

# PD8-154/PD8-158

ProtEX-MAX™ Explosion-Proof Alarm Annunciators



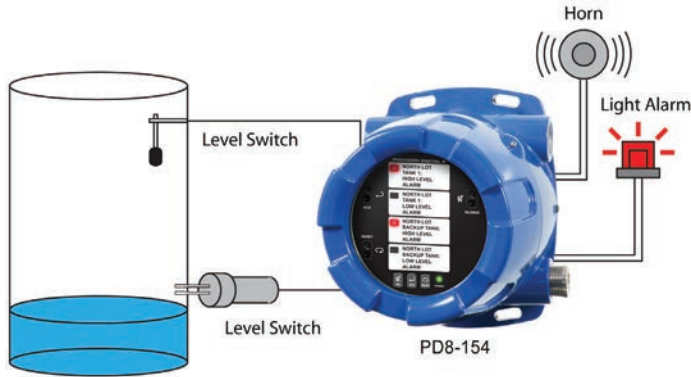
FM APPROVED SP EX CE IECEx

**DUAL-INPUT**  
PROCESS

- Modern, Sleek and Practical Enclosure
- Display Mountable at 0°, 90°, 180°, & 270° Degrees
- Explosion-Proof, IP68, NEMA 4X Enclosure
- Vigilante® II Functionality
- SafeTouch® Through-Glass Button Programming
- Sunlight Readable Displays
- 8 Field Selectable Sequences
- All Common ISA Sequences Including First-Out
- Switch, Transistor, and Logic Level Inputs
- 4 or 8-Point Monitoring
- Free Custom Message Labels
- Universal Power Supply 85-265 VAC
- 12-36 VDC/12-24 VAC Power Option
- 2 SPDT Relays for Alarm Activated Devices
- 24 VDC Isolated Power Supply (AC Models)
- Multiple-Unit First-Out Indication
- Silence, Acknowledge, and Reset Functions
- Sunlight Readable Indication

## APPLICATIONS

### Level Monitoring with Level Switches



The ProtEX-MAX Annunciator is ideal for tank level switch monitoring.

- Up to 8 Individually Labeled Level Switch Inputs
- 24 VDC Level Switch Power Supply
- Relays for External Horns and Light Alarms
- Easy NEMA 4X Mounting Enclosures
- Sunlight Readable Indication

### Temp Monitoring with ProtEX-MAX Meters



Connect PD8-765 and PD8-7000 alarm relays to the PD8-154 or PD8158 for temperature alarm monitoring.

- First-Out Indication for Heating/Cooling Systems
- Multiple Unit First-Out Indication
- Remote Silence, Acknowledge, and Reset
- Fail-Safe Relays for Critical Applications

### Multiple Unit First-Out Alarm Indication



#### Multiple Unit First-Out Indication

If multiple ProtEX-MAX™ annunciators are connected for multiple unit first-out indication, only one input from all connected devices will display as a first-out alarm.

### First-Out Alarm Indication

The ProtEX-MAX™ Annunciator can be programmed for multiple sequences with first-out alarm indication. This feature indicates the first point of failure of a system when multiple alarms occur.

## ALARM SEQUENCES

The ProtEX-MAX™ Alarm Annunciator can be programmed for all common ISA sequences including A, F1A, F2A, F3A, M, F1M. Selectable ISA -1 (Silence Button), -4 (No Lock-In), and horn disable options. Two popular sequences are detailed below.

### ISA Alarm Sequence A

Acknowledgement and Automatic Reset

#### Momentary Alarm

Condition	LED	Horn
Normal	Off	Off
Alert	Flash	On
Normal	Flash	On
User Acknowledged		
Acknowledge	Off	Off

#### Maintained Alarm

Condition	LED	Horn
Normal	Off	Off
Alert	Flash	On
User Acknowledged		
Acknowledge	Steady	Off
Normal	Off	Off

### ISA Alarm Sequence F2A

First-Out Alarm Indication with Acknowledgement and Automatic Reset

#### Momentary Alarm

Condition	1 <sup>st</sup> Pt	Next Pt	Horn
Normal	Off	Off	Off
Alert	Flash	Steady	On
Normal	Flash	Steady	On
User Acknowledged			
Ack	Off	Off	Off

#### Maintained Alarm

Condition	1 <sup>st</sup> Pt	Next Pt	Horn
Normal	Off	Off	Off
Alert	Flash	Steady	On
User Acknowledged			
Ack	Steady	Steady	Off
Normal	Off	Off	Off

## FRONT PANEL

Button			
Description	Silence Horn	Acknowledge Alarm	Reset Inputs
LED	Description		
	Point status indicators		
	Indicates power is on		

**LED Test:** Press and release the SILENCE and ACK pushbuttons to flash the channel indicator LEDs for an LED function test.

**Full Function Test:** Press and hold the SILENCE and ACK pushbuttons for 3 seconds to initiate a full function test.

**External Connections:** All three pushbuttons may be activated remotely via rear terminal connections.

## MESSAGE LABELS

Alarm message labels for the alarm annunciator may be factory printed at no charge, or field printed using a laser printer with clear self-adhesive labels.

Factory printed message labels may be ordered at any time by completing the following form.

\_\_\_\_\_ Please include label with my order  
 \_\_\_\_\_ I have the Annunciator, please send label  
 Quantity \_\_\_\_\_  
 Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Mailing Address \_\_\_\_\_  
 City, St., Zip \_\_\_\_\_  
 Phone \_\_\_\_\_  
 Fax \_\_\_\_\_  
 E-Mail \_\_\_\_\_  
 PO# \_\_\_\_\_

Area available per message: PD154, 1.25" x 0.60" (32 mm x 15 mm); PD158, 1.25" x 0.25" (32 mm x 6 mm); user may specify any size and length that will fit in this area. Lines of 14 characters max at 9 point type will fit.

PD154														PD158													
Message 1														Message 1 & 2													
Message 2														Message 3 & 4													
Message 3														Message 5 & 6													
Message 4														Message 7 & 8													

## SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

### General

**Display:** PD8-154: Four red LED channel indicators. PD8-158: Eight red LED channel indicators. One green LED power indicator.

**Alarm Messages:** Custom printed adhesive clear labels.

**Area:** PD154, 1.25" x .60" (32 mm x 15 mm), 4 messages  
 PD158, 1.25" x .25" (32 mm x 6 mm), 8 messages

User specified size and length, up to 4 lines (PD154) or 2 lines (PD158) of 14 characters of size 9 pt fonts.

**Programming Methods:** Rear 4-position switch for sequence selection and horn operation. Three SafeTouch through-glass buttons for NO/NC input selection, sequence option, and operation when cover is installed. Three internal pushbuttons when cover is removed.

**Audible Alarm:** 85 dB internal horn. The use of an external explosion-proof horn is recommended due to the internal horn's audibility being dampened by the explosion-proof enclosure.

**Noise Filter:** 40 ms debounce on inputs and external push buttons.

**Shared First-Out Systems:** 1 ms unit-to-unit delay. Maximum of 200 units in the shared first-out system.

**Non-Volatile Memory:** All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.

**Power Options:** 85-265 VAC, 50/60 Hz; 90-265 VDC, 20 W max; or 12-36 VDC, 12-24 VAC, 6 W max.

**Fuse:** Required external fuse: UL Recognized, 5 A max, slow blow. Up to 6 annunciators may share one 5 A fuse

**Isolated Power Supply:** 24 VDC  $\pm$  10% @ 200 mA max  
 Standard on 85-265 VAC powered units only.

**Isolation:** 4 kV input/output-to-power line.

**Overvoltage Category:** Installation Overvoltage Category II: Local level with smaller transient overvoltages than Installation Overvoltage Category III.

### Environmental:

T6 Class operating temperature range Ta = -40 to 60°C

T5 Class operating temperature range Ta = -40 to 65°C

**Connections:** Removable screw terminal blocks accept 12 to 22 AWG wire.

**Enclosure:** Explosion-proof die cast aluminum with glass window, corrosion resistant epoxy coating, color: blue. NEMA 4X, 7, & 9, IP68. Default conduit connections: Four ¾" NPT threaded conduit openings and two ¾" NPT metal conduit plugs with 12 mm hex key fitting installed. Additional conduit opening configurations may be available; verify quantity and sizes on specific device labeling during installation.

**Mounting:** Four slotted flanges for wall mounting or NPS 1½" to 2½" or DN 40 to 65 mm pipe mounting.

**Dimensions:** 6.42" x 7.97" x 8.47" (W x H x D) (163 mm x 202 mm x 215 mm)

**Weight:** 16.0 lbs (7.26 kg)

**Warranty:** 3 years parts & labor

**USB Connection:** Compatibility: USB 2.0 Standard, Compliant

Connector Type: Micro-B receptacle

Cable: USB A Male to Micro-B Cable

Driver: Windows 98/SE, ME, 2000, Server 2003/2008, XP 32/64-Bit, Vista 32/64-Bit, Windows 7 32/64-Bit, Windows 10 32/64-Bit

Power: USB Port

wledged. Relay 2: Alarm state if any channel indicating alarm.



# PD8-154/PD8-158 ProtEX-MAX™ Explosion-Proof Annunciators

## Inputs

**Input Types:** NO or NC switches: No external excitation required.  
**Open collector transistor (NPN):** Open circuit voltage approx. 3.3 VDC. Logic Levels: LOW = 0 to 0.9 VDC, HIGH = 2.4 to 28 VDC  
**Update Rate:** 41 ms following alarm state; 1 ms for alarm state clear.

**Sequences:** Input follower, ISA Sequences A, F1A, F2A, F3A, M, F1M, and F3M per ISA Standard ISA-18.1-1979 R2004.

**Sequence Options:** A, F1A, F2A, F3A, M, F1M, F2M, and input follower with selectable options -1 (silence pushbutton), -4 (no lock-in), and -6 (no horn) per ISA Standard ISA-18.1-1979 R2004.

