- **Fully Approved Explosion-Proof Annunciators**
- **Switch, Open Collector NPN Transistor, and Logic Level Inputs**
- **4- or 8-Point Monitoring**
- **8 Field Selectable ISA Sequences Including First-Out**
- **Multiple-Unit First-Out Indication**
- **Free Custom Message Labels**
- **Silence, Acknowledge, and Reset Functions**
- **Sunlight Readable Indication**
- **CapTouch Through-Glass Button Programming**
- **Annunciator Mountable at 0°, 90°, 180°, & 270°**
- **24 VDC @ 200 mA Power Available to Drive Other Devices (AC Models)**
- **2 SPDT Relays for Alarm Activated Devices**
- **Operating Temperature Range: -55 to 65°C (-67 to 149°F)**

- **CSA Certified as Explosion-Proof / Dust-Ignition-Proof / Flame-Proof**
- **ATEX and IECEx Certified as Dust-Ignition-Proof / Flame-Proof**
- **Input Power Options Include 85-265 VAC or 12-36 VDC**
- **Built-in internal Audible Alarm with Silence Pushbutton**
- **Flanges for Wall or Pipe Mounting**
- **Explosion-Proof Aluminum or Stainless Steel NEMA 4X / IP68 Enclosures**
- **Four 3/4" NPT Threaded Conduit Openings**
- **Stainless Steel Pipe Mounting Kit**
- **Stainless Steel Tag Available**
- **3-Year Warranty**
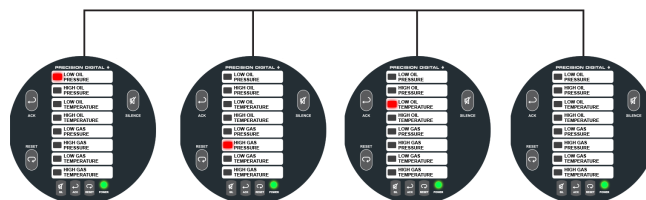
# APPLICATIONS

## Level Monitoring with Level Switches
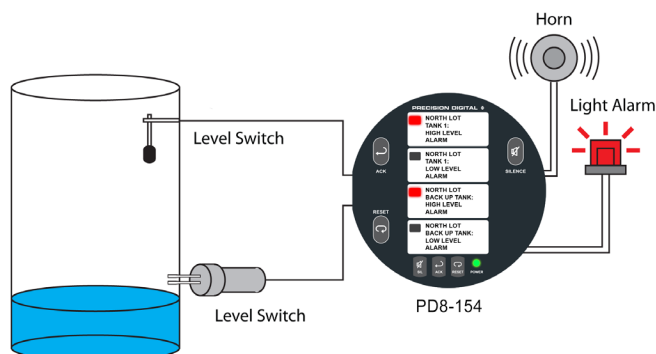


The ProtEX-MAX Annunciator is ideal for tank level switch monitoring.

- 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 PD8-158 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

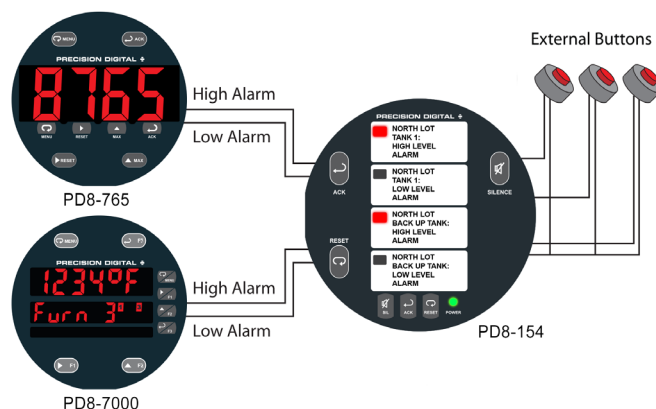## Multiple Unit First-Out Alarm Indication



**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 | LED | | Horn |
|---|---|---|---|
| | 1st Pt | Next Pt | |
| Normal | Off | Off | Off |
| Alert | Flash | Steady | On |
| Normal | Flash | Steady | On |
| User Acknowledged | | | |
| Ack | Off | Off | Off |

**Maintained Alarm**

| Condition | LED | | Horn |
|---|---|---|---|
| | 1st Pt | Next Pt | |
| Normal | Off | Off | Off |
| Alert | Flash | Steady | On |
| User Acknowledged | | | |
| Ack | Steady | Steady | Off |
| Normal | Off | Off | Off |

## FRONT PANEL

| Button | 🔇 | ↵ | ↻ |
|---|---|---|---|
| **Description** | Silence Horn | Acknowlege 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: PD8-154, 1.25" x 0.60" (32 mm x 15 mm); PD8-158, 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.

PD8-154

Message 1

Message 2

Message 3

Message 4

PD8-158

Message 1 & 2

Message 3 & 4

Message 5 & 6

Message 7 & 8

# Complete Product Line of Displays and Controllers
# IN ALL SHAPES, SIZES & LOCATIONS

**Big, Bright Displays For Indoor or Outdoor in Bright Sunlight**

**Large Dual-Line 6-Digit Display**

**24 VDC Transmitter Power Supply**

**MeterView® Pro USB Programming Software**

**Universal 85-265 VAC or 12-24 VDC Input Power Options**

**4-20 mA, 0-10 V, Thermocouple, RTD, Strain Gauge, High Voltage, & Modbus Inputs**

**Up To Four 3 A Form C Relays (SPDT)**

IECEx  C E

## EXPLOSION-PROOF
### ProtEX-MAX Series

- NEMA 4X, IP68 Rated Enclosure
- CapTouch Through-Glass Buttons
- Operating Temperature of -55 to 65°C
- Worldwide Approvals

## LARGE DISPLAYS
### Helios Series

- 1.8" Digits Readable From 100 Feet
- NEMA 4X, IP65 Rated Enclosure
- Operating Temperature of -40 to 65°C
- Now UL and C-UL Approved!

## PANEL METERS
### ProVu Series

- NEMA 4X, IP65 Rated Front
- Programmable Function Keys
- UL, C-UL, and CE Approvals
- 1/8 DIN Size

Go to PREDIG.COM for details on ProVu, ProtEX-MAX and Helios Series Meters

## DIMENSIONS

**Units: Inches (mm)**

4.17 (106.0)

3.35 (85.1)

2.25 (57.1)

Ø0.33 (Ø8.4)

4.95 (125.8)

8.47 (215.1)

6.40 (162.7)

7.97 (202.4)

6.42 (163.0)

**CAD** — ENCLOSURE DIMENSIONAL DRAWINGS
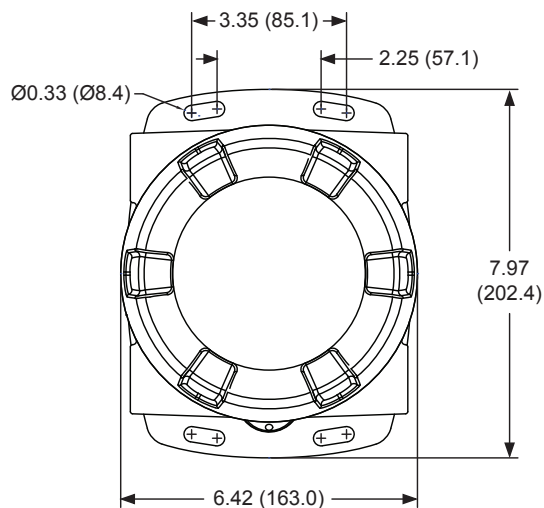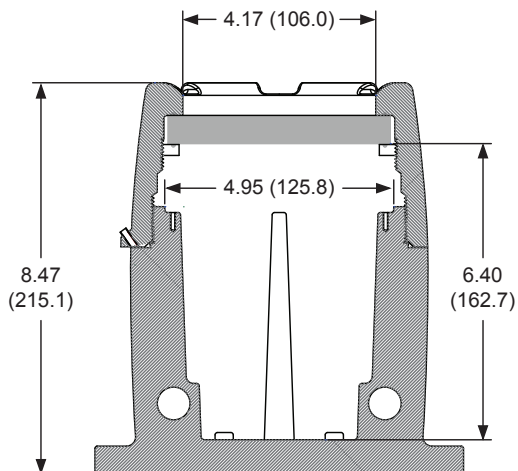
Download free 3-D CAD files of these instruments to simplify your drawings!

**predig.com/documentation-cad**

## CONNECTIONS

RELAY2    RELAY1    24V OUT                    POWER

NO  NC  COM  NO  NC  COM    P+  P-

⎓ ∿  +  −

INPUT CHANNELS

8  7  6  5  4  3  2  1    COM  SIL  ACK  RST  FI  FO

1 2 3 4    OFF
          ON

DW1837

*Connections shown for PD8-158-6R2*

# SPECIFICATIONS

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

## General

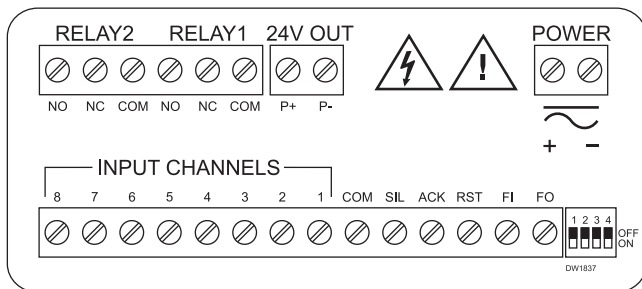| | |
|---|---|
| **Display** | PD8-154; Four red LED channel/point indicators. PD8-158; Eight red LED channel/point indicators. One green LED power indicator. |
| **Alarm Messages** | Custom printed adhesive clear labels. Order Free Custom Message Labels online. Area: PD8-154, 1.25" x .60" (32 mm x 15 mm), 4 messages PD8-158, 1.25" x .25" (32 mm x 6 mm), 8 messages User specified size and length, up to 4 lines (PD8-154) or 2 lines (PD8-158) of 14 characters of size 9 fonts. |
| **Audible Alarm** | These annunciators contain an internal audible alarm that, due to the nature of the heavy-duty metal enclosure, produces a very minimal sound. |
| **Programming Methods** | Rear 4-position switch for sequence selection and audible alarm operation. Three front panel pushbuttons for NO/NC input selection, sequence options, and sequence operation. |
| **Noise Filter** | 40 ms debounce on inputs (including SIL, ACK, and RST). |
| **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 ± 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 = -55 to 60°C T5 Class operating temperature range Ta = -55 to 65°C Storage temperature range: -55 to 85°C (-67 to 185°F) Relative humidity: 0 to 90% non-condensing |
| **Max Power Dissipation** | Maximum power dissipation limited to 13.73 W |
| **Connections** | Removable screw terminal blocks for 12 to 22 AWG wire. |

| | |
|---|---|
| **Mounting** | Wall Mounting: Four (4) mounting holes provided for mounting meter to wall. Pipe Mounting: Optional pipe mounting kit (PDA6848) allows for pipe mounting. Sold separately. |
| **Tightening Torque** | Power, signal, relays, mA out terminals: