C23⊗01	
30	45	10	15	15	15	2	5	7-1/2	10	20	20	0	0	100-C30⊗00	
												1	0	100-C30⊗10	
												0	1	100-C30⊗01	
37	50	11	18.5	18.5	18.5	3	5	10	10	25	25	0	0	100-C37⊗00	
												1	0	100-C37⊗10	
												0	1	100-C37⊗01	
43	63	13	22	22	22	3	7-1/2	10	15	30	30	0	0	100-C43⊗00	
												1	0	100-C43⊗10	
												0	1	100-C43⊗01	
60	90	18.5	30	30	30	5	10	15	20	40	40	0	0	100-C60⊗00	
												1	0	100-C60⊗10	
												0	1	100-C60⊗01	
72	90	22	37	37	37	5	15	20	25	50	50	0	0	100-C72⊗00	
												1	0	100-C72⊗10	
												0	1	100-C72⊗01	
85	100	25	45	45	45	7-1/2	15	25	30	60	60	0	0	100-C85⊗00	
												1	0	100-C85⊗10	
												0	1	100-C85⊗01	

⊗ Coil Voltage Code and Terminal Position

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60Hz: **Cat. No. 100-C09⊗10** becomes **Cat. No.100-C09D10**.

[V] / Hz	12	24	32	36	42	48	100	100-110	110	120	127	200	200-220	208	208-240	220-230	230	230-240	240	277	347	380	380-400	400	400-415	440	480	500	550	600
50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	L	—	—	F	—	VA	T	—	—	—	N	—	G	B	—	M	C	—
60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	H	L	—	—	—	A	T	I	E	—	—	—	N	B	—	—	C
50/60 Hz	—	KJ	—	—	—	KY	KP	—	KD	—	—	KG	KL‡	—	—	KL‡	KF	—	KA	—	—	—	—	KN	—	KB	—	—	—	—

‡ Not available on 100/104-C90 or -C97 contactors.

DC Voltages [V]		9	12	24	36	48	48-72	60	64	72	80	110	110-125	115	125	220	220-250	230	250
100-C09...C43	Standard	ZR	ZQ	ZJ	ZW	ZY	—	ZZ	ZB	ZG	ZE	ZD	—	ZP	ZS	ZA	—	ZF	ZT
	with Integrated Diode	—	—	DJ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Electronic with Integrated Diode	—	EQ	EJ	—	—	EY	—	—	—	—	—	ED	—	—	—	EA	—	—
100-C60...C97	with Integrated Diode	DR	DQ	DJ	DW	DY	—	DZ	DB	DG	DE	DD	—	DP	DS	DA	—	DF	DT

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Rev:	Device Tag:
0	M1
Date: 2/8/2019	
By: JAP	Job Number: HBR7628
Manuf.: . PNo: ALLEN-BRADLEY: 100-C23D10	Page # 1/1

Auxiliary Contacts

Allen-Bradley

22-005-011

Auxiliary Contact Blocks for Front Mounting ❶

- 2- and 4-pole
- Quick and easy mounting without tools
- Electronic-compatible contacts down to 17V, 5 mA
- Mutual positive guidance to the main contactor poles (except for L types)
- Models with equal function with several terminal numbering choices

L = Late break / Early make

Auxiliary contact blocks for front installation ❸

- 2 and 4 poles
- Quick and easy mounting without tools
- Contacts compatible with electronics
- Mutual positive quidance with the main contactor poles (except for L types)
- Models with equal function with several terminal numbering choises

L = late break / early make

N.O.	N.C.	Connection Diagrams	For Use With	Cat. No.
0	2		100-C all C30⊗00...C85⊗00	100-FA02 100-FB02
1	1	-FA02 -FB02 -FA11	100-C all C30⊗00...C85⊗00 C09⊗10...C23⊗10	100-FA11 100-FB11 100-FC11
2	0	-FB11 -FC11 -FA20	100-C all C30⊗00...C85⊗00	100-FA20 100-FB20
1L	1L	-FB20 -FAL11 -FBL11	100-C all C30⊗00...C85⊗00	100-FAL11 100-FBL11
0	4	-FA04 -FA13	100-C all	100-FA04
1	3	-FA22 -FB22	100-C all	100-FA13
2	2	-FC22 -FA31	100-C all C30⊗00...C85⊗00 C09⊗10...C23⊗10	100-FA22 100-FB22 100-FC22
3	1	-FC31 -FA40 -FAL22	100-C all C09⊗10...C23⊗10	100-FA31 100-FC31
4	0		100-C all	100-FA40
1+1L	1+1L		100-C all	100-FAL22

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Manuf.: . PNo:
ALLEN-BRADLEY: 100-FA40

PanelView™ 800

Allen-Bradley

26-005-075

Feature	4 in.	7 in.	10 in.
			
Catalog Number	**2711R-T4T**	**2711R-T7T**	**2711R-T10T**
Resolution	480 x 272 WQVGA	800 x 480 WVGA	800 x 600 SVGA
Display Type	TFT touch screen, wide LCD		
Display Hour	40,000 hours		
Colors	65K colors		
Backlight	LED		
Power Supply	24V DC		
Processor, CPU Speed	800 MHz		
Operator Input	Resistive touch and tactile function keys	Resistive touch	
Internal Storage	128 MB	256 MB	
RAM	128 MB DDR	256 MB DDR	
Operation System	Microsoft Windows CE 6.0		
Real-time Clock With Battery	Yes		
Operating Temperature	0°…50°C		
RS232/RS422/485 (isolated)	Separate RS232 and RS422/RS485 connectors		
Ethernet 10/100 Mbps	1		
USB Host (USB 2.0)	Yes		
microSD™ Slot	Yes		
Product Dimension (mm) (Height x Width x Depth)	116 X 138 X 43	144 X 197 X 54	225 X 287 X 55
Panel Cutout (mm) (Height x Width)	99 X 119	125 X 179	206 X 269
Weight	0.35 kg (0.76 lb)	0.68 kg (1.48 lb)	1.57 kg (3.41 lb)
Front Bezel Protection	IP65, NEMA 4X, 12, 13		
Certifications	cULus listed; Class 1 Div 2, Groups A,B,C,D, T4A, CE, RCM, KC, RoHS		

E1 Plus Solid-State Overload Relays

Allen-Bradley

28-005-038

Bulletin 193-EE – Three-Phase Devices

- Selectable Trip Class (10, 15, 20, 30)
- Selectable Auto/Manual-Auto Reset
- Screw-Type Control Terminals

Mounts to Contactor	Adjustment Range (A)	Cat. No. ❶
100-C09…100-C23	0.1…0.5	193-EEAB
	0.2…1.0	193-EEBB
	1.0…5.0	193-EECB
	3.2…16	193-EEDB
	5.4…27	193-EEEB
100-C30…100-C43	5.4…27	193-EEED
	9…45	193-EEFD
100-C60…100-C85	18…90	193-EEGE

Specifications

Cat. No.		193-ED1_B, 193-EE_B, and 592-EE_T
Main Circuits		
Rated Insulation Voltage U_i		690V AC
Rated Impulse Strength U_{imp}		6 kV AC
Rated Operating Voltage U_e		690V AC (IEC) / 600V AC (CSA/UL)
Terminal Cross-Sections:	Terminal Type	
	Terminal Screw	M5
Flexible-Stranded with Ferrule	Single Conductor Torque	2.5…16 mm² 2.5 N·m
	Two Conductor Torque	2.5…10 mm² ❶ 3.4 N·m
Coarse-Stranded / Solid	Single Conductor Torque	2.5…25 mm² 2.5 N·m
	Two Conductor Torque	6…16 mm² ❶ 3.4 N·m
Stranded / Solid	Single Conductor Torque	14…6 AWG 22 lb-in
	Two Conductor Torque	14…6 AWG ❶ 30 lb-in
Pozidrive Screwdriver Size		2
Slotted Screwdriver (mm)		1 x 6
Hexagon Socket Size (mm)		—
Control Circuits		
Rated Insulation Voltage U_i		690V AC
Rated Impulse Strength U_{imp}		6 kV AC
Rated Operating Voltage U_e		690V AC (IEC) / 600V AC (CSA/UL)
Rating Designation		B600
Rated Operating Current I_e		N.O. / N.C.
AC-15	12…120V 220…240V 380…480V 500…600V	3 / 2 1.5 / 1.5 0.75 / 0.75 0.6 / 0.6
DC-13, at L/R ≤ 15 ms	24V 110V 220V 440V	1.1 / 1.1 0.4 / 0.4 0.2 / 0.2 0.08 / 0.08
Thermal Current I_{the}		5 A
Contact Reliability		17V, 5 mA
Screw Terminal Cross-Sections:	Terminal Screw	M3
Flexible-Stranded with Ferrule	Single Conductor Torque	0.5…2.5 mm² 0.55 N·m
	Two Conductor Torque	0.25…1.5 mm² 0.55 N·m
Coarse-Stranded / Solid	Single Conductor Torque	0.5…4 mm² 0.55 N·m
	Two Conductor Torque	0.2…2.5 mm² 0.55 N·m
Stranded / Solid	Single Conductor Torque	24…10 AWG 5 lb-in
	Two Conductor Torque	24…12 AWG 5 lb-in
Screwdriver (mm)		#1 Pozidrive / 0.6 x 3.5 slotted
Cage Clamp Cross-Sections:		
Flexible-Stranded with Ferrule		0.25…1 mm²
Coarse-Stranded / Solid		0.2…1.5 mm²
Stranded / Solid		24…14 AWG

Environmental Ratings		
Ambient Temperature	Storage Operating	-40…85°C (-40…185°F) -20…60°C (-4…140°F)
Humidity	Operating Damp Heat	5…95%, non-condensing per IEC 68-2-3 and IEC 68-2-3(
Vibration (per IEC 68-2-6)		3 G
Shock (per IEC 68-2-27)		30 G
Maximum Altitude		2000 m
Pollution Environment		Pollution Degree 3
Degree of Protection		IP20
Protection		
Type of Relay		Ambient Compensated, Time Delay, Phase
Nature of Relay		Solid-State
Trip Rating		120% FLA
Trip Class	Type ED Type EE	10 10, 15, 20, 30
Reset Mode	Type ED Type EE	Manual Automatic or Manual
Electromagnetic Compatibility		
Electrostatic Discharge Immunity	Test Level Performance Level	8 kV Air Discharge 6 kV Contact Discharge 1 ❶❷
RF Immunity	Test Level Performance Level	10 V/m 1 ❶❷
Electrical Fast Transient/Burst Immunity	Test Level Performance Level	4 kV 1 ❶❷
Surge Immunity	Test Level Performance Level	2 kV (L-E) 1 kV (L-L) 1 ❶❷

Standards Compliance

IEC/EN 60947-4-1
IEC/EN 60947-5-1
CSA 22.2 No. 14
UL 508

Certifications

CE
cULus Listed
C-Tick
CCC

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Rev: 0
Date: 2/8/2019
By: JAP

Device Tag: OL1

Job Number: HBR7628

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Manuf.: . PNo: ALLEN-BRADLEY: 193-EEDB

Bulletin 800T/H

30.5 mm Push Buttons

Emergency Stop Operators

Allen-Bradley

29-005-117

2-Position Red Trigger Action Twist-to-Release, Non-Illuminated

- Tamper resistant – front-of-panel mounting and non-removable operator head
- Compliant with global E-stop standards, including EN ISO 13850 and EN 60947-5-5

Cat. No. 800T-TFXJET6

Cat. No. 800T-TFXLET6

Cat. No. 800T-TFXK6

Cat. No. 800H-TFRXT6

	Operator Position		Type 4/13			Type 4/4X/13
	Out	In	45 mm Plastic	63 mm Metal	Key Release	45 mm Plastic
Contact Type			Cat. No.*❄‡	Cat. No.*§	Cat. No.*♣	Cat. No.*❄‡
No contacts	—	—	**800T-TFXT6**	**800T-TFXLT6**	**800T-TFXK6**	**800H-TFRXT6**
1 N.C.	X	O	800T-TFXT6D2	800T-TFXLTD2	800T-TFXK6D2	800H-TFRXT6D2
1 N.O. - 1 N.C.	O X	X O	**800T-TFXT6A**	800T-TFXLT6A	**800T-TFXK6A**	**800H-TFRXT6A**
1 S.M.C.B.➢	X	O	800TC-TFXT6D4S	800TC-TFXLT6D4S	800TC-TFXK6D4S	800HC-TFRXT6D4S

* For finger-safe contact block terminals, add a **C** to the cat. no. Example: Cat. No. 800T**C**-TFXT6 or 800H**C**-TFRXT6.
❄ To order a device with a jumbo (60 mm) plastic head add the letter **J** after **X**. Example: Cat. No. 800T-TFX**J**T6A or 800H-TFRX**J**T6A.
‡ To order a jumbo head device with "E-STOP" printed on the cap add the letters **JE** after **X**. Example: Cat. No. 800T-TFX**JE**T6 or 800H-TFRX**JE**T6.
§ To order a device with "E-STOP" engraved on the cap add the letter **E** after **L**. Example: Cat. No. 800TC-TFX**LE**T6D4S.
♣ Provided with two DO18 keys.
➢ Self-monitoring contact block.

Standards Compliance

UL 508

CCC

Certifications

UL Listed
(File No. E14840, E10314
Guide No. NKCR, NOIV)

CSA Certified
(File No. LR1234, LR11924)

CSA C22.2, No. 14

EN/IEC: 60947-5-1

800 T – T FX T 6 D2
a b c d e

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

800T Type 4/13 Code	Description	800H Type 4/4X/13 Code
Head Type‡		
FX	Standard (45 mm) mushroom head	FRX
FXJ	Jumbo (60 mm) mushroom head	FRXJ
FXJE	Jumbo (60 mm) mushroom head with "E-STOP"	FRXJE
FXK	45 mm mushroom head key release	—
FXL	63 mm anodized aluminum head	—
FXLE	63 mm anodized aluminum head with "E-STOP"	—

d

Release Function	
Code	Color
Blank	Key release⌘
T	Twise release

Note: X = Closed/O = Open
⌘Configurable only with **FXK** head type.

e

Contact Block(s)			
Code	Operator Position Out	Operator Position In	Description
Blank	—	—	No contacts on operator
Standard			
D1	O	X	1 N.O.
D2	X	O	1 N.C.
D4	X	O	1 N.C.L.B.
A	O X	X O	1 N.O. - 1 N.C.
A1	O X	X O	1 N.O. - 1 N.C.L.B.
A5	X X	O O	2 N.C.L.B.
Pen*TUFF* (Low Voltage)			
D1V	O	X	1 N.O.
D2V	X	O	1 N.C.
D4V	X	O	1 N.C.L.B.
AV	O X	X O	1 N.O. - 1 N.C.
Class 1, Div. 2/Zone 2			
Logic Reed			
D1R	O	X	1 N.O.
D2R	X	O	1 N.C.
AR	O X	X O	1 N.O. - 1 N.C.
Sealed Switch			
D1P	O	X	1 N.O.
D2P	X	O	1 N.C.
AP	O X	X O	1 N.O. 1 N.C.
Stackable Sealed Switch			
D1Y	O	X	1 N.O.
D2Y	X	O	1 N.C.
AY	O X	X O	1 N.O. - 1 N.C.

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Rev: 0	Device Tag: PB1	
Date: 2/8/2019		
Manuf.: . PNo: ALLEN-BRADLEY: 800H-TFRXT6D2	By: JAP	Job Number: HBR7628
		Page # 1/1

30.5 mm Push Buttons

Allen-Bradley

02-005-004

Shallow Block

PenTUFF™ (Low Voltage) Contact Block

Logic Reed Block

Sealed Switch Block

Stackable Sealed Switch Block

Contact Type	Shallow Block*❄		PenTUFF (Low Voltage) Block*❄		Logic Reed Block‡		Sealed Switch Block‡		Stackable Sealed Switch Block‡	
	Cat. No.	Code	Cat. No.	Code	Cat. No.	Code	Cat. No.	Code	Cat. No.	Code
1 N.O.	800T-XD1	D	800T-XD1V	H	800T-XD1R	V	800T-XD1P	R	800T-XD1Y	5
1 N.C.	800T-XD2	E	800T-XD2V	U	800T-XD2R	W	800T-XD2P	S	800T-XD2Y	6
1 N.O.E.M.	800T-XD3	G	800T-XD3V	I	—	—	—	—	—	—
1 N.C.L.B.	800T-XD4	J	800T-XD4V	Q	—	—	—	—	—	—
1 N.O. - N.C.	800T-XA	A	800T-XAV	F	800T-XAR	T	800T-XAP	P	800T-XAY	7
2 N.O.	800T-XA2§	M	—	—	800T-XA2R§	Y	—	—	800T-XA2Y	8
2 N.C.	800T-XA4	N	—	—	800T-XA4R	Z	—	—	800T-XA4Y	9
1 N.C.L.B. - 1 N.O.	800T-XA1	B	—	—	—	—	—	—	—	—
1 N.C.L.B. - 1 N.C.	800T-XA7	C	—	—	—	—	—	—	—	—

Note: Modular suffix codes can be used when specifying selector switches with multiple contact blocks.

PenTUFF™ (Low Voltage) Contact Ratings

Minimum DC: 5V, 1 mA
Maximum thermal continuous current I_{th} 2.5 A AC/1.0 A DC. Bulletin 800T units with 800T-XAV contacts have ratings as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120...300 0...120	1800VA 15 A	180VA 1.5 A
DC 150	DC-13	R150	24...150 0...24	28VA 1.0 A	

Stackable Sealed Switch Contact Ratings

Minimum: 5V, 10 mA (digital); 24V, 1 mA (analog)

Maximum continuous current I_{th} 2.5 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120...300 0...120	1800VA 15 A	180VA 1.5 A
DC 150	DC-13	Q150	24...150 0...24	69VA 2.5 A	

MaxDuty Contact Rating

Maximum thermal continuous current I_{th} 24 A.
Pilot Duty — 120V AC, 12 A; 24V DC, 10 A
Motor Ratings — 120V AC, 1.5 Hp; 240V AC, 3 Hp; 24V DC, 10 A FLA/60 A LRA

Logic Reed Contact Ratings

Minimum — DC: 5V, 1 mA
Maximum — DC: 30V, 0.06 A, AC: 150V, 0.15 A
Should only be used with resistive loads.

Product Certifications

Certifications	UR/UL, CSA, CCC, CE
Standards Compliance — CE Marked	NEMA ICS-5; UL 508, EN ISO 13850, EN 60947-1, EN 60947-5-1, EN 60947-5-5

30.5 mm Push Buttons

Allen-Bradley

29-005-002

800 T ___ – A 1 ___ A

a b c d e f

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Operator Type		
800T Type 4/13 Code	Description	800H Type 4/4X/13 Code
A	Flush head	AR
B	Extended head	BR
D	Mushroom head	DR
DX	Mushroom head less color cap	DRX
—	Bootless guarded head	GR
—	Booted head	R*

d

Color Cap	
Code	Description
Blank	Used only when ordering Operator Type DX/DRX
1	Green
2	Black
3	Orange❄

Color Cap	
Code	Description
4	Grey❄
5	White❄
6	Red
7	Blue
9	Yellow

e

Special Mushroom Head	
Code	Description
J§	Jumbo mushroom head — plastic
L§	Jumbo mushroom head — metal

Note: Special mushroom head options only apply to mushroom head operator type code D/DR (Table c).

f

Contact Block(s)	
Code	Description
Blank	No contacts
Standard	
D1	1 N.O.
D2	1 N.C.
D3	1 N.O.E.M.
D4	1 N.C.L.B.
D5	1 N.O. (Mini)
D6	1 N.C. (Mini)
A1	1 N.C.L.B. - 1 N.O.
A2	2 N.O.‡
A4	2 N.C.
A7	1 N.C.L.B. - 1 N.C.
A	1 N.O. - 1 N.C.
B	2 N.O. - 2 N.C.

Certifications

UL Listed
(File No. E14840, E10314
Guide No. NKCR, NOIV)

CSA Certified
(File No. LR1234, LR11924)

CSA C22.2, No. 14

Specifications*

Electrical Ratings		
Contact ratings		Refer to the contact ratings tables on page 10-4.
Dielectric strength		2200V for one minute, 1300V for one minute (Logic Reed)
Electrical design life cycles		1 000 000 at max. rated load, 200 000 at max. rated load (Logic Reed)
Mechanical Ratings		
Vibration		10…2000 Hz, 1.52 mm displacement (peak-to-peak) max./ 10 G max. (except Logic Reed)
Shock		1/2 cycle sine wave for 11 ms ≥ 25 G (contact fragility) and no damage at 100 G
Degree of protection		Type 1/4/12/13 (800T); Type 1/4/4X/12/13 (800H); EN/IEC 60529 IP66/65
Mechanical design life cycles		
Push buttons	(Momentary, non-illuminated)	10 000 000 min.
	(Momentary, illuminated)	250 000 min.
	(Push-pull/twist-to-release)	250 000 min.
Selector switches	(Non-illuminated)	1 000 000 min.
	(Illuminated, key-operated)	200 000 min.
Potentiometers		25 000 min.
All other devices		200 000 min.
Contact operation		Shallow, mini, and low-voltage contact blocks: Slow, double make and break Logic Reed and sealed switch contact blocks: Single break magnetic
Wire gauge/Terminal screw torque		#18…14 AWG (#18…10 Max Duty) / 6…8 lb•in
Typical operating forces		
Operators without contact blocks		Flush, extended button, standard mushroom, jumbo plastic mushroom: 2 lbs max. Jumbo and extended aluminum mushroom head: 3.95 lbs max. Maintained selector switch: 3.6 in•lb max.
Spring return selector switches		3.6 in•lb to stop, 0.2 in•lb to return
Illuminated push buttons and push-to-test pilot lights		5 lb max.
2-position push-pull		8.0 lb max. push or pull
3-position push-pull		8 lb max. push to in position or pull to center position (15 lb max. pull to out position)
Twist-to-release or push-pull		9 lbs max. push or pull 30 in•oz max. twist, 6 in•oz minimum return
Potentiometer		Rotational torque 3…12 in•oz; stopping torque 12 in•lb (minimum)
Contact blocks	Standard	1 lb
	Logic Reed	1 lb max.
	Sealed switch	3 lb max. at 0.205 in. plunger travel
	Stackable sealed switch	1 lb max.
	MaxDuty	1.4 lb max.
	PenTUFF	1.4 lb max.
	Self Monitoring	1.6 lb
Environment		
Temperature range	Operating	-40…+131 °F (-40…+55 °C)
	Storage	-40…+185 °F (-40…+85 °C)
Note: Operating temperatures below freezing are based on the absence of moisture and liquids. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for use in lower temperature applications.		
Humidity		50…95% RH from 77…140 °F (25…60 °C) per Procedure IV of MIL-STD-810C, Method 507.1 cycling test

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Rev: 0
Date: 2/8/2019
By: JAP

Device Tag: PB2

Manuf.: . PNo: ALLEN-BRADLEY: 800H-AR2D1

Job Number: HBR7628

Page # 1/1

MicroLogix™ Analog Input/Output Module (Catalog Number 1762-IF2OF2)

Allen-Bradley

33-005-048

General Specifications

Specification	Value
Dimensions	90 mm (height) x 87 mm (depth) x 40 mm (width) height including mounting tabs is 110 mm 3.54 in. (height) x 3.43 in. (depth) x 1.58 in. (width) height including mounting tabs is 4.33 in.
Approximate Shipping Weight (with carton)	240g (0.53 lbs.)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Operating Temperature	0°C to +55°C (-32°F to +131°F)
Operating Humidity	5% to 95% non-condensing
Operating Altitude	2000 meters (6561 feet)
Vibration	Operating: 10 to 500 Hz, 5G, 0.030 in. max. peak-to-peak
Shock	Operating: 30G
Bus Current Draw (max.)	40 mA at 5V dc 105 mA at 24V dc
Analog Normal Operating Range	Voltage: 0 to 10V dc Current: 4 to 20 mA
Full Scale(1) Analog Ranges	Voltage: 0 to 10.5V dc Current: 0 to 21 mA
Resolution	12 bits (unipolar)
Repeatability(2)	±0.1%
Input and Output Group to System Isolation	30V ac/30V dc rated working voltage(3) (N.E.C. Class 2 required) (IEC Class 2 reinforced insulation) type test: 500V ac or 707V dc for 1 minute
Module Power LED	On: indicates power is applied.
Recommended Cable	Belden™ 8761 (shielded)

Input Specifications

Specification	Value
Number of Inputs	2 differential (unipolar)
A/D Converter Type	Successive approximation
Common Mode Voltage Range[1]	±27 V
Common Mode Rejection[2]	> 55 dB at 50 and 60 Hz
Non-linearity (in percent full scale)	±0.1%
Typical Overall Accuracy[3]	±0.5% full scale at 0 to 55°C ±0.3% full scale at 25°C
Input Impedance	Voltage Terminal: 200KΩ Current Terminal: 250Ω
Current Input Protection	±32 mA
Voltage Input Protection	±30 V
Channel Diagnostics	Over or under range or open circuit condition by bit reporting for analog inputs.

Output Specifications

Specification	Value
Number of Outputs	2 single-ended (unipolar)
D/A Converter Type	Resistor string
Resistive Load on Current Output	0 to 500 Ω (includes wire resistance)
Load Range on Voltage Output	> 1KΩ
Reactive Load, Current Output	< 0.1 mH
Reactive Load, Voltage Output	< 1 µF
Typical Overall Accuracy[1]	±1% full scale at 0 to 55°C ±0.5% full scale at 25°C
Output Ripple range 0 to 500 Hz (referred to output range)	< ±0.1%
Non-linearity (in percent full scale)	< ±0.5%
Open and Short-Circuit Protection	Continuous
Output Protection	±32 mA

MicroLogix™ 1400 / 1766

Small Programmable Logic Controller

Allen-Bradley

33-005-154

Overview

The new Allen-Bradley® MicroLogix™ 1400 from Rockwell Automation complements the existing MicroLogix family of small programmable logic controllers. MicroLogix 1400 combines the features you demand from MicroLogix 1100, such as EtherNet/IP, online editing, and a built-in LCD, plus provides you with enhanced features, such as: higher I/O count, faster High Speed Counter/PTO and enhanced network capabilities

Take advantage of the built-in LCD with back lighting to set the Ethernet network configuration, display floating point values on a user configurable display, display OEM logos at startup and read or write any binary, integer and long file elements in the data table. Controllers without embedded analog come with 32 digital I/O count, while analog versions have 32 digital I/O and 6 analog I/O. All versions can be expanded using up to seven 1762 I/O modules - the same I/O modules that MicroLogix 1100 and 1200 utilize.

Three embedded communication ports provide you with superior communications capabilities. MicroLogix 1400 offers an isolated RS232C/RS485 combination port; a non-isolated RS232C port; and an RJ-45 port for 10/100 Mbps EtherNet/IP peer-to-peer messaging.

Similar to the rest of the MicroLogix family, MicroLogix 1400 is programmed with RSLogix 500 programming software (Version 8.1 and above) as well as new RSLogix Micro programming software.

MicroLogix	1766-L32BWA	1766-L32AWA	1766-L32BXB	1766-L32BWAA	1766-L32AWAA	1766-L32BXBA
Input Power	120/240 VAC		24 VDC	120/240 VAC		24 VDC
Memory	non-volatile battery backed RAM					
User Program / User Data Space	10 K / 10K configurable					
Data Logging / Recipe Storage	128 K (without Recipe) / up to 64 K (after subtracting Data Logging)					
Battery Back-up	Yes					
Back-up Memory Module	Yes					
Digital Inputs	(12) Fast 24VDC (8) Normal 24VDC	(20) 120VAC	(12) Fast 24VDC (8) Normal 24VDC	(12) Fast 24VDC (8) Normal 24VDC	(20) 120VAC	(12) Fast 24VDC (8) Normal 24VDC
Digital Outputs	(12) Relay	(12) Relay	(6) Relay (3) Fast DC (3) Normal DC	(12) Relay	(12) Relay	(6) Relay (3) Fast DC (3) Normal DC
Analog Inputs / Outputs	None			(4) Voltage Inputs / (2) Voltage Outputs		
Serial Ports	(1)RS232C/RS485* , (1)RS232C**					
Serial Protocols	DF1 Full Duplex, DF1 Half Duplex Master/Slave, DF1 Radio Modem, DH-485, Modbus RTU Master/Slave, ASCII, DNP 3 Slave					
Ethernet Ports	(1) 10/100 EtherNet/IP port					
Ethernet Protocols	EtherNet/IP messaging only					
Trim Potentiometers	2 Digital					
High-Speed Inputs	Up to 6 channels @ 100 kHz	N/A	Up to 6 channels @ 100 kHz	Up to 6 channels @ 100 kHz	N/A	Up to 6 channels @ 100 kHz
Real Time Clock	Yes, embedded					
PID	Yes (limited by loop and stack memory)					
PWM /PTO	N/A		3 channel PTO (100kHz)\PWM (40kHz)	N/A		3 channel PTO (100kHz)\PWM (40kHz)
Dual Axis Servo control	N/A		Through embedded PTO	N/A		Through embedded PTO
Embedded LCD	Yes					
Floating Point Math	Yes					
Online Editing	Yes					
Operating Temperature	-20°C to +60°C					
Storage Temperature	-40°C (or -30°C) to +85°C					

* Isolated RS232/RS485 combo port. Same as Micrologix 1100 Comm 0

Emotron M20
Shaft Power Monitor

34-024-009

Article number	Designation
01-2520-20	Emotron M20 1x100-240/3x100-240 VAC
01-2520-40	Emotron M20 3x380-500 VAC
01-2520-50	Emotron M20 3x525-690 VAC

c UL us LISTED

Dimensions (WxHxD)	45x90x115 mm (1.77" x 3.54" x 4.53") 
Mounting	35 mm DIN rail 46277
Weight	0.30 kg (10.5 oz)
Supply voltage (±10%)	1x100-240 VAC, 3x100-240 VAC, 3x380-500 VAC 3x525-690 VAC
Frequency	50 or 60 Hz
Current input	Current transformer; CTM 010, 025, 050 and 100. Input 0-55 mA. (>100 A extra transformer needed)
Power consumption	Max. 6 VA
Start-up delay	1-999 s
Hysteresis	0-50% of rated motor power
Response delay max	0.1-500 s
Response delay min	0.1-500 s
Relay output	5 A/240 VAC Resistive, 1.5 A/240 VAC Pilot duty/AC12
Analogue output	Max. load 500 ohm
Digital input	Max. 240 VAC or 48 VDC. High: ≥24 VAC/DC, Low: <1 VAC/DC. Reset >50 ms
Fuse	Max. 10 A
Terminal wire size	Use 75 °C copper (CU) wire only. 0.2-4.0 mm^2 single core (AWG12). 0.2-2.5 mm^2 flexible core (AWG14), stripped length 8 mm (0.32")
Terminal tightening torque	0.56-0.79 Nm (5-7 lb-in)
Accuracy	±2%, ±1 unit cos phi>0.5; excl. current transformer; +20 °C (+68 °F)
Repeatability	±1 unit 24h; +20 °C (+68 °F)
Temperature tolerance	Max. 0.1%/ °C
Operating temperature	-20 to +50 °C (-4 °F to +122 °F)
Storage temperature	-30 to +80 °C (-22 °F to +176 °F)
Protection class	IP20
Approved to	CE (up to 690VAC), UL and cUL (up to 600 VAC)

Sync DIN Rail Power Supply
24V 30W 1 Phase (NEC Class 2) / DRS-24V30W1NZ

Model Number: DRS-24V30W1NZ
Unit Weight: 0.11 kg (0.24 lb)
Dimensions (L x W x D): 75 x 21 x 89.5 mm (2.95 x 0.83 x 3.52 inch)

37-323-009

Safety Standards

CB Certified for worldwide use

Sync DIN Rail Power Supply

Model Number	Input Voltage Range	Rated Output Voltage	Rated Output Current
DRS-24V30W1NZ	85-264Vac (120-375Vdc)	24Vdc	1.25A

Model Numbering

DR	S –	24V	30W	1	N	Z
DIN Rail	Product Series S – Sync Series	Output Voltage	Output Power	Single Phase	NEC Class 2	Without DC OK Relay Contact

Specifications

Input Ratings / Characteristics

Nominal Input Voltage		100-240Vac
Input Voltage Range		85-264Vac
Nominal Input Frequency		50-60Hz
Input Frequency Range		47-63Hz
DC Input Voltage Range*		120-375Vdc
Input Current		< 0.55A @ 115Vac, < 0.35A @ 230Vac
Efficiency at 100% Load		> 87.5% @ 115Vac, > 88.0% @ 230Vac
Max Power Dissipation	0% load	< 0.5W @ 115Vac & 230Vac
	100% load	< 4.5W @ 115Vac & 230Vac
Max Inrush Current (Cold Start)		< 20A @ 115Vac, < 40A @ 230Vac
Leakage Current (Neutral to PE terminal)		< 0.5mA @ 264Vac

*Fulfills test conditions for DC input. Safety approval for DC input can be obtained upon request.

Output Ratings / Characteristics**

Nominal Output Voltage	24Vdc
Factory Set Point Tolerance	24Vdc ± 2%
Output Voltage Adjustment Range	24-28Vdc
Output Current	1.25A (30W max.)
Output Power	30W
Line Regulation	< 0.5% (@ 85-264Vac, 100% load)
Load Regulation	< 1.0% (@ 85-264Vac, 0-100% load)
PARD*** (20MHz)	< 75mVpp @ > 0°C to 70°C < 150mVpp @ 0°C to -20°C
Rise Time	< 30ms @ nominal input (100% load)
Start-up Time	< 2,500ms @ 115Vac (100% load) < 1,000ms @ 230Vac (100% load)
Hold-up Time	> 20ms @ 115Vac (100% load) > 100ms @ 230Vac (100% load)
Dynamic Response (Overshoot & Undershoot O/P Voltage)	± 5% @ 85-264Vac input, 0-100% load (Slew Rate: 0.1A/μS, 50% duty cycle @ 5Hz to 1KHz)
Start-up with Capacitive Loads	3,000μF Max

**For power de-rating from < -10°C to -20°C, and 55°C to 70°C, see power de-rating on page 3.
***PARD is measured with an AC coupling mode, 5cm wires, and in parallel with 0.1μF ceramic capacitor & 47μF electrolytic capacitor.

Mechanical

Case Cover / Chassis		Plastic
Dimensions (L x W x D)		75 x 21 x 89.5 mm (2.95 x 0.83 x 3.52 inch)
Unit Weight		0.11 kg (0.24 lb)
Indicator		Green LED (DC OK)
Cooling System		Convection
Terminal	Input	3 Pins (Rated 300V/16A)
	Output	2 Pins (Rated 300V/16A)
Wire	Input / Output	AWG 22-12 / AWG 20-12
Mounting Rail		Standard TS35 DIN Rail in accordance with EN 60715
Noise (1 Meter from power supply)		Sound Pressure Level (SPL) < 25dBA

Environment

Surrounding Air Temperature	Operating	-20°C to +70°C (Cold start at -40°C @ 40% load)
	Storage	-40°C to +85°C
Power De-rating		-10°C to -20°C de-rate power by 2% / °C > 55°C de-rate power by 3.33% / °C
Operating Humidity		5 to 95% RH (Non-Condensing)
Operating Altitude		0 to 2,000 Meters (6,560 ft.)
Shock Test	Non-Operating	IEC60068-2-27, Half Sine Wave: 50G for a duration of 11ms; 3 times per direction, 9 times in total
	Operating	IEC 60068-2-27, Half Sine Wave: 10G for a duration of 11ms; 1 time in X axis
Vibration	Non-Operating	IEC 60068-2-6, Random: 5-500Hz; 2.09G_{rms}, 20 min per axis for all X, Y, Z directions
	Operating	IEC 60068-2-6, Sine Wave: 10-500Hz; 2G peak; displacement of 0.35mm; 1 octave per min; 60 min per axis for all X, Y, Z directions
Pollution Degree		2

Protections

Overvoltage	< 34.8V, SELV Output, Latch Mode
Overload / Overcurrent	105~160% of rated load current, Hiccup Mode, Non-Latching (Auto-Recovery)
Over Temperature	< 75°C Surrounding Air Temperature @ 100% load, Latch Mode
Short Circuit	Hiccup Mode, Non-Latching (Auto-recovery when the fault is removed)
Internal Fuse	T3.15A
Degree of Protection	IP20
Protection Against Shock	Class I with PE* connection

*PE: Primary Earth

Reliability Data

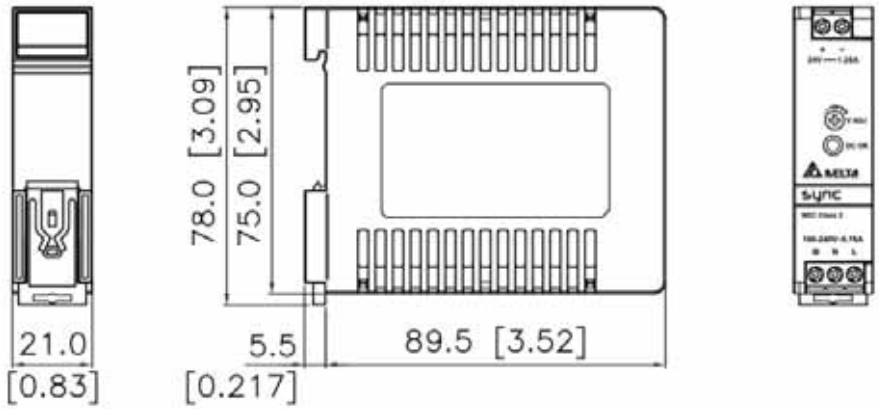
MTBF	Telcordia SR-332	> 700,000 hrs	I/P: 115Vac & 230Vac, O/P: 100% load, Ta: 25°C
	MIL-HDBK-217F	260,000 hrs	I/P: 115Vac & 230Vac, O/P: 100% load, Ta: 25°C
Expected Cap Life Time		10 years (115ac & 230Vac, 50% load @ 40°C)	

Safety Standards / Directives

Safety Entry Low Voltage		SELV (EN 60950)
Electrical Safety	TUV Bauart	EN 60950-1
	UL/cUL recognized	UL 60950-1, CSA C22.2 No. 60950-1 (File No. E191395)
	CB Scheme	IEC 60950-1, Limited Power Source (LPS)
Industrial Control Equipment	UL/cUL listed	UL 508 and CSA C22.2 No. 107.1-01 (File No. E315335)
Class 2 Power Supply	UL/cUL recognized	UL 60950-1, CSA C22.2 No. 60950-1(File No. E191395)
CE		In conformance with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC
Material and Parts		RoHS Directive 2011/65/EU Compliant
Galvanic Isolation	Input to Output	3.0KVac
	Input to Ground	3.0KVac
	Output to Ground	0.5KVac

Dimensions

L x W x D: 75 x 21 x 89.5 mm [2.95 x 0.83 x 3.52 inch]



ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag: PS1	
	Date: 2/8/2019		
Manuf.: . PNo: DELTA: DRS-24V30W1NZ	By: JAP	Job Number: HBR7628	Page # 3/3

30.5 mm Push Buttons
Selector Switches

Allen-Bradley

39-005-***

800 T ___ – HA 2 A

a b c d e

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Knob Insert Colors		
800T Type 4/13	Description	800H Type 4/4X/13
Code		Code
H	White	HR
HX	Packet of colored inserts❄	HRX
Metal Wing Lever Colors§		
Code	Color	Code
HA	Red	—
HG	Grey	—

d

Operator Type and Function	
Standard Knob	
Code	Operator Function
2	Maintained
4	Spring return from left‡
5	Spring return from right
Knob Lever§	
Code	Operator Function
17	Maintained
18	Spring return from left‡
19	Spring return from right
Metal Wing Lever§	
Code	Operator Function
11	Maintained
15	Spring return from left‡
16	Spring return from right
Coin Slot§	
Code	Operator Function
6	Maintained
7	Spring return from left
8	Spring return from right

e

Contact Block(s)			
Code	Description		
	Contact Configuration	2-Position	
Blank	No contacts	—	—
Standard			
D1	1 N.O.	O	X
D2	1 N.C.	X	O
A	1 N.O. - 1 N.C.	O	X
		X	O
B	2 N.O. - 2 N.C.	O	X
		X	O
		O	X
		X	O

Specifications*

Electrical Ratings		
Contact ratings		Refer to the contact ratings tables on page 10-4.
Dielectric strength		2200V for one minute, 1300V for one minute (Logic Reed)
Electrical design life cycles		1 000 000 at max. rated load, 200 000 at max. rated load (Logic Reed)
Mechanical Ratings		
Vibration		10…2000 Hz, 1.52 mm displacement (peak-to-peak) max./ 10 G max. (except Logic Reed)
Shock		1/2 cycle sine wave for 11 ms ≥ 25 G (contact fragility) and no damage at 100 G
Degree of protection		Type 1/4/12/13 (800T); Type 1/4/4X/12/13 (800H); EN/IEC 60529 IP66/65
Mechanical design life cycles		
Push buttons	(Momentary, non-illuminated)	10 000 000 min.
	(Momentary, illuminated)	250 000 min.
	(Push-pull/twist-to-release)	250 000 min.
Selector switches	(Non-illuminated)	1 000 000 min.
	(Illuminated, key-operated)	200 000 min.
Potentiometers		25 000 min.
All other devices		200 000 min.
Contact operation		Shallow, mini, and low-voltage contact blocks: Slow, double make and break Logic Reed and sealed switch contact blocks: Single break magnetic
Wire gauge/Terminal screw torque		#18…14 AWG (#18…10 Max Duty) / 6…8 lb•in
Typical operating forces		
Operators without contact blocks		Flush, extended button, standard mushroom, jumbo plastic mushroom: 2 lbs max. Jumbo and extended aluminum mushroom head: 3.95 lbs max. Maintained selector switch: 3.6 in•lb max.
Spring return selector switches		3.6 in•lb to stop, 0.2 in•lb to return
Illuminated push buttons and push-to-test pilot lights		5 lb max.
2-position push-pull		8.0 lb max. push or pull
3-position push-pull		8 lb max. push to in position or pull to center position (15 lb max. pull to out position)
Twist-to-release or push-pull		9 lbs max. push or pull 30 in•oz max. twist, 6 in•oz minimum return
Potentiometer		Rotational torque 3…12 in•oz; stopping torque 12 in•lb (minimum)
Contact blocks	Standard	1 lb
	Logic Reed	1 lb max.
	Sealed switch	3 lb max. at 0.205 in. plunger travel
	Stackable sealed switch	1 lb max.
	MaxDuty	1.4 lb max.
	PenTUFF	1.4 lb max.
	Self Monitoring	1.6 lb
Environment		
Temperature range	Operating	-40…+131 °F (-40…+55 °C)
	Storage	-40…+185 °F (-40…+85 °C)
Note: Operating temperatures below freezing are based on the absence of moisture and liquids. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for use in lower temperature applications.		
Humidity		50…95% RH from 77…140 °F (25…60 °C) per Procedure IV of MIL-STD-810C, Method 507.1 cycling test

Certifications

UL Listed
(File No. E14840, E10314
Guide No. NKCR, NOIV)

CSA Certified
(File No. LR1234, LR11924)

CSA C22.2, No. 14

Solid state relays 17.5 mm for DIN rail mounting - GMS range

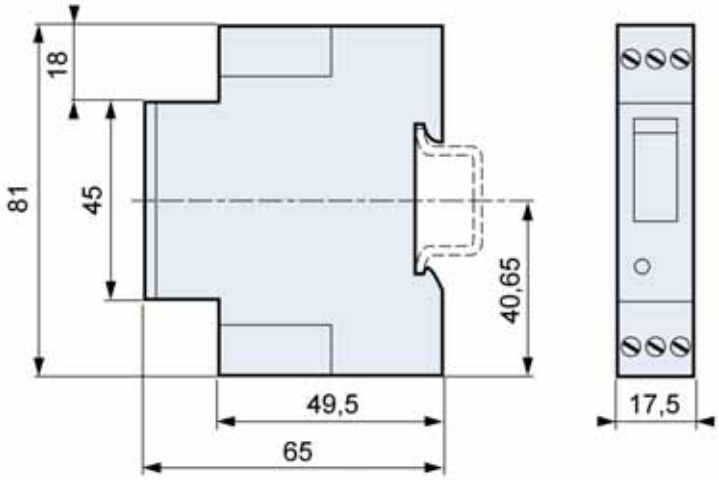
Crouzet

06-109-000

- Complete, compact units
- DIN rail and panel mounting
- Rating: 5 A ~ or 3 A ⎓
- Output voltage 12-280 V ~ or 5-48 V ⎓
- Input voltage 4-32 V ⎓ regulated
- Input to output insulation voltage: 4 kV
- LED display of input status
- Replaceable protection fuse
- UL - cUL approval and CE marking

Output specifications	Triac	Transistor
Voltage range (Vrms max)	12-280 ~	5-48 ⎓
Peak voltage (t=1 min.) (V peak)	600 ~	60 ⎓
Maximum off-state leakage (at Vmax and T = 25 °C)	2 mArms	10 µA
Maximum current (Arms)	5	3
Minimum current (mArms)	50	10
Max. 1-cycle surge T=25°C (V peak)	100	5
On-state voltage drop at Imax and T=25°C (V peak)	1.6	1.6
I^2t (t = 10 ms) (A^2s)	600	-
Static (off-state) dv/dt (V/µs)	200	n/a
Rth junction/ambient air	20.3° C/W	22.6° C/W

Dimensions



Input specifications		
Input voltage (V)	4-32 ⎓	4-32 ⎓
Drop-out voltage	1V ⎓	1V ⎓
Maximum current (at Vmax)	22	16
Nominal input resistance	Regulated input	
Response time (close)	< 10 ms	50 µs
Response time (open)	< 10 ms	50 µs

Characteristics		
Operating temperature (° C)	-30 to +80	
Storage temperature (° C)	-40 to +100	
Input to output insulation voltage (Vrms)	4000	
Input/output capacitance (pF)	8	
Replaceable protection fuse	Yes	Yes
LED display of input status of input status	Yes	Yes
Capacity of input and output terminals	with ferrule : 2 x 1.5 mm² without ferrule : 2 x 2.5 mm² 1 x 4 mm²	

Part numbers

Zero voltage switching (output ~)

Rating	Output	Input	
3 A	5-48 V ⎓	4-32 V ⎓	84 130 104
5 A	12-280 V ~	4-32 V ⎓	84 130 105

Instantaneous switching

Rating	Output	Input	
5 A	12-280 V ~	4-32 V ⎓	84 130 108

ELEMECH INC.
630-499-7080 · www.elemechinc.com

Rev: 0	Device Tag: SSR1,2		
Date: 2/8/2019			
Manuf.: . PNo: CROUZET: 84 130 108	By: JAP	Job Number: HBR7628	Page # 1/1

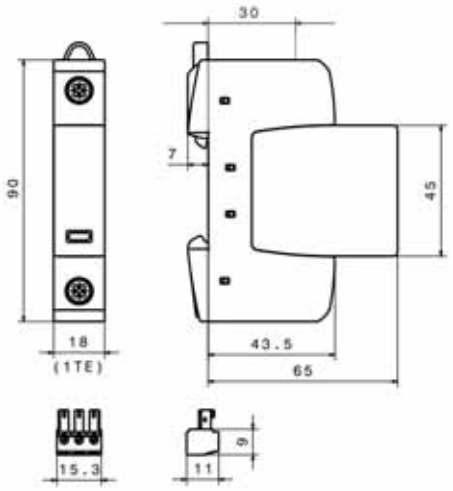
Surge Protection Made Simple™ for UL Applications

Single Pole BSP UL Series for 120, 240 and 347Vac
Single-Phase 2 Wire Systems

COOPER Bussmann

40-012-001

Dimensions - mm



c UL us LISTED

BSPM1120S2G
BSPM1240S2G
BSPM1347S2G

Nominal system voltage		120Vac	240, 277 or 240 and 277Vac	347Vac
Max. Continuous Operating Voltage AC (MCOV) (V_c)		275Vac	385Vac	600Vac
Catalog numbers (base = modules)	W/O remote signaling	BSPM1120S2G	BSPM1240S2G	BSPM1347S2G
	W/ remote signaling	BSPM1120S2GR	BSPM1240S2GR	BSPM1347S2GR
Replacement module	MOV technology	BPM275UL	BPM385UL	BPM600UL
Specifications				
Rated voltage		120-127Vac	240-277Vac	347Vac
Voltage Protection Rating VPR		1kV	1.5kV	2kV
SCCR		200kA	200kA	125kA
Discharge current	Nom. I_n	20kA		
	Max. I_{max}	40kA		
Response time t_A		≤25 ns		
Frequency		50/60Hz		
Number of poles		1		
Number of wires/connection points		2 Wires / 2 connection points		
Operating state/fault indication		Green (good) / Red (replace)		
Cross-sectional area	Min.	14AWG - Cu stranded, solid or fine		
	Max.	2AWG - Cu solid or stranded / 4AWG - Cu fine		
Terminal torque		45 lb-in (5.1N•m)		
Mounting		35mm DIN-rail per EN 60715		
Enclosure material		Thermoplastic, UL 94V0		
Protection		IP20 (finger-safe)		
Location		Indoor		
Capacity		1 Mods, DIN 43880		
Application and standard		UL Type 2 Component Assembly, UL 1449, 4th Edition		
Agency information		cURus, RoHS Compliant		
Warranty		Five years*		
Remote contact signaling				
Signaling Type		Changeover contact		
Switching capacity (volts/amps)	AC	250V/0.5A		
	DC	250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor cross-sectional area		60/75°C Max. 1.5mm²/14AWG solid/flexible		
Ordering Information		Order from catalog numbers above		

SCCR Rated
BSP UL Series (Type 2)

ELEMECH INC.
630-499-7080 · www.elemechinc.com

Rev:	Device Tag:
0	SUR1
Date: 2/8/2019	
Manuf.: . PNo: BUSSMAN: BSPM1120S2G	By: JAP
Job Number: HBR7628	Page # 1/1

Cutler-Hammer
Control Power Transformers

Cutler-Hammer
EATON

c UL us
LISTED

41-018-A070

Technical Data

Type	Epoxy encapsulated windings	Standards	ANSI/NEMA ST-1
Frequency	50/60 Hz		UL 506
Insulation	Class 105, 55°C temperature rise	Approvals	UL, file E46323
Terminals	Pressure plate		CSA, file LR27533

Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers
Secondary: 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Dimensions (Inches)			Weight Lbs.	Dimensions (mm)			Weight kg	Wiring Diagram ①	Style Number
	Height	Width	Depth		Height	Width	Depth			
25	2-9/16	3	2-1/2	1.7	65	76	64	.8	1	C0025E2A
50	2-9/16	3	3	2.6	65	76	76	1.2	1	C0050E2A
75	2-9/16	3	3-1/2	3.5	65	76	89	1.6	1	C0075E2A
100	2-7/8	3-3/8	3-3/8	4.2	73	86	86	1.9	1	C0100E2A
150	3-3/16	3-3/4	4	6.7	81	95	102	3.0	1	C0150E2A
200	3-13/16	4-1/2	4	8.5	97	114	102	3.9	1	C0200E2A
250	3-13/16	4-1/2	4-3/8	10.0	97	114	111	4.5	1	C0250E2A
300	3-13/16	4-1/2	4-3/4	11.3	97	114	121	5.1	1	C0300E2A
350	3-13/16	4-1/2	5-1/4	13.6	97	114	133	6.2	1	C0350E2A
500	4-3/4	5-1/4	5-1/2	19.2	121	133	140	8.7	1	C0500E2A
750	4-3/4	5-1/4	7	28.1	121	133	178	12.8	1	C0750E2A
1000	5-11/16	6-3/4	6-7/16	29.5	144	171	164	13.4	1	C1000E2A
1500	6-3/8	7-1/2	7-3/8	40.0	162	191	187	18.1	1	C1500E2A

Primary: 240 x 480 with Jumpers
Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses (through 500 VA)

VA	Dimensions (Inches)			Weight Lbs.	Dimensions (mm)			Weight kg	Wiring Diagram ①	Style Number
	Height	Width	Depth		Height	Width	Depth			
50	2-9/16	3	3	2.7	65	76	76	1.2	2	C0050E2B
75	2-9/16	3	3-1/2	3.5	65	76	89	1.6	2	C0075E2B
100	2-7/8	3-3/8	3-3/8	4.2	73	86	86	1.9	2	C0100E2B
150	3-3/16	3-3/4	4	6.7	81	95	102	3.0	2	C0150E2B
200	3-13/16	4-1/2	4	8.5	97	114	102	3.9	2	C0200E2B
250	3-13/16	4-1/2	4-3/8	10.1	97	114	111	4.6	2	C0250E2B
300	3-13/16	4-1/2	4-3/4	11.4	97	114	121	5.2	2	C0300E2B
350	3-13/16	4-1/2	5-1/4	13.4	97	114	133	6.1	2	C0350E2B
500	4-3/4	5-1/4	5-5/8	17.5	121	133	143	7.9	2	C0500E2B
750	4-3/4	5-1/4	7	28.1	121	133	178	12.8	2	C0750E2B

Primary: 240 x 480 with Jumpers
Secondary: 120 x 240 with Jumpers, Secondary Fuse Clips not Applicable

VA	Dimensions (Inches)			Weight Lbs.	Dimensions (mm)			Weight kg	Wiring Diagram ①	Style Number
	Height	Width	Depth		Height	Width	Depth			
50	2-9/16	3	3	2.6	65	76	76	1.2	11	C0050E2CXX
75	2-9/16	3	3-1/2	3.5	65	76	89	1.6	11	C0075E2CXX
100	2-7/8	3-3/8	3-3/8	4.2	73	86	86	1.9	11	C0100E2CXX
150	3-3/16	3-3/4	4	6.7	81	95	102	3.1	11	C0150E2CXX
200	3-13/16	4-1/2	4	8.5	97	114	102	3.9	11	C0200E2CXX
250	3-13/16	4-1/2	4-3/8	10.0	97	114	111	4.6	11	C0250E2CXX
300	3-13/16	4-1/2	4-7/8	11.8	97	114	124	5.4	11	C0300E2CXX
350	3-13/16	4-1/2	5-1/4	13.6	97	114	133	6.2	11	C0350E2CXX
500	4-3/4	5-1/4	5-1/4	17.5	121	133	133	8.0	11	C0500E2CXX
750	4-3/4	5-1/4	7	26.4	121	133	178	12.0	11	C0750E2CXX

Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers and Two-Pole Primary Fuse Block for Rejection Type Fuses
Secondary: 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Dimensions (Inches)			Weight Lbs.	Dimensions (mm)			Weight kg	Wiring Diagram ①	Style Number
	Height	Width	Depth		Height	Width	Depth			
50	3-15/16	3	3	2.8	100	76	76	1.3	1	C0050E2AFB
75	3-15/16	3	3-1/2	3.7	100	76	89	1.7	1	C0075E2AFB
100	4-1/4	3-3/8	3-3/8	4.4	108	86	86	2.0	1	C0100E2AFB
150	4-9/16	3-3/4	4	6.9	116	95	102	3.1	1	C0150E2AFB
200	5-3/16	4-1/2	4	8.7	132	114	102	3.9	1	C0200E2AFB
250	5-3/16	4-1/2	4-3/8	10.2	132	114	111	4.6	1	C0250E2AFB
300	5-3/16	4-1/2	4-3/4	11.5	132	114	121	5.2	1	C0300E2AFB
350	5-3/16	4-1/2	5-1/4	13.8	132	114	133	6.3	1	C0350E2AFB
500	6-1/8	5-1/4	5-1/2	19.4	156	133	140	8.8	1	C0500E2AFB
750	6-1/8	5-1/4	7	28.3	156	133	178	12.8	1	C0750E2AFB
1000	7-1/16	6-3/4	6-7/16	29.7	179	171	164	13.4	1	C1000E2AFB
1500	7-3/4	7-1/2	7-3/8	40.2	197	191	187	18.1	1	C1500E2AFB

Primary: 240 x 480 with Jumpers and Two-Pole Primary Fuse Block for Rejection Type Fuses
Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Dimensions (Inches)			Weight Lbs.	Dimensions (mm)			Weight kg	Wiring Diagram ①	Style Number
	Height	Width	Depth		Height	Width	Depth			
50	3-15/16	3	3	2.8	100	76	76	1.3	2	C0050E2BFB
75	3-15/16	3	3-1/2	3.8	100	76	89	1.7	2	C0075E2BFB
100	4-1/4	3-3/8	3-3/8	4.4	108	86	86	2.1	2	C0100E2BFB
150	4-9/16	3-3/4	4	6.9	116	95	102	3.1	2	C0150E2BFB
200	5-3/16	4-1/2	4	8.7	132	114	102	3.9	2	C0200E2BFB
250	5-3/16	4-1/2	4-3/8	10.3	132	114	111	4.7	2	C0250E2BFB
300	5-3/16	4-1/2	4-3/4	11.6	132	114	121	5.3	2	C0300E2BFB
350	5-3/16	4-1/2	5-1/4	13.6	132	114	133	6.2	2	C0350E2BFB
500	6-1/8	5-1/4	5-5/8	17.7	156	133	143	8.0	2	C0500E2BFB

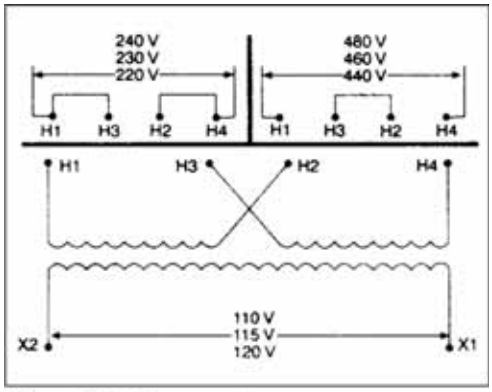


Figure 9-12. Diagram 1

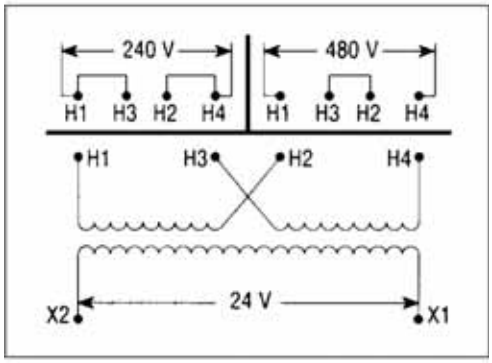


Figure 9-13. Diagram 2

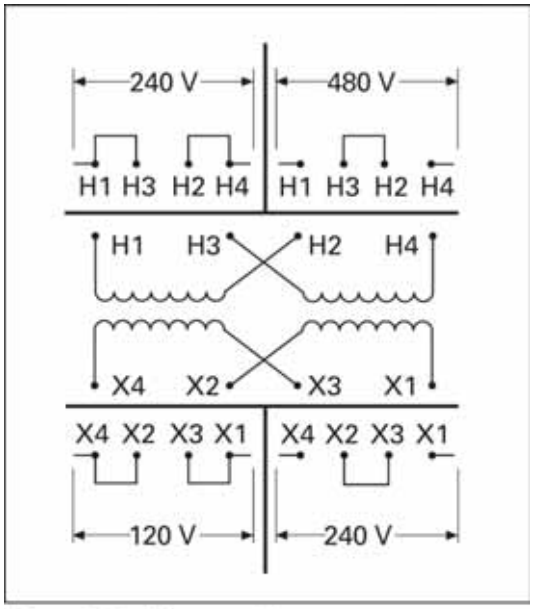


Figure 9-22. Diagram 11

fasis

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42-063-***

2,5 mm²/5 mm Width

Type	Part no.	Std. pack
Marking strips, unmarked		
9705 A/5/10	04.242.5053.0	25
Marking strips, marked		
9705 A/5/9 B 1 - 9	04.842.4953.0	25
9705 A/5/10 B*	04.842.5053.0	25
9705 A/5/10 B 1 - 10	04.845.0153.0	25
11 - 20	04.845.0253.0	25
21 - 30	04.845.0353.0	25
31 - 40	04.845.0453.0	25
41 - 50	04.845.0553.0	25
51 - 60	04.845.0653.0	25
61 - 70	04.845.0753.0	25
71 - 80	04.845.0853.0	25
81 - 90	04.845.0953.0	25
91 - 100	04.845.1053.0	25
⊕ (10 x)	04.855.0053.0	25
⏚ (10 x)	04.855.0153.0	25
+ (10 x)	04.855.0253.0	25
– (10 x)	04.855.0353.0	25
L1 (10 x)	04.855.0453.0	25
L2 (10 x)	04.855.0553.0	25
L3 (10 x)	04.855.0653.0	25
PE (10 x)	04.855.0753.0	25
SL (10 x)	04.855.3153.0	25
N (10 x)	04.855.3253.0	25
F1 (10 x)	04.855.0953.0	25
F2 (10 x)	04.855.1053.0	25
L1, L2, L3, N, PE (2 x)	04.855.0853.0	25
with enlarged marking area		
9705 AL/5/10	04.242.5153.0	25
*Custom marking upon request		

4 mm²/6 mm Width

Type	Part no.	Std. pack
Marking strips, unmarked		
9705 A/6/10	04.242.6053.0	25
Marking strips, marked		
9705 A/6/9 B 1 - 9	04.842.5953.0	25
9705 A/6/10 B*	04.842.6053.0	25
9705 A/6/10 B 1 - 10	04.846.0153.0	25
11 - 20	04.846.0253.0	25
21 - 30	04.846.0353.0	25
31 - 40	04.846.0453.0	25
41 - 50	04.846.0553.0	25
51 - 60	04.846.0653.0	25
61 - 70	04.846.0753.0	25
71 - 80	04.846.0853.0	25
81 - 90	04.846.0953.0	25
91 - 100	04.846.1053.0	25
⊕ (10 x)	04.856.0053.0	25
⏚ (10 x)	04.856.0153.0	25
+ (10 x)	04.856.0253.0	25
– (10 x)	04.856.0353.0	25
L1 (10 x)	04.856.0453.0	25
L2 (10 x)	04.856.0553.0	25
L3 (10 x)	04.856.0653.0	25
PE (10 x)	04.856.0753.0	25
SL (10 x)	04.856.3153.0	25
N (10 x)	04.856.3253.0	25
F1 (10 x)	04.856.0953.0	25
F2 (10 x)	04.856.1053.0	25
L1, L2, L3, N, PE (2 x)	04.856.0853.0	25
with enlarged marking area		
9705 AL/6/10	04.242.6353.0	25
*Custom marking upon request		

10 mm²/10 mm Width

16 mm²/12 mm Width

35 mm²/16 mm Width

Type	Part no.	Std. pack
10 mm²/10 mm Width		
marked for 5 blocks (every 2nd tag) *		
9705 A/5/10/5 B	04.842.5553.0	25
16 mm²/12 mm Width		
marked for 5 blocks (every 2nd tag) *		
9705 A/6/10/5 B	04.842.6553.0	25
35 mm²/16 mm Width		
marked for 5 blocks (every 2nd tag) *		
9705 A/8/10/5 B	04.842.8553.0	25
* indicate required marking with part no.		

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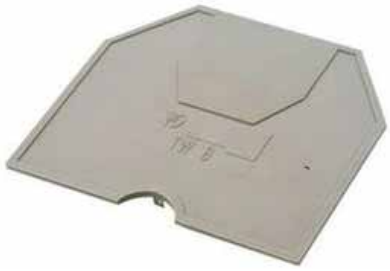
42-063-001

Datasheet



Art.No. 07.311.0155.0

End plate AP 2,5 -4 /V0

End plate for DIN rail terminal blocks type WK ..., color gray

Art.No.	07.311.0155.0
EAN	4015573392663
Order unit	10 pieces

Approvals

Technical data

General

Colour	Grey
Type of end plate	Yes
Type of partition	No
Thickness	1.5 mm
Snap in	Yes
Inflammability class of insulation material acc. with UL94	V0

Accessories

Type of end plate	Yes
Type of partition	No
Colour	Grey
Thickness	1.5 mm
Snap in	Yes
Inflammability class of insulation material acc. with UL94	V0

Feed-through blocks with screw connection

selos

wieland

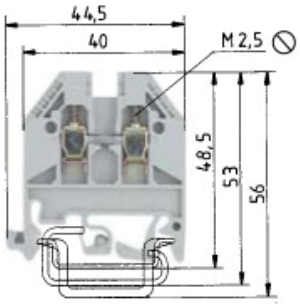
42-063-003

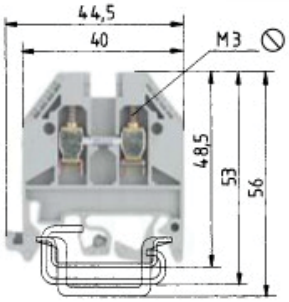
UL wire connection versions

[4] or 2x no. 14 sol/str AWG
or 2x no. 16 sol/str AWG
or 2x no. 18 sol/str AWG
or 3x no. 20 sol/str AWG or 3x no. 22 sol/str AWG

[5] or 2x no. 12 sol/str AWG
or 2x no. 16 sol/str AWG
or 3x no. 18 sol/str AWG or 3x no. 22 sol/str AWG

[6] or 2x no. 12 sol/str AWG
or 2x no. 14 sol/str AWG
or 3x no. 16 sol/str AWG





0344 Ex II 2GD IM2
Ex e I/II
EN 60947-7-1:2002
UL ratings — Field/factory wiring
CSA ratings
KEMA 02 ATEX 2114 U[1] EN 60079-0/EN 60079-7
Width — Wire strip length
Approvals

WK 2,5/U				WK 4/U			
fine-stranded	solid	V	A	fine-stranded	solid	V	A
0.5-2.5 mm²	0.5-4 mm²	800V/8kV/3	24	0.5-4 mm²	0.5-6 mm²	800V/8kV/3	32
No. 22-12 AWG		600V	20/30	No. 22-10 AWG[4]		600V	30/35
No. 24-12 AWG		600V	25	No. 20-10 AWG		600V	40
0.5-2.5 mm²	0.5-4 mm²	690V	23	0.5-4 mm²	0.5-6 mm²	690V	14/27[3]
5 mm			9mm	6mm			9mm

		Type	Part No.	Std. Pack	Type	Part No.	Std. Pack
Feed-through block	gray	WK 2,5/U	57.503.0055.0	100	WK 4/U	57.504.0055.0	100
Feed-through block Exi	blue	WK 2,5/U BLAU	57.503.0055.6	100	WK 4/U BLAU	57.504.0055.6	100
Accessories							
1. Mounting rail TS 35, DIN rail 7.5 mm high	L = 2 m	35 x 27 x 7,5 EN 60715	98.300.0000.0	1	35 x 27 x 7,5 EN 60715	98.300.0000.0	1
Mounting rail TS 35, DIN rail, 15 mm high	L = 2 m	35 x 24 x 15 EN 60715	98.360.0000.0	1	35 x 24 x 15 EN 60715	98.360.0000.0	1
Mounting rail TS 32, G rail[2]	L = 2 m	9006 EN 60715 G-32	98.190.0000.0	1	9006 EN 60715 G-32	98.190.0000.0	1
2. End clamp with U-foot[2]	10mm wide	WE 1/U	Z5.523.5753.0	100	WE 1/U	Z5.523.5753.0	100
End clamp TS 35, with screw	8mm wide	9708/2 S35	Z5.522.8553.0	100	9708/2 S35	Z5.522.8553.0	100
End clamp TS 35, without screw	8mm wide	WEF 1/35	Z5.523.9353.0	100	WEF 1/35	Z5.523.9353.0	100
3. End plate	gray	AP 2,5 - 4	07.311.0155.0	10	AP 2,5 - 4	07.311.0155.0	10
	blue	AP 2,5 - 4 BLAU	07.311.0155.6	10	AP 2,5 - 4 BLAU	07.311.0155.6	10
4. Partition	gray	TW 2,5 - 4	07.311.1155.0	10	TW 2,5 - 4	07.311.1155.0	10
	blue	TW 2,5 - 4 BLAU	07.311.1155.6	10	TW 2,5 - 4 BLAU	07.311.1155.6	10
5. Cross connector with screws	2 pole	IVB WK 2,5 - 2	Z7.280.2227.0	10	IVB WK 4 - 2	Z7.281.1227.0	10
insulated	3 pole	IVB WK 2,5 - 3	Z7.280.2327.0	10	IVB WK 4 - 3	Z7.281.1327.0	10
	up to 12 pole	IVB WK 2,5 - 12	Z7.280.3227.0	10	IVB WK 4 - 12	Z7.281.2227.0	10
6. Partition plate with marking facility		TS 2,5 GELB	07.311.2053.8	10	TS 4 GELB	07.311.2153.8	10
7. Single cover with marking facility		AD VB 2,5 GELB	04.326.2053.8	10	AD VB 4 GELB	04.326.2153.8	10
8. Cover with warning symbol over 4 blocks		AD VB 5/4 GELB	04.343.4756.8	10	AD VB 6/4 GELB	04.343.4856.8	10

For more accessories see pages 60-77
For marking systems see pages 70-75

*[1] For maintaining the proper isolation distances, the open side of a feed-through terminal block as well as both sides of a jumper are to be enclosed by partitions.
[1] Please note the mounting instructions on the cover page. [2] Do not use in Ex environments. [3] With/without jumper

Rev: 0
Date: 2/8/2019
By: JAP
Device Tag: TB,DB
Job Number: HBR7628
Page # 1/1
Manuf.: . PNo: WIELAND: 57.504.0055.0

Item No. 57.504.9055.0

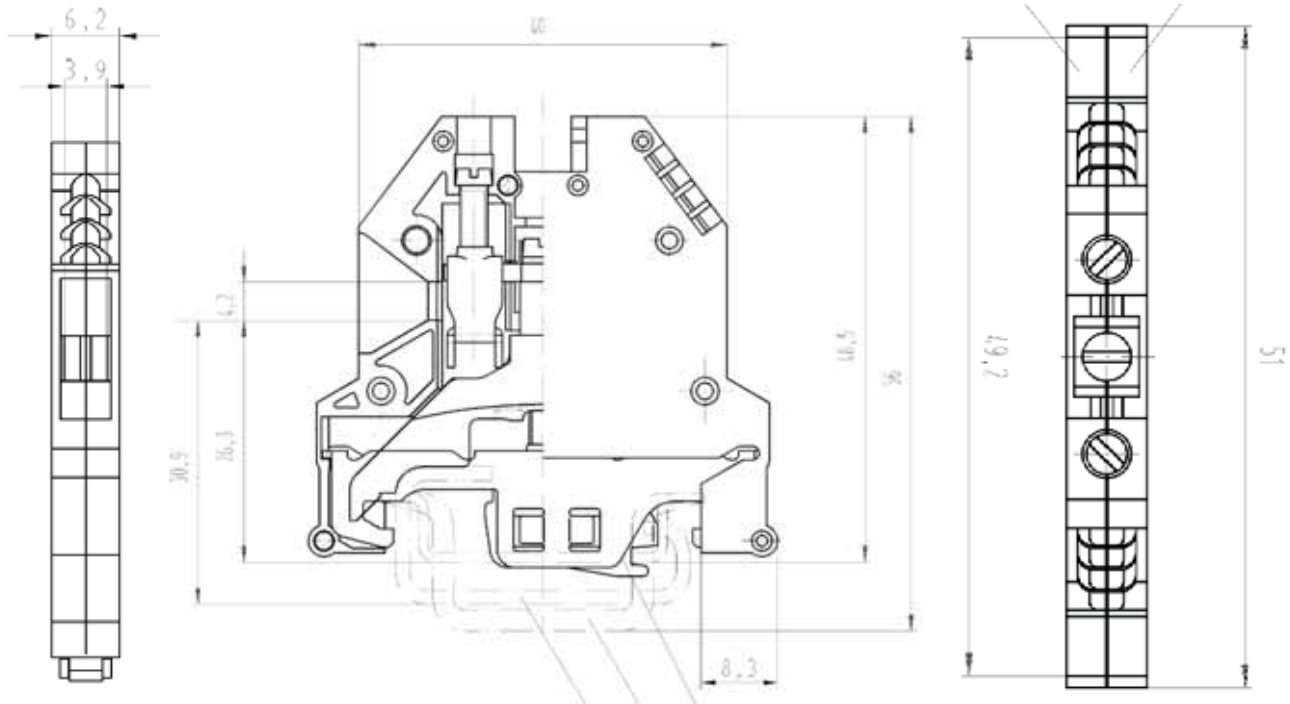
wieland

Earth terminal WK 4 SL/ U /V0

Ground DIN rail terminal block with screw connection for mounting on TS 35 and TS 32, nominal cross section 4 mm², width 6 mm, color green/yellow

42-063-004

Rated impulse voltage	8 kV
Pollution degree	3
Closing plate required	No
Length	51 mm
Type of insulation material	Thermoplastic
Cross section UL	22-10 AWG
Cross section CSA	20-10 AWG
Maximum cross section fine stranded	4 mm²
Wire strip length	9 mm
Torque conductor mounting	0.5 Nm
Torque rail mounting	0,5



ELEMECH INC.
630-499-7080 · www.elemechinc.com

Rev: 0

Date: 2/8/2019

By: JAP

Device Tag: TB,DB

Job Number: HBR7628

Page # 1/1

Manuf.: . PNo: WIELAND: 57.504.9055.0

Item No. Z5.522.8553.0
End bracket 9708 / 2 S 35
End clamp for mounting rail TS 35

wieland

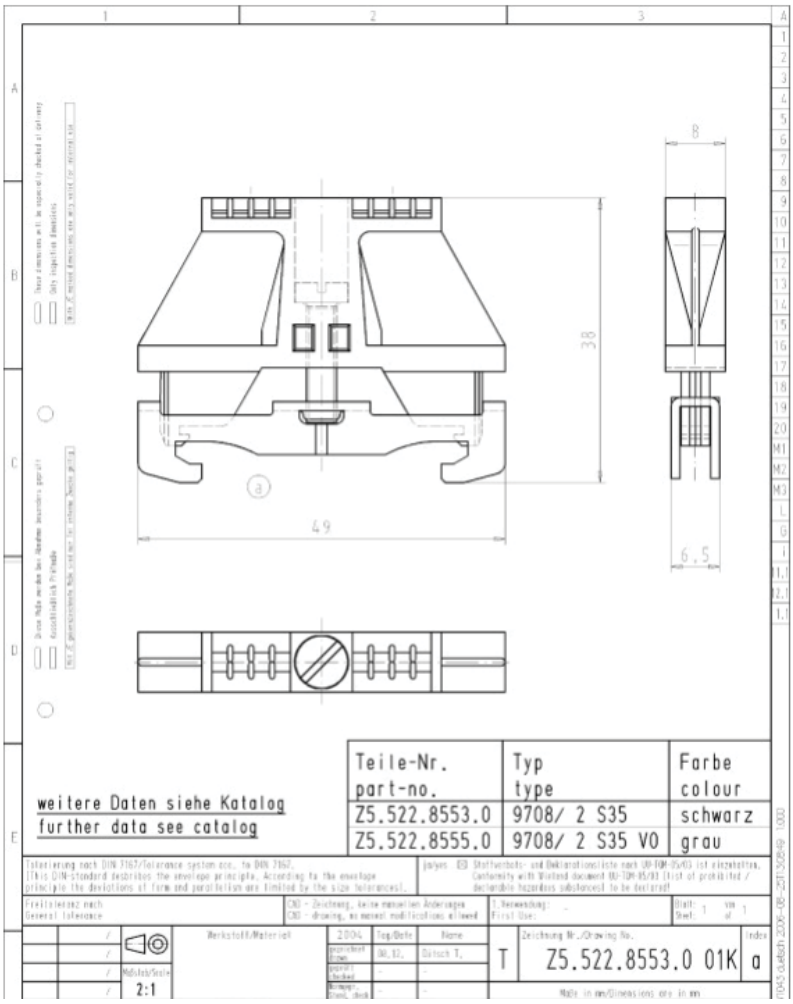
42-063-009

Item No.	Z5.522.8553.0
EAN	4015573141766
order unit	100 Piece(s)

Technical data

Accessories

ArticlePrice	udp_no_price
Colour	Black
Inflammability class of insulation material acc. with UL94	V2
Width/grid dimension	8 mm
Latching	Screwable
Length	49 mm
Material	Metal
Mounting method	DIN rail (top hat rail) 35/7.5 mm



ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag: TB,DB	
	Date: 2/8/2019		
Manuf.: . PNo: WIELAND: Z5.522.8553	By: JAP	Job Number: HBR7628	Page # 1/1

wieland

42-063-015

Item No. Z7.281.1227.0

Insulated jumper bar IVBWK 4 - 2

Cross connector, insulated for DIN rail terminal blocks type WK ..., 2 -pole

Item No.	Z7.281.1227.0
EAN	4015573156081
order unit	10 Piece(s)

Technical data

Accessories

ArticlePrice	
Colour	Yellow
Type	Cross connector
Modular spacing	5.95 mm
Number of bridged clamps	2
Mounting method	Screwable
Insulated	Yes

Type	Part no.	Std. pack
for terminal blocks type		
WK 2,5/U **WK 2,5 - 4 KOI/U** **WK 2,5 U/8113 S/H** **WKN 2,5 E/U**	**5 mm spacing Screw: M 2.5**	
2pole VB WK 2,5-2	Z7.280.0227.0	10
3pole VB WK 2,5-3	Z7.280.0327.0	10
4pole VB WK 2,5-4	Z7.280.0427.0	10
5pole VB WK 2,5-5	Z7.280.0527.0	10
6pole VB WK 2,5-6	Z7.280.0627.0	10
80pole VB WK 2,5 M-80	Z7.280.0027.0	10
WKM 2,5/15 **WKM 2,5 F1/15** **WKM 2,5 F2/15** **WKM 2,5/2 S 2,8 1 K/15** **WKM 2,5 TP1 O/15** **WKM 2,5 TP2 O/15**	**5 mm spacing Screw: M 2.5**	
2pole VB WKM 2,5/15-2	Z7.215.4227.0	50
3pole VB WKM 2,5/15-3	Z7.215.4327.0	50
4pole VB WKM 2,5/15-4	Z7.215.4427.0	50
5pole VB WKM 2,5/15-5	Z7.215.4527.0	50
6pole VB WKM 2,5/15-6	Z7.215.4627.0	50
60pole VB WKM 2,5/15 M-60	Z7.215.4027.0	10
WK/3 S/IW/U	**6 mm spacing Screw: M 3**	
WK/3 - 6 S/IW/U **WK/4 S/IW/U** **WK/4-8 S/IW/U**		
2pole VB WK/...S/IW/U-2	Z7.281.3227.0	10
3pole VB WK/...S/IW/U-3	Z7.281.3327.0	10
4pole VB WK/...S/IW/U-4	Z7.281.3427.0	10
5pole VB WK/...S/IW/U-5	Z7.281.3527.0	10
6pole VB WK/...S/IW/U-6	Z7.281.3627.0	10
20pole VB WK/...S/IW/U-20	Z7.281.3027.0	10

Type	Part no.	Std. pack
WK 4/U **WK 4TKS D/U** **WK 4 3 S 1 K/U** **WK 4 3-6 S 1 K/U** **WK 4 5 S 2,8 1 K/U** **WK 4 3 S 1 K/IW/U** **WK 4 3-6 S 1 K/IW/U** **WK 4/U F1** **WK 4/U F2**	**6 mm spacing Screw: M 3**	
2pole VB WK 4-2	Z7.281.0227.0	10
3pole VB WK 4-3	Z7.281.0327.0	10
4pole VB WK 4-4	Z7.281.0427.0	10
5pole VB WK 4-5	Z7.281.0527.0	10
6pole VB WK 4-6	Z7.281.0627.0	10
70pole VB WK 4 M-70	Z7.281.0027.0	10
WK 4/D 1/2 U **WK 4/D 2/2 U**	**6 mm spacing Screw: M 3**	
2pole VB WK 4 D...-2	Z7.281.6227.0	10
3pole VB WK 4 D...-3	Z7.281.6327.0	10
4pole VB WK 4 D...-4	Z7.281.6427.0	10
5pole VB WK 4 D...-5	Z7.281.6527.0	10
6pole VB WK 4 D...-6	Z7.281.6627.0	10
70pole VB WK 4 D.. M-70	Z7.281.6027.0	10
WKM 4/15 **WK 4/D EU** **WK 4 E/U** for upper tier block **WK 4 E/U GU ORANGE** **WK 4 E/U GO** **WK 4 E/U G2** **WK 4 E/U G1 ORANGE** **WK 4 E/U G-URL** **WK 4 E/U G-ULR** **WK 4 E/U VB SCHWARZ**	**6 mm spacing Screw: M 3**	
2pole 9215 - 2	Z7.210.3227.0	50
3pole 9215 - 3	Z7.210.3327.0	50
4pole 9215 - 4	Z7.210.3427.0	50
5pole 9215 - 5	Z7.210.3527.0	50
6pole 9215 - 6	Z7.210.3627.0	50
70pole 9215 M-70	Z7.210.3027.0	10

Type	Part no.	Std. pack
WK 4/3-6 SKO	**6 mm spacing Screw: M 3**	
2pole 2072/2	Z7.220.0227.0	50
3pole 2072/3	Z7.220.0327.0	50
4pole 2072/4	Z7.220.0427.0	50
5pole 2072/5	Z7.220.0527.0	50
6pole 2072/6	Z7.220.0627.0	50
70pole 2072/M	Z7.210.1027.0	10
WK/5 S/U **WK/5-10 S/U** **WK/3-6 S/U** **WK/4 S/U** **WK/4-8 S/U**	**6 mm spacing Screw: M 3**	
2pole 9703/6-2	Z7.211.0227.0	50
3pole 9703/6-3	Z7.211.0327.0	50
4pole 9703/6-4	Z7.211.0427.0	50
5pole 9703/6-5	Z7.211.0527.0	50
6pole 9703/6-6	Z7.211.0627.0	50
70pole 9703/6 M-70	Z7.211.0027.0	10

SMALL COMPACT THERMOSTAT

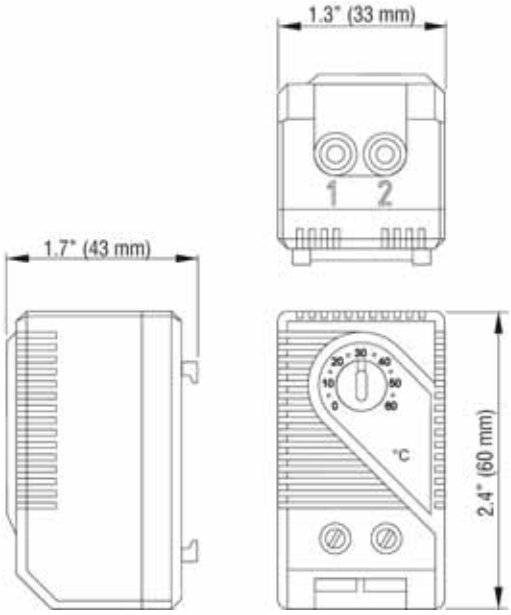
KTO 011 / KTS 011

46-034-000

Technical Data KT 011

Part No.	Contact type	Scale on housing
01140.9-00	normally closed	30 - 140°F
01141.9-00	normally open	30 - 140°F
01146.9-00	normally closed	0 - 60°C
01147.9-00	normally open	0 - 60°C

Sensor element:	Thermostatic bi-metal
Maximum tolerance:	±7.2°F (4K)
Switching difference (hysteresis):	12.6°F ± 5.4°F (7°C ± 3K)
Service life:	100.000 cycles
Switching capacity (max. load):	15A resistive/2A inductive @ 120 VAC
	10A resistive/2A inductive @ 250 VAC
	DC 30W
EMI/EMC compliance:	EN 55014-1-2, EN 61000-3-2, EN 61000-3-3
Connections:	2-pole terminal for AWG 14 max. (2.5 mm²)
Mounting:	Clip for 35 mm DIN rail (EN 50022)
Dimensions (H x W x D):	2.4 x 1.3 x 1.7" (60 x 33 x 43 mm)
Housing:	Plastic, UL94V-0
Weight:	1.27 oz (36 g)
Protection type:	IP 20
Operating/storage temperature:	-49 to 158°F (-45 to 70°C)
Agency approvals:	UL, CSA



ELEMECH INC. 630-499-7080 · www.elemechinc.com	Rev: 0	Device Tag: TS1	
	Date: 2/8/2019		
Manuf.: . PNo: STEGO: 01140.9-00	By: JAP	Job Number: HBR7628	Page # 1/1

Drain/Breather

Appleton

11-008-A000

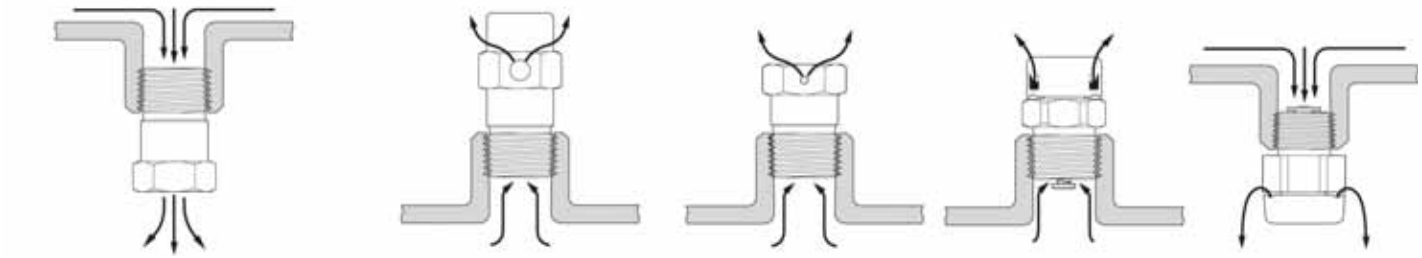
Type	Size	Catalog Number
NEMA 3R Universal Drain and Breather For high performance water drainage and continuous ventilation. Stainless Steel.	1/2"	ECDB50HP
NEMA 4X Drain For automatic water drainage. Stainless Steel.	1/2"	DRNB4X
NEMA 4X Breather For continuous ventilation. Stainless Steel.	1/2"	BRTB4X
Group B Universal Drain and Breather Raintight. For automatic water drainage and continuous ventilation. Stainless Steel.	1/2" 3/8"	ECDB50B ECDB38B
Groups C & D Universal Drain and Breather For automatic water drainage and continuous ventilation. Stainless Steel.	3/8"	ECDB38
Non-Hazardous Location Drain Also suitable for Class I, Div. 1 per NEC 501.4(B). Aluminum. For steel add suffix - **S**.	1/2" 3/4"	CRN50 CRN75

ECDB Drain/Breathers

DRAIN FITTINGS:
Generally installed at bottom of enclosure housing to drain moisture caused by condensation.

BREATHER FITTINGS:
Generally installed at top of enclosure housing to minimize condensation.

UNIVERSAL DRAIN-BREATHER FITTINGS:
Generally installed at top and/or bottom of enclosure housing. The features of a drain fitting and a breather fitting are combined into one fitting.



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Manuf.: . PNo: APPLETON: ECDB50B ASSEMBLY	Rev: 0	Device Tag: DRN1	
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CONTINUOUS HINGE WITH CLAMPS TYPE 4X WALL-MOUNT ENCLOSURES

PENTAIR

11-035-023

ENCLOSURE CATALOG NUMBER	ENCLOSURE DIMENSIONS (IN.)	SUB-PANEL CATALOG NUMBER
A-AHBCSS6LP	A x B x C	A APB

NOTE: 6 indicates 316 Stainless Steel.

APPLICATION

For use in indoor and outdoor corrosive environments that require a water-tight seal, this enclosure's seamless foam-in-place gasket and screw-down clamps provide a secure seal against contaminants.

SPECIFICATIONS

- 14 gauge Type 304 or Type 316L stainless steel bodies and doors
- Seams continuously welded and ground smooth
- Seamless foam-in-place gasket
- Rolled lip around three sides of door
- Stainless steel door clamp assembly
- Hasp and staple for padlocking
- Door removed by pulling stainless steel continuous hinge pin
- Data pocket is high-impact thermoplastic
- Collar studs provided for mounting optional panels
- Exterior hardware on Type 316L stainless steel enclosures matches enclosure material
- Bonding provision on door; grounding stud on body

FINISH

Door, sides, top and bottom have smooth #4 brushed finish.

ACCESSORIES

See also Accessories.
Fast-Operating Clamp Assembly
Panels for Type 3R, 4, 4X, 12 and 13 Enclosures
Junction Box and Wall-Mount Enclosure Swing Out Panel Kit
Steel and Stainless Steel Window Kits
H2OMIT™ Vent Drains, Type 4X
H2OMIT™ Thermoelectric Dehumidifier

MODIFICATION AND CUSTOMIZATION

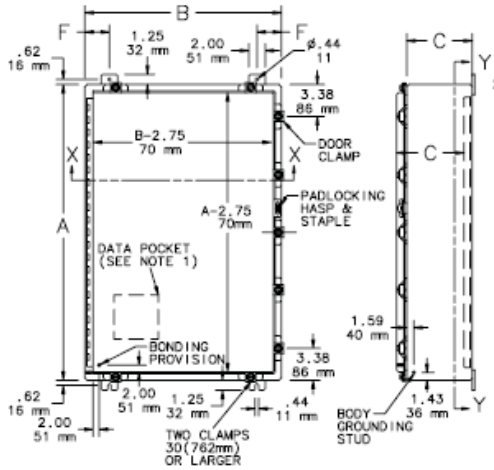
Hoffman excels at modifying and customizing products to your specifications. Contact your local Hoffman sales office or distributor for complete information.

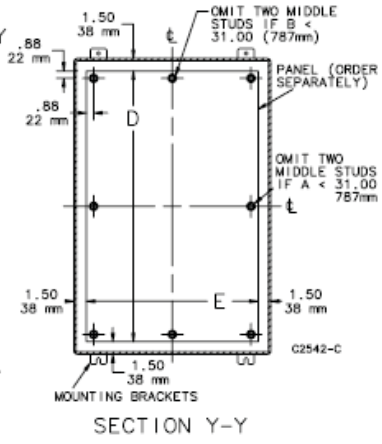
BULLETIN: A4S

INDUSTRY STANDARDS

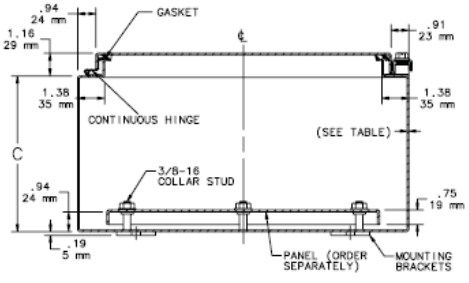
UL 508A Listed; Type 3R, 4, 4X, 12; File No. E61997
cUL Listed per CSA C22.2 No 94; Type 3R, 4, 4X, 12; File No. E61997

NEMA/EEMAC Type 3, 3R, 4, 4X, 12, 13
CSA File No. 42186: Type 4, 4X, 12
IEC 60529, IP66
Meets NEMA Type 3RX requirements





SECTION Y-Y



SECTION X-X

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Rev:	Device Tag:
0	EN2
Date: 2/8/2019	
By: JAP	Job Number: HBR7628
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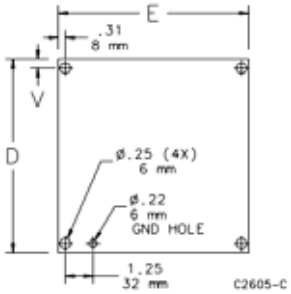
SUB-PANELS FOR ENCLOSURES

PENTAIR

SUB-PANEL CATALOG NUMBER	SUB-PANEL DIMENSIONS (IN.)
A-DPESS	D x E



11-035-132

NOTE:

1. 6 indicates 316 Stainless Steel.
2. AL indicates Aluminum
3. G indicates Conductive Steel

Catalog Number	Material	Panel Size D x E (in.)	Panel Size D x E (mm)	Panel Gauge or Thickness	Edge Flanges	T (in.)	T (mm)	Number of Holes
A12P24	Painted steel	9.00 x 21.00	229 x 533	12 ga.	0	–	–	4
A12P24G	Conductive steel	9.00 x 21.00	229 x 533	12 ga.	0	–	–	4
A16P12	Painted steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12G	Conductive steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12SS6	Stainless Steel	13.00 x 9.00	330 x 229	12 ga.	0	–	–	4
A16P12AL	Aluminum	13.00 x 9.00	330 x 229	0.10 in./3 mm	0	–	–	4
A16P16	Painted steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16G	Conductive steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16SS6	Stainless Steel	13.00 x 13.00	330 x 330	12 ga.	0	–	–	4
A16P16AL	Aluminum	13.00 x 13.00	330 x 330	0.10 in./3 mm	0	–	–	4
A18P18	Painted steel	15.00 x 15.00	381 x 381	12 ga.	0	–	–	4
A18P18G	Conductive steel	15.00 x 15.00	381 x 381	12 ga.	0	–	–	4
A20P12	Painted steel	17.00 x 9.00	432 x 229	12 ga.	0	–	–	4
A20P12G	Conductive steel	17.00 x 9.00	432 x 229	12 ga.	0	–	–	4
A20P16	Painted steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16G	Conductive steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16SS6	Stainless Steel	17.00 x 13.00	432 x 330	12 ga.	0	–	–	4
A20P16AL	Aluminum	17.00 x 13.00	432 x 330	0.10 in./3 mm	0	–	–	4
A20P20	Painted steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20G	Conductive steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20SS6	Stainless steel	17.00 x 17.00	432 x 432	12 ga.	0	–	–	4
A20P20AL	Aluminum	17.00 x 17.00	432 x 432	0.10 in./3 mm	0	–	–	4
A24P16	Painted steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P16G	Conductive steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P16SS6	Stainless Steel	21.00 x 13.00	533 x 330	12 ga.	0	–	–	4
A24P20	Painted steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20G	Conductive steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20SS6	Stainless Steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20AL	Aluminum	21.00 x 17.00	533 x 432	0.10 in./3 mm	4	0.75	19	4
A24P24	Painted steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24G	Conductive steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24SS6	Stainless Steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24AL	Aluminum	21.00 x 21.00	533 x 533	0.10 in./3 mm	2	0.75	19	4
A30P16	Painted steel	27.00 x 13.00	686 x 330	12 ga.	2	0.75	19	4
A30P16G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	2	0.75	19	4
A30P20	Painted steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20G	Conductive steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20SS6	Stainless Steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P24	Painted steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24G	Conductive steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24SS6	Stainless Steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24AL	Aluminum	27.00 x 21.00	686 x 533	0.10 in./3 mm	2	0.75	19	4
A30P30	Painted steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30G	Conductive steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30SS6	Stainless Steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A36P16	Painted steel	33.00 X 13.00	838 X 330	12 ga.	2	0.75	19	4
A36P16G	Conductive steel	33.00 x 13.00	838 x 330	12 ga.	2	0.75	19	4
A36P24	Painted steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24G	Conductive steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24SS6	Stainless Steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24AL	Aluminum	33.00 x 21.00	838 x 533	0.10 in./3 mm	2	0.75	19	6
A36P30	Painted steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30SS6	Stainless Steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30AL	Aluminum	33.00 x 27.00	838 x 686	0.10 in./3 mm	4	0.75	19	6
A36P36	Painted steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36G	Conductive steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36SS6	Stainless Steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A40P24	Painted steel	37.00 x 21.00	940 x 533	12 ga.	4	0.75	19	6

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STEEL AND STAINLESS STEEL WINDOW KITS

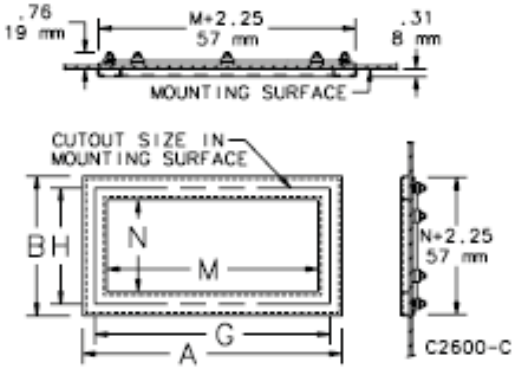
PENTAIR

11-035-211

PAINTED STEEL WINDOW KIT CATALOG NUMBER	STAINLESS STEEL WINDOW KIT CATALOG NUMBER	WINDOW SIZE
A-PWKMNNF	A-PWKMNNFSS	M x N

Steel Window Kits are designed to be used on Type 4 and 12 enclosures. Stainless Steel Window Kits are suitable for Type 4, 4X, 12 and 13 enclosures in indoor or outdoor applications where corrosion is a problem. These kits are easily installed by making a cutout in the enclosure and attaching the window and frame in place. Frames are made from heavy-gauge steel with an ANSI 61 gray polyester powder finish over pretreated surfaces or from heavy-gauge Type 304 stainless steel with a brushed finish. The window is .25-in. (6-mm) acrylic for steel kits or .25-in. (6-mm) polycarbonate material for stainless steel kits. Oil-resistant gasketing ensures a water-tight seal around the perimeter of the window and frame. All mounting hardware is furnished. Custom sizes, materials and finishes can be provided on special order. Consult factory for information.

BULLETIN: A80SW, A80W



INDUSTRY STANDARDS

UL 508A Component Recognized; Type 4, 4X (stainless steel version only), 12, 13; File No. E61997

CSA Type 4, 4X (stainless steel version only), 12,13; File No. 42186
NEMA/EEMAC 4, 4X (stainless steel version only), 12, 13
IEC 60529, IP66

Mist Separator

Series AFM20/30/40

94-255-003

AFM 30 – F 03 BD – 2R

Mist separator

Body size

20	30	40

Thread type

Nil	Rc
N (1)	NPT
F (2)	G

Port size

Symbol	Port size	Body size 20	30	40
01	1/8	●	—	—
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●
06	3/4	—	—	●

Accessory

Symbol	Description	Applicable model
Nil	—	—
B (3)	With bracket	AFM20 to 40
C	Float type (4) auto-drain (N.C.)	AFM20 to 40
D	Float type (4) auto-drain (N.O.)	AFM30/40

Option

Symbol	Description	Applicable model
2	Metal bowl	AFM20 to 40
6	Nylon bowl	AFM20 to 40
8	Metal bowl with level gauge	AFM30/40
C	With bowl guard	AFM20
J (5)	Drain guide 1/4	AFM30/40
R	Flow direction: Right → Left	AFM20 to 40
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AFM30/40
Z (6)	Name plate and caution plate for bowl in imperial units (PSI, °F)	AFM20 to 40

Standard Specifications

Model	AFM20	AFM30	AFM40	AFM40-06
Port size	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.05 MPa			
Ambient and fluid temperature	–5 to 60°C (With no freezing)			
Rated flow (ℓ/min (ANR)) (1)	200	450	1100	1100
Nominal filtration rating	0.3 µm (95% filtered particle size)			
Outlet side oil mist concentration	Maximum 1.0 mg/m³ (ANR) (approx. 0.8 ppm) (2)			
Bowl material	Polycarbonate			
Bowl guard	Option	Standard		
Drain capacity (cm³)	8	25	45	45
Weight (kg)	0.18	0.22	0.44	0.49

One-touch Fittings

Series KQ2

Applicable Tubing: Metric Size
Connection Thread: M, R, Rc

94-255-020

KQ 2 H 06 – 01 S

- KQ: One-touch fittings
- 2: Product's color

Symbol	Body	Release button
2	White	Light gray
Nil	Black	Blue

- H: Model
- 06: Applicable tubing O.D.

23	ø3.2
04	ø4
06	ø6
08	ø8
10	ø10
12	ø12
16	ø16

- 01: Port size/Applicable tubing O.D.

Thread connection	M5	M5 x 0.8
	M6	M6 x 1.0
	01	R 1/8, Rc 1/8
	02	R 1/4, Rc 1/4
	03	R 3/8, Rc 3/8
	04	R 1/2, Rc 1/2
Tubing (Rod) connection	00	Same dia. tubing
	04	ø4 (Reducer) Different dia. tubing
	06	ø6
	08	ø8
	10	ø10
	12	ø12
	16	ø16
	99	Same dia. rod

- S: With thread seal

Nil	None
S	With thread seal

Note) Port size with seal: Only
R 1/8
R 1/4
R 3/8
R 1/2

- H: Model

H	Male connector	T	Male branch tee
	Straight union		Union tee
	Different diameter straight		Different diameter tee * Note)
S	Hex. socket head male connector	TW	Cross*
F	Female connector	TX	Different diameter cross*
L	Male elbow	TY	Different diameter cross*
	Union elbow	Y	Male run tee
	Plug-in elbow	D	Male delta union
	Reducer elbow		Delta union
LU	Male branch connector	U	Branch
	Branch union elbow		Union "Y"
K	45° male elbow		Different dia. union "Y"
V	Universal male elbow		Plug-in "Y"
VS	Hexagon socket head universal male elbow	UD	Delta branch
VF	Universal female elbow		Different dia. double union "Y"
LF	Female elbow	XD	Double plug-in "Y"
VD	Double universal male elbow	X	Different diameter plug-in "Y"
VT	Triple universal male elbow	R	Plug-in reducer
Z	Branch universal male elbow	E	Bulkhead union
ZF	Branch universal female elbow		Bulkhead connector
ZD	Double branch universal male elbow	LE	Bulkhead male elbow
ZT	Triple branch universal male elbow		
W	Extended plug-in elbow		
	Extended male elbow		

* Available only for white color body.
Note) KQT06-04, KQT08-06, KQT10-08, and KQT12-10 are available as made to order.

Accessory

Symbol	Name
KQ2N	Nipple
	Reducer nipple
	Adaptor
KQ2C	Tube cap
KQ2C	Color cap
KQ2P	Plug (White)
KQP	Plug (Blue)

Use the below part number to order the gasket for M5 and M6 threads.
Gasket for M5 thread: M-5G2
Gasket for M6 thread: M-6G

Male run tee

KQ2Y P. 24

Use to branch line in the same direction from female thread and in 90° direction.

Applicable tubing O.D. (inch)	Connection thread NPT	Model	H (Width across flats)	Note) øD1	øD2	L1	L2	A *	M	Min. port size	Weight (g)
3/8	1/4	KQ2Y11-35S	17.46	17.9	17	25.5	29.5	49	21	7	29
	3/8	KQ2Y11-36S					31.5	51			38
	1/2	KQ2Y11-37S	22.23				35.5	53			64

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Rev: 0	Device Tag: FIT		
Date: 2/8/2019			
Manuf.: . PNo: SMC USA: KQ2Y11-36AS	By: JAP	Job Number: HBR7628	Page # 1/1

Modular Type
Filter Regulators

SMC

94-255-004

AW 30 K – [ ] 03 BE – [ ]

(2) K, (3) [ ], (4) 03, (5) BE, (6) [ ]

No.	Group		Item	Symbol	Description
2			With backflow mechanism	Nil	Without backflow mechanism
				K Note 1)	With backflow mechanism
3			Thread type	Nil	Rc
				N Note 2)	NPT
				F Note 3)	G
4			Port size	02	1/4
				03	3/8
5	Option Note 4)	a	Mounting	Nil	Without mounting option
				B Note 5)	With bracket
				H	With set nut (for panel fitting)
		b	Float type auto drain	Nil	Without auto drain
				C	Float type auto drain (N.C.)
				D	Float type auto drain (N.O.)
		c	Pressure gauge	Nil	Without pressure gauge
				E	Square embedded type pressure gauge (with limit indicator)
				G	Round type pressure switch (without limit indicator)
					Round type pressure switch (with limit indicator)
			Digital pressure switch	E1 Note 6)	Output: NPN output / Electrical entry: Wiring bottom entry
				E2 Note 6)	Output: NPN output / Electrical entry: Wiring top entry
				E3 Note 6)	Output: PNP output / Electrical entry: Wiring bottom entry
				E4 Note 6)	Output: PNP output / Electrical entry: Wiring top entry
6	Semi-standard	d	Set pressure	Nil	0.05 to 0.85 MPa set
				1 Note 7)	0.02 to 0.2 MPa set
		e	Bowl	Nil	Polycarbonate bowl
				2	Metal bowl
				6	Nylon bowl
				8	Metal bowl with level gauge
6	Semi-standard	f	Drain port Note 8)	Nil	With drain cock
				J Note 9)	Drain guide 1/8
					Drain guide 1/4
				W Note 10)	Drain cock with barb fitting: For ø6 x ø4 nylon tube
		g	Exhaust mechanism	Nil	Relieving type
				N	Non-relieving type
		h	Flow direction	Nil	Flow direction: Left to right
				R	Flow direction: Right to left
		i	Pressure unit	Nil	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa
				Z Note 11)	Name plate, caution plate for bowl, and pressure gauge in imperial units (PSI, F)
				ZA Note 12)	Digital pressure switch: With unit switching function

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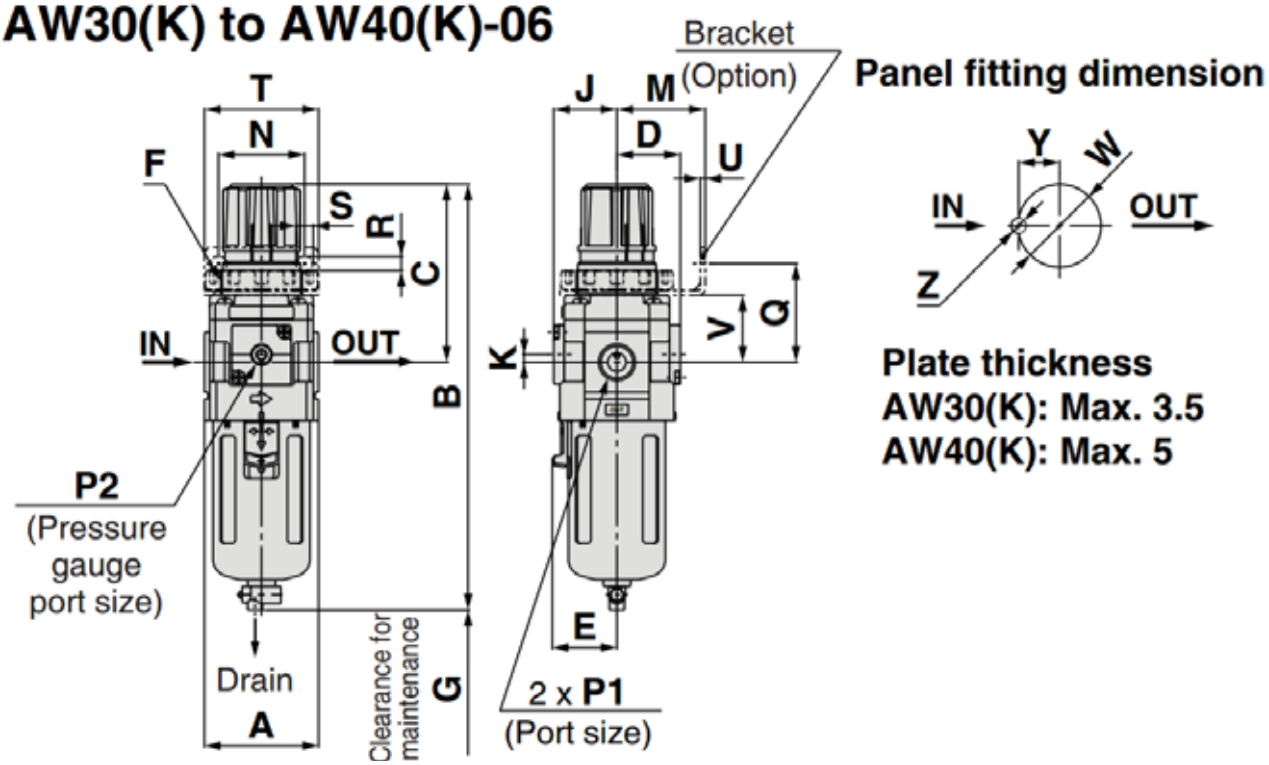
Rev:	0
Date:	2/8/2019
By:	JAP
Device Tag:	REG1
Job Number:	HBR7628
Page #	1/2
Manuf.: . PNo:	SMC USA: AW30-NO3BDE3-8Z

Standard Specifications

Model	AW30(K)
Port size	1/4, 3/8
Pressure gauge port size Note 1)	1/8
Fluid	Air
Ambient and fluid temperature Note 3)	–5 to 60°C
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Set pressure range	0.05 to 0.85 MPa
Relief pressure	Set pressure + 0.05 MPa
Nominal filtration rating	5 m
Drain capacity (cm³)	25
Bowl material	Polycarbonate
Bowl guard	Standard
Construction	Relieving type
Weight (kg)	0.40

Model	Standard specifications											Optional specifications					
												Square type pressure gauge		Digital pressure gauge		Round type pressure gauge	
	P1	P2	A	B Note)	C	D	E	F	G	J	K	H	J	H	J	H	J
AW30(K)	1/4, 3/8	1/8	53	201	86	29.5	30	M38 x 1.5	55	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66

AW30(K) to AW40(K)-06



Panel fitting dimension

Plate thickness
AW30(K): Max. 3.5
AW40(K): Max. 5

94-255-004

Spacer Attachment

94-255-021

Y300	-	A

SMC'S new AC-A series of modular type F.R.L. unit is available in five sizes and is interchangeable with the existing modular AC line. The pressure drop across the regulator has been reduced creating a more efficient unit with a maximum set pressure of 100 psi. The element and bowl on the AW and AF series is now one-piece, making element replacement easier. Required maintenance space has been reduced by as much as 46% on the AF series, depending on the body size. Bowls on the size 30 and 40 are now covered with a transparent bowl guard, completely protecting them from the environment, and making the interior contents visible from 360 degrees. The base color of the new AC-A series is urban white, maintaining a clean, modern look.

- Compact spacer reduces assembly space
- Easy maintenance
- Attaches FRL's with tightening of screws
- O-ring prevents leakage

Precision Regulator

RoHS

SMC

Series IR1000/2000/3000

94-255-002

How to Order

IR 1 0 0 0 - ❑ 01 BG - ❑ - A

❶ ❷ ❸ ❹ ❺ ❻ ❼

- Option/Semi-standard: Select one each for **a** to **f**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

		Symbol	Description	❶ Body size 1	2	3
❷	Set pressure range	0	0.73 to 29 psi (0.005 to 0.2 MPa)	●	●	—
			1.5 to 29 psi (0.01 to 0.2 MPa)	—	—	●
		1	1.5 to 58 psi (0.01 to 0.4 MPa)	●	●	●
		2	1.5 to 116 psi (0.01 to 0.8 MPa)	●	●	●
		+				
❸	Exhaust direction	0	Bottom exhaust	●	●	●
		1	Front exhaust	—	—	●
		2	Rear exhaust	—	—	●
		+				
❹	Pipe thread type	Nil	Rc	●	●	●
		N	NPT	●	●	●
		F	G	●	●	●
		+				
❺	Port size	01	1/8	●	—	—
		02	1/4	—	●	●
		03	3/8	—	—	●
		04	1/2	—	—	●
		+				
❻	Option Note 1) a Mounting	Nil	Without mounting option	●	●	●
		B Note 2)	With bracket	●	●	●
		H	With hexagon panel nut (for panel mount)	●	●	●
		+				
	b Pressure gauge	Nil	Without pressure gauge	●	●	●
		G	Round type pressure gauge	●	●	●
	c With digital pressure switch	EA	NPN open collector 1 output	●	●	●
		EB	PNP open collector 1 output	●	●	●
		EC	NPN open collector 1 output + Analog voltage output	●	●	●
		ED	NPN open collector 1 output + Analog current output	●	●	●
❼	Semi-standard d Flow direction	Nil	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	e Knob	Nil	Upward	●	●	●
		V	Downward	●	●	●
		+				
	f Pressure unit Note 3)	Nil	Name plate and pressure gauge in imperial units: MPa	●	●	●
		Z	Name plate and pressure gauge in imperial units: psi	●	●	●
		ZA	Digital pressure switch: With unit conversion function	●	●	●

	Pipe thread type	Name plate in imperial units	Pressure gauge in imperial units: G	Pressure gauge in imperial units: EA, EB, EC, ED	Sales Note 5)
Nil	Rc	MPa	MPa	Fixed SI unit	Japan, Overseas
	NPT				
	G				
Z Note 4)	Rc	—	—	—	Only overseas
	NPT	psi	psi	With unit conversion function (Initial value psi)	
	G	—	—	—	
ZA Note 5)	Rc	MPa	—	With unit conversion function	Only overseas
	NPT				
	G				

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Rev: 0	Device Tag: REG2		
Date: 2/8/2019			
Manuf.: . PNo: SMC USA: IR3020-N03BG	By: JAP	Job Number: HBR7628	Page # 1/2

Standard Specifications

(Knob)

Model	Basic type (Knob)		
	IR10□0-A	**IR20□0-A**	**IR30□0-A**
Fluid	Air		
Proof pressure	218 psi [1.5 MPa]		
Max. supply pressure	145 psi [1.0 MPa]		
Min. supply pressure Note 1)	Set pressure + 7.3 psi [0.05 MPa]		Set pressure + 15 psi [0.1 MPa]
Set pressure range psi [MPa]	IR1000-A: 0.73 to 29 [0.005 to 0.2]	IR2000-A: 0.73 to 29 [0.005 to 0.2]	IR3000-A: 1.5 to 29 [0.01 to 0.2]
	IR1010-A: 1.5 to 58 [0.01 to 0.4]	IR2010-A: 1.5 to 58 [0.01 to 0.4]	IR3010-A: 1.5 to 58 [0.01 to 0.4]
	IR1020-A: 1.5 to 116 [0.01 to 0.8]	IR2020-A: 1.5 to 116 [0.01 to 0.8]	IR3020-A: 1.5 to 116 [0.01 to 0.8]
Sensitivity	Within 0.2% of full span		
Repeatability Note 2)	Within ±0.5% of full span		
Air consumption Note 3)	0.04 scfm [1 L/min (ANR)] or less		
Port size	1/8	1/4	1/4, 3/8, 1/2
Pressure gauge port	1/8 (2 locations)		
Ambient and fluid temperature Note 4)	23 to 140°F [–5 to 60°C] (No freezing)		
Weight (kg) Note 5)	0.13	0.23	0.47

Note 1) When there is no flow rate on the outlet.
Note 2) Other characteristics such as aging deterioration and temperature characteristics are not included.
Note 3) Measuring conditions: supply pressure 145 psi [1.0 MPa], set pressure 29 psi [0.2 MPa]
Note 4) 23 to 140°F [–5 to 60°C] for the products with the digital pressure switch
Note 5) Without accessories

Accessories (Option)/Part No.

Description		IR10□0-A	IR20□0-A	IR30□0-A
Bracket assembly Note 1)		IR10P-501AS	IR20P-501AS	IR30P-501AS
Hexagon panel nut		IR10P-600S	IR20P-600S	IR20P-600S
Round type pressure gauge Note 2)	**0.2 MPa setting**	G33-2-□01	G43-2-□01	G43-2-□01
	0.4 MPa setting	G33-4-□01	G43-4-□01	G43-4-□01
	0.8 MPa setting	G33-10-□01	G43-10-□01	G43-10-□01
Digital pressure switch Note 3)	**NPN 1 output**	ISE30A-□01-N-ML		
	PNP 1 output	ISE30A-□01-P-ML		
	NPN 1 output/ Voltage output	ISE30A-□01-C-ML		
	NPN 1 output/ Current output	ISE30A-□01-D-ML		

Note 1) This is an assembly of the bracket and resin panel nut.
Note 2) □ in part numbers for a round type pressure gauge indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT.
A 1.0 MPa pressure gauge is fitted for 0.8 MPa setting.
Please contact SMC regarding the supply of pressure gauge with psi unit specifications.
Note 3) □ in part numbers for a digital pressure switch indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. For details on handling digital pressure switch and specifications, refer to the **WEB catalog** or the Best Pneumatics No. 6.
Please contact SMC regarding the supply of digital pressure switch with unit conversion function.

Modular Products and Accessories

Applicable products and accessories	Applicable size		
	Series IR1000-A	**Series IR2000-A**	**Series IR3000-A**
Filter	AF20-A	AF30-A	AF40-A
Spacer	Y200-A	Y300-A	Y400-A
Spacer with bracket	Y200T-A	Y300T-A	Y400T-A

Refer to the **WEB catalog** for details of the modular applicable products and accessories. The former modular and mounting brackets can be used.

Electro-Pneumatic Regulator

Series ITV1000/2000/3000

CE [Option] c UL us LISTED RoHS

SMC

94-255-019

ITV2000

ITV 3 0 1 0 – 0 1 □ 2 □ S □ – □□

Model

1	1000 type
2	2000 type
3	3000 type

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa

Power supply voltage

0	24 VDC
1	12 to 15 VDC

Note) Communication models (CC, DE PR, RC), 16 points preset input and 10 bit digital input are available only for 24 VDC.

Made to Order Specifications

Refer to pages 816, 832, and 833 for details.

Pressure display unit

Nil	MPa
2 Note	kgf/cm²
3	bar
4 Note	psi
5	kPa

Note) Under Japan's new Measurement Act, this is only for overseas sales (SI units are to be used inside Japan). For the communication models, CC, DE, PR and RC, only "Nil" is available as it does not have a pressure display.

Input signal/ Communication model

0	Current type 4 to 20 mA DC (Sink type)
1	Current type 0 to 20 mA DC (Sink type)
2	Voltage type 0 to 5 VDC
3	Voltage type 0 to 10 VDC
40	4 points preset input
52	16 points preset input (Switch output/NPN output)
53	16 points preset input (Switch output/PNP output)
60	10 bit digital input
CC	CC-Link
DE	DeviceNet™
PR	PROFIBUS DP
RC	RS-232C communication

Monitor output

1	Analog output 1 to 5 VDC
2	Switch output/NPN output
3	Switch output/PNP output
4	Analog output 4 to 20 mA DC (Sink type)
Nil	None

Cable connector type

S	Straight type 3 m
L	Right angle type 3 m
N	Without cable connector

Note) Even when a cable connector is selected, communication cable is not included in the communication models, CC, DE and PR. Please order it separately. Refer to the below.
For 10 bit digital input, right angle type cannot be selected.

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Bracket *

Nil	Without bracket
B	Flat bracket
C	L-bracket

* Bracket is included.

Port size

1	1/8 (1000 type)
2	1/4 (1000, 2000, 3000 type)
3	3/8 (2000, 3000 type)
4	1/2 (3000 type)

For communication cables, use the parts listed below
(refer to M8/M12 connector in Best Pneumatics No.1 for details)
or order the product certified for the respective protocol (with M12 connector) separately.

Application	Communication cable part number	Note
CC-Link compatibility	PCA-1567720 (Socket type)	Dedicated Bus adapter supplied with the product.
	PCA-1567717 (Plug type)	
DeviceNet™ compatibility	PCA-1557633 (Socket type)	T-branch connector not supplied.
	PCA-1557646 (Plug type)	
PROFIBUS DP compatibility	PCA-1557688 (Socket type)	T-branch connector not supplied.
	PCA-1557691 (Plug type)	

Model		ITV101□ Note 8) / ITV201□ / ITV301□	ITV103□ Note 8) / ITV203□ / ITV303□	ITV105□ Note 8) / ITV205□ / ITV305□
Minimum supply pressure		Set pressure +0.1 MPa		
Maximum supply pressure		0.2 MPa	1.0 MPa	
Set pressure range Note 1)		0.005 to 0.1 MPa	0.005 to 0.5 MPa	0.005 to 0.9 MPa
Power supply	Voltage	24 VDC ± 10%, 12 to 15 VDC		
	Current consumption	Power supply voltage 24 VDC type: 0.12 A or less Note 9) Power supply voltage 12 to 15 VDC type: 0.18 A or less		
Input signal Note 9)	Current type Note 2)	4 to 20 mA DC, 0 to 20 mA DC (Sink type)		
	Voltage type	0 to 5 VDC, 0 to 10 VDC		
	Preset input	4 points (Negative common), 16 points (No common polarity)		
	Digital input	10 bit (Parallel)		
Input impedance	Current type	250 Ω or less Note 6)		
	Voltage type	Approx. 6.5 kΩ		
	Preset input	Power supply voltage 24 VDC type: Approx. 4.7 kΩ Power supply voltage 12 VDC type: Approx. 2.0 kΩ		
	Digital input	Approx. 4.7 kΩ		
Output signal (monitor output) Note 3)	Analog output	1 to 5 VDC (Output impedance: Approx. 1 kΩ) 4 to 20 mA DC (Sink type) (Output impedance: 250 Ω or less) Output accuracy ± 6% F.S. or less		
	Switch output	NPN open collector output: Max. 30 V, 80 mA PNP open collector output: Max. 80 mA		
Linearity		± 1% F.S. or less		
Hysteresis		0.5% F.S. or less		
Repeatability		± 0.5% F.S. or less		
Sensitivity		0.2% F.S. or less		
Temperature characteristics		± 0.12% F.S./°C or less		
Output pressure display Note 4)	Accuracy	± 2% F.S. ± 1 digit or less		
	Minimum unit	MPa: 0.001, kgf/cm²: 0.01, bar: 0.01, psi: 0.1 Note 5), kPa: 1		
Ambient and fluid temperature		0 to 50°C (No condensation)		
Enclosure		IP65		
Weight Note 10)	ITV10□□	Approx. 250 g (without options)		
	ITV20□□	Approx. 350 g (without options)		
	ITV30□□	Approx. 645 g (without options)		

Note 1) Please refer to Figure 1 for the relationship between set pressure and input. Because the maximum set pressure differs for each pressure display, refer to page 853.
Note 2) 2-wire type 4 to 20 mA DC is not available. Power supply voltage (24 VDC or 12 to 15 VDC) is required.
Note 3) Select either analog output or switch output.
Further, when switch output is selected, select either NPN output or PNP output.
When measuring ITV analog output from 1 to 5 VDC, if the load impedance is less than 100 kΩ, the analog output monitor accuracy of within ±6% (full span) may not be available. The product with the accuracy of within ±6% is supplied upon your request. Output pressure remains unaffected.
Note 4) Adjustment of numerical values such as the zero/span adjustment or preset input type is set based on the minimum units for output pressure display (e.g. 0.001 to 0.500 MPa). Note that the unit cannot be changed.
Note 5) The minimum unit for 0.9 MPa (130 psi) types is 1 psi.
Note 6) Value for the state with no over current circuit included. If an allowance is provided for an over current circuit, the input impedance varies depending on the input current. This is 350 Ω or less for an input current of 20 mA DC.
Note 7) The above characteristics are confined to the static state. When air is consumed on the output side, the pressure may fluctuate.
Note 8) The ITV1000 series is a Grease-free specification (Wetted parts).
Note 9) Refer to the table below for communication specifications.
Note 10) Add 50 g for digital input type, 70 g for 16 points preset input type respectively.

SMC

74-255-005

Rubber Seal
3 Port/Pilot Poppet Type
Body Ported/Single Unit

VP 3 4 2 [ ] – 5 G [ ] [ ] 1 – 01 [ ] A

Series

3	VP300
5	VP500
7	VP700

Pressure specification

Nil	Standard (0.7 MPa)
K	High-pressure type (1.0 MPa)

Rated voltage

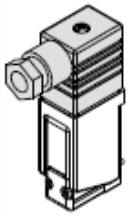
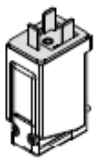
DC

5	24 VDC
6	12 VDC

AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]
7	240 VAC
B	24 VAC

Electrical entry

DIN terminal [IP65 compatible]	
	
D: With connector	DO: Without connector

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

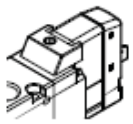
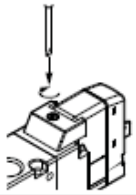
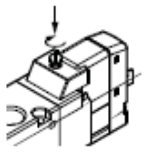
Type of actuation

A	N.C. (Normally closed)
B	N.O. (Normally open)

Port size

Symbol	Port size	VP300	VP500	VP700
01	1/8	○	—	—
02	1/4	○	○	—
03	3/8	—	○	○
04	1/2	—	—	○

Manual override

Nil: Non-locking push type	D: Push-turn locking slotted type	E: Push-turn locking lever type
		

Light/surge voltage suppressor

		DC	AC
Nil	Without light/surge voltage suppressor	○	○
S	With surge voltage suppressor	○	— Note)
Z	With light/surge voltage suppressor	○	○
R	With surge voltage suppressor (Non-polar)	○	—
U	With light/surge voltage suppressor (Non-polar)	○	—

Specifications

Fluid		Air
Type of actuation		N.C. or N.O. (Convertible)
Internal pilot Operating pressure range (MPa)	Standard	0.2 to 0.7
	High-pressure type	0.2 to 1.0
External pilot Operating pressure range (MPa)	Standard	–100 kPa to 0.7
	High-pressure type	–100 kPa to 1.0
	Pilot pressure range	Same as operating pressure (Min. 0.2 MPa)
Ambient and fluid temperature (°C)		–10 to 50 (No freezing)
Max. operating frequency (Hz)		5
Manual override		Non-locking push type Push-turn locking slotted type Push-turn locking lever type
Pilot exhaust type		Individual exhaust
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s²) Note)		300/50
Enclosure		Dust-tight (IP65 for D, Y, T)

Solenoid Specifications

Electrical entry			Grommet (G), (H) L-type plug connector (L) M-type plug connector (M)	DIN terminal (D) DIN (EN175301-803) terminal (Y) Conduit terminal (T)
			G, H, L, M	D, Y, T
Coil rated voltage (V)	DC		24, 12	
	AC (50/60 Hz)		24, 100, 110, 200, 220, 240	
Allowable voltage fluctuation			±10% of rated voltage*	
Power consumption (W)	DC	Standard	1.5 (With light: 1.55)	1.5 (With light: 1.75)
		With power saving circuit	0.55 (With light only)	0.75 (With light only)
Apparent power (VA)*	AC	24 V	1.5 (With light: 1.55)	1.5 (With light: 1.75)
		100 V	1.55 (With light: 1.65)	1.55 (With light: 1.7)
		110 V [115 V]		
		200 V		
		220 V [230 V]		
		240 V		

Silencer
Compact Resin Type/Male Thread
Series AN05 to 40

74-255-007

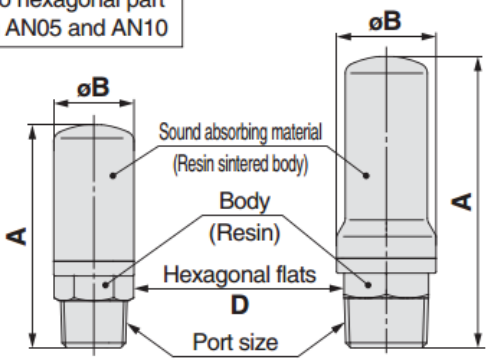
Specifications

Fluid	Compressed air
Max. operating pressure Note 1)	145psi (1.0 MPa)
Noise reduction	30 dB(A) Note 2)
Ambient and fluid temperature	41 to 140°F (5 to 60°C) Note 3)

Note 1) It indicates the inlet pressure for solenoid valve.
Note 2) The value may vary, depending on the pneumatic circuit or pressure that is exhausted from the solenoid valve.
Note 3) The product can be used in temperatures 14 to 140°F (–10 to 60°C) if there is no risk of water droplets forming and freezing.

AN05/10/20 **AN15/30/40**

No hexagonal part in AN05 and AN10



AN 20 – □ 02

Body size

Symbol
05
10
15
20
30
40

Thread type

Nil	M thread
	R
N	NPT

Thread connection port size

Symbol	Port size	Applicable model
M5	M5 x 0.8	AN05
01	1/8	AN10
02	1/4	AN15/20
03	3/8	AN30
04	1/2	AN40

Specifications

Fluid	Compressed air
Max. operating pressure Note 1)	145psi (1.0 MPa)
Noise reduction	30 dB(A) Note 2)
Ambient and fluid temperature	41 to 140°F (5 to 60°C) Note 3)

Note 1) It indicates the inlet pressure for solenoid valve.
Note 2) The value may vary, depending on the pneumatic circuit or pressure that is exhausted from the solenoid valve.
Note 3) The product can be used in temperatures 14 to 140°F (–10 to 60°C) if there is no risk of water droplets forming and freezing.

Dimensions (mm)

Model	Port size R, NPT	A	B	D
AN05-M5	M5 x 0.8	15	6.5	–
AN10-01	1/8	23	11	–
AN15-02	1/4	32	16	14
AN20-02	1/4	45	16.5	14
AN30-03	3/8	58.5	20	17
AN40-04	1/2	68	24	21

Refer to page 5 for Precautions on these products.

Performance

Model	Effective area mm²	Sonic conductance C [dm³/(s·bar)]	Recommended flow m³/min(ANR)	Weight g
AN05-M5	5	1	0.4 or less	0.5
AN10-01	10	2	0.8 or less	1
AN15-02	15	3	1.0 or less	2.5
AN20-02	35	7	3.0 or less	4
AN30-03	60	12	5.0 or less	5.5
AN40-04	90	18	8.0 or less	8.5

Note) Recommended flow rate is the flow at 72.5psi (0.5 MPa) in the inlet pressure.

fasis

wieland

42-063-***

2,5 mm²/5 mm Width

Type	Part no.	Std. pack
Marking strips, unmarked		
9705 A/5/10	04.242.5053.0	25
Marking strips, marked		
9705 A/5/9 B 1 - 9	04.842.4953.0	25
9705 A/5/10 B*	04.842.5053.0	25
9705 A/5/10 B 1 - 10	04.845.0153.0	25
11 - 20	04.845.0253.0	25
21 - 30	04.845.0353.0	25
31 - 40	04.845.0453.0	25
41 - 50	04.845.0553.0	25
51 - 60	04.845.0653.0	25
61 - 70	04.845.0753.0	25
71 - 80	04.845.0853.0	25
81 - 90	04.845.0953.0	25
91 - 100	04.845.1053.0	25
⊕ (10 x)	04.855.0053.0	25
⏚ (10 x)	04.855.0153.0	25
+ (10 x)	04.855.0253.0	25
– (10 x)	04.855.0353.0	25
L1 (10 x)	04.855.0453.0	25
L2 (10 x)	04.855.0553.0	25
L3 (10 x)	04.855.0653.0	25
PE (10 x)	04.855.0753.0	25
SL (10 x)	04.855.3153.0	25
N (10 x)	04.855.3253.0	25
F1 (10 x)	04.855.0953.0	25
F2 (10 x)	04.855.1053.0	25
L1, L2, L3, N, PE (2 x)	04.855.0853.0	25
with enlarged marking area		
9705 AL/5/10	04.242.5153.0	25
*Custom marking upon request		

4 mm²/6 mm Width

Type	Part no.	Std. pack
Marking strips, unmarked		
9705 A/6/10	04.242.6053.0	25
Marking strips, marked		
9705 A/6/9 B 1 - 9	04.842.5953.0	25
9705 A/6/10 B*	04.842.6053.0	25
9705 A/6/10 B 1 - 10	04.846.0153.0	25
11 - 20	04.846.0253.0	25
21 - 30	04.846.0353.0	25
31 - 40	04.846.0453.0	25
41 - 50	04.846.0553.0	25
51 - 60	04.846.0653.0	25
61 - 70	04.846.0753.0	25
71 - 80	04.846.0853.0	25
81 - 90	04.846.0953.0	25
91 - 100	04.846.1053.0	25
⊕ (10 x)	04.856.0053.0	25
⏚ (10 x)	04.856.0153.0	25
+ (10 x)	04.856.0253.0	25
– (10 x)	04.856.0353.0	25
L1 (10 x)	04.856.0453.0	25
L2 (10 x)	04.856.0553.0	25
L3 (10 x)	04.856.0653.0	25
PE (10 x)	04.856.0753.0	25
SL (10 x)	04.856.3153.0	25
N (10 x)	04.856.3253.0	25
F1 (10 x)	04.856.0953.0	25
F2 (10 x)	04.856.1053.0	25
L1, L2, L3, N, PE (2 x)	04.856.0853.0	25
with enlarged marking area		
9705 AL/6/10	04.242.6353.0	25
*Custom marking upon request		

10 mm²/10 mm Width

16 mm²/12 mm Width

35 mm²/16 mm Width

Type	Part no.	Std. pack
marked for 5 blocks (every 2nd tag) *		
9705 A/5/10/5 B	04.842.5553.0	25
marked for 5 blocks (every 2nd tag) *		
9705 A/6/10/5 B	04.842.6553.0	25
marked for 5 blocks (every 2nd tag) *		
9705 A/8/10/5 B	04.842.8553.0	25
* indicate required marking with part no.		

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Manuf.: . PNo:
WIELAND: 04.242.6353-CUSTOM

Rev: 0

Date: 2/8/2019

By: JAP

Device Tag: TB4

Job Number: HBR7628

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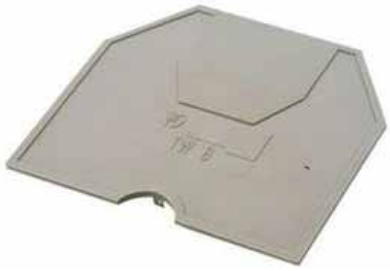
wieland

42-063-001

Datasheet



Art.No. 07.311.0155.0

End plate AP 2,5 -4 /V0

End plate for DIN rail terminal blocks type WK ..., color gray

Art.No.	07.311.0155.0
EAN	4015573392663
Order unit	10 pieces

Approvals

Technical data

General

Colour	Grey
Type of end plate	Yes
Type of partition	No
Thickness	1.5 mm
Snap in	Yes
Inflammability class of insulation material acc. with UL94	V0

Accessories

Type of end plate	Yes
Type of partition	No
Colour	Grey
Thickness	1.5 mm
Snap in	Yes
Inflammability class of insulation material acc. with UL94	V0

Feed-through blocks with screw connection

selos

wieland

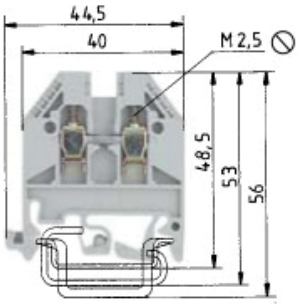
42-063-003

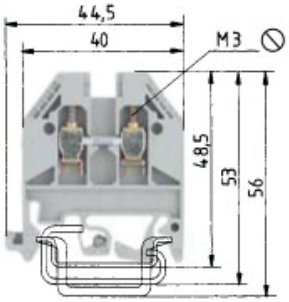
UL wire connection versions

[4] or 2x no. 14 sol/str AWG
or 2x no. 16 sol/str AWG
or 2x no. 18 sol/str AWG
or 3x no. 20 sol/str AWG or 3x no. 22 sol/str AWG

[5] or 2x no. 12 sol/str AWG
or 2x no. 16 sol/str AWG
or 3x no. 18 sol/str AWG or 3x no. 22 sol/str AWG

[6] or 2x no. 12 sol/str AWG
or 2x no. 14 sol/str AWG
or 3x no. 16 sol/str AWG





		WK 2,5/U			WK 4/U		
0344 Ex II 2GD IM2		fine-stranded	solid	V / A	fine-stranded	solid	V / A
Ex e I/II		0.5-2.5 mm²	0.5-4 mm²	800V/8kV/3 / 24	0.5-4 mm²	0.5-6 mm²	800V/8kV/3 / 32
EN 60947-7-1:2002		No. 22-12 AWG		600V / 20/30	No. 22-10 AWG[4]		600V / 30/35
UL ratings	Field/factory wiring	No. 24-12 AWG		600V / 25	No. 20-10 AWG		600V / 40
CSA ratings		0.5-2.5 mm²	0.5-4 mm²	690V / 23	0.5-4 mm²	0.5-6 mm²	690V / 14/27[3]
KEMA 02 ATEX 2114 U[1]	EN 60079-0/EN 60079-7	5 mm		9mm	6mm		9mm
Width	Wire strip length						
Approvals							

		Type	Part No.	Std. Pack	Type	Part No.	Std. Pack
Feed-through block	gray	WK 2,5/U	57.503.0055.0	100	WK 4/U	57.504.0055.0	100
Feed-through block Exi	blue	WK 2,5/U BLAU	57.503.0055.6	100	WK 4/U BLAU	57.504.0055.6	100
Accessories							
1. Mounting rail TS 35, DIN rail 7.5 mm high	L = 2 m	35 x 27 x 7,5 EN 60715	98.300.0000.0	1	35 x 27 x 7,5 EN 60715	98.300.0000.0	1
Mounting rail TS 35, DIN rail, 15 mm high	L = 2 m	35 x 24 x 15 EN 60715	98.360.0000.0	1	35 x 24 x 15 EN 60715	98.360.0000.0	1
Mounting rail TS 32, G rail[2]	L = 2 m	9006 EN 60715 G-32	98.190.0000.0	1	9006 EN 60715 G-32	98.190.0000.0	1
2. End clamp with U-foot[2]	10mm wide	WE 1/U	Z5.523.5753.0	100	WE 1/U	Z5.523.5753.0	100
End clamp TS 35, with screw	8mm wide	9708/2 S35	Z5.522.8553.0	100	9708/2 S35	Z5.522.8553.0	100
End clamp TS 35, without screw	8mm wide	WEF 1/35	Z5.523.9353.0	100	WEF 1/35	Z5.523.9353.0	100
3. End plate	gray	AP 2,5 - 4	07.311.0155.0	10	AP 2,5 - 4	07.311.0155.0	10
	blue	AP 2,5 - 4 BLAU	07.311.0155.6	10	AP 2,5 - 4 BLAU	07.311.0155.6	10
4. Partition	gray	TW 2,5 - 4	07.311.1155.0	10	TW 2,5 - 4	07.311.1155.0	10
	blue	TW 2,5 - 4 BLAU	07.311.1155.6	10	TW 2,5 - 4 BLAU	07.311.1155.6	10
5. Cross connector with screws	2 pole	IVB WK 2,5 - 2	Z7.280.2227.0	10	IVB WK 4 - 2	Z7.281.1227.0	10
insulated	3 pole	IVB WK 2,5 - 3	Z7.280.2327.0	10	IVB WK 4 - 3	Z7.281.1327.0	10
	up to 12 pole	IVB WK 2,5 - 12	Z7.280.3227.0	10	IVB WK 4 - 12	Z7.281.2227.0	10
6. Partition plate with marking facility		TS 2,5 GELB	07.311.2053.8	10	TS 4 GELB	07.311.2153.8	10
7. Single cover with marking facility		AD VB 2,5 GELB	04.326.2053.8	10	AD VB 4 GELB	04.326.2153.8	10
8. Cover with warning symbol over 4 blocks		AD VB 5/4 GELB	04.343.4756.8	10	AD VB 6/4 GELB	04.343.4856.8	10

For more accessories see pages 60-77
For marking systems see pages 70-75

*[1] For maintaining the proper isolation distances, the open side of a feed-through terminal block as well as both sides of a jumper are to be enclosed by partitions.
[1] Please note the mounting instructions on the cover page. [2] Do not use in Ex environments. [3] With/without jumper

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Item No. 57.504.9055.0

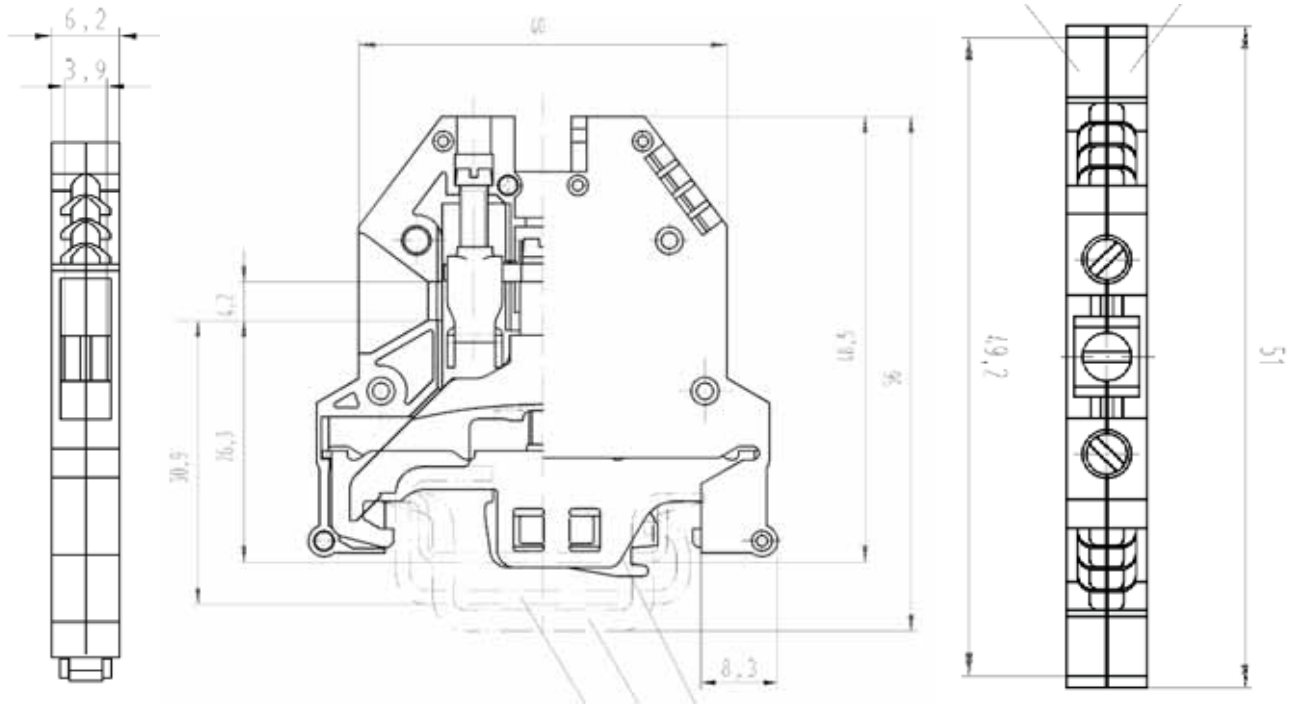
wieland

Earth terminal WK 4 SL/ U /V0

Ground DIN rail terminal block with screw connection for mounting on TS 35 and TS 32, nominal cross section 4 mm², width 6 mm, color green/yellow

42-063-004

Rated impulse voltage	8 kV
Pollution degree	3
Closing plate required	No
Length	51 mm
Type of insulation material	Thermoplastic
Cross section UL	22-10 AWG
Cross section CSA	20-10 AWG
Maximum cross section fine stranded	4 mm²
Wire strip length	9 mm
Torque conductor mounting	0.5 Nm
Torque rail mounting	0,5



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Manuf.: . PNo: WIELAND: 57.504.9055.0

Item No. Z5.522.8553.0
End bracket 9708 / 2 S 35
End clamp for mounting rail TS 35

wieland

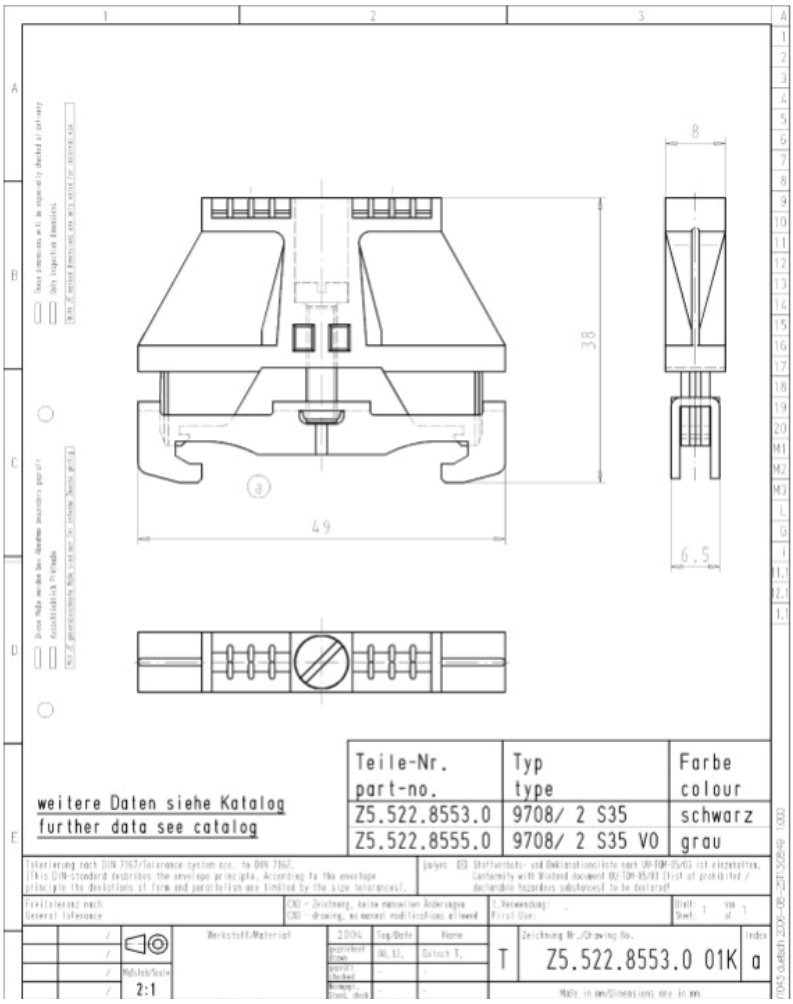
42-063-009

Item No.	Z5.522.8553.0
EAN	4015573141766
order unit	100 Piece(s)

Technical data

Accessories

ArticlePrice	udp_no_price
Colour	Black
Inflammability class of insulation material acc. with UL94	V2
Width/grid dimension	8 mm
Latching	Screwable
Length	49 mm
Material	Metal
Mounting method	DIN rail (top hat rail) 35/7.5 mm



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