## Relays

**Rating:** 2 SPDT (Form C); rated 3 A @ 30 VDC or 3 A @ 250 VAC resistive load; 1/14 HP @ 125/250 VAC for inductive loads.

**Electrical Noise Suppression:** A suppressor (snubber) should be connected to each relay contact switching inductive loads to prevent disruption to the microprocessor's operation. Recommended suppressor value: 0.01  $\mu$ F/470  $\Omega$ , 250 VAC (PDX6901).

**Relay Operation:** Relay 1: Alarm state until alarm is acknowledged. Relay 2: Alarm state if any channel indicating alarm condition.

**Fail-Safe Operation:** Programmable independent for each relay.

**Note:** In fail-safe mode, relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.

## Product Ratings and Approvals

**FM:** Type 4X; IP66

Class I, Division 1, Groups B, C, D

Class II, Division 1, Groups E, F, G

Class III, Division 1, T5/T6

Class I, Zone 1, AEx d, IIC Gb T5/T6

Zone 21, AEx tb IIIC T90°C; Ta -40°C to +65°C

T6 Ta = -40°C to +60°C; T5 Ta = -40°C to +65°C

Certificate Number: 3047283

**CSA:** Class I, Division 1, Groups B, C, D

Class II, Division 1, Groups E, F, G

Class III, Division 1

Class I Zone 1 Ex d IIC

Zone 21 Ex tb IIIC T90°C

-40°C < Tamb. < +60°C; Temperature Code T6

-40°C < Tamb. < +65°C; Temperature Code T5

Enclosure Type 4X & IP66

Certificate Number: 2531731

**ATEX:** II 2 G D

Ex d IIC T\* Gb

Ex tb IIIC T90°C Db IP68

Ta = -40°C to +\*°C

\*T6 = -40°C to +60°C

\*T5 = -40°C to +65°C

Certificate number: Sira 12ATEX1182

**IECEx:** Ex d IIC T\* Gb

Ex tb IIIC T90°C Db IP68

Ta = -40°C to +\*°C

\*T6 = -40°C to +60°C

\*T5 = -40°C to +65°C

Certificate Number: IECEx SIR 12.0073

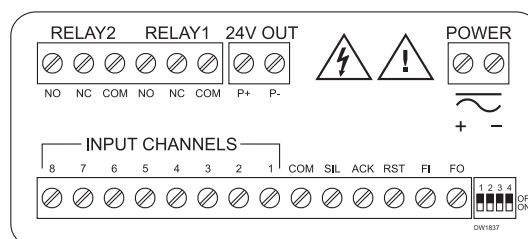
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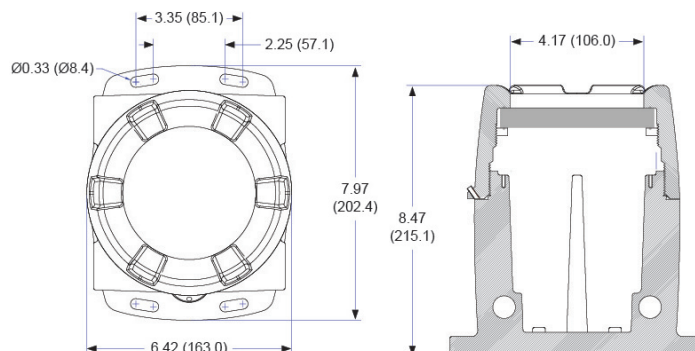
## CONNECTIONS

PD158 connections for 85-265 VAC powered model.



## DIMENSIONS

Units: Inches (mm)



## ORDERING INFORMATION

PROTEX-MAX™ PD8-154 and PD8-158 Models		
85-265 VAC Model	12-36 VDC Model	Description
PD8-154-6R2-1	PD8-154-7R2-0	4-Point Annunciator
PD8-158-7R2-0	PD8-158-7R2-0	8-Point Annunciator



**WARNING** - Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

Accessories	
Model	Description
PDAPLUG75	3/4" NPT 316 Stainless Steel Stopping Plug with Approvals
PDA7485-I	RS-232 to RS-422/485 Isolated Converter
PDA8485-I	USB to RS-422/485 Isolated Converter
PDA6846	Pipe Mounting Kit Zinc Plated (Requires 2)
PDA6846-SS	Pipe Mounting Kit Stainless Steel (Requires 2)

**Your Local Distributor is:**

**Order from:**

**C A Briggs Company**

622 Mary Street; Suite 101

Warminster, PA 18974

Phone: 267-673-8117 - Fax: 267-673-8118

[Sales@cabriggs.com](mailto:Sales@cabriggs.com) - [www.cabriggs.com](http://www.cabriggs.com)

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**PRECISION DIGITAL CORPORATION**

233 South Street • Hopkinton MA 01748 USA



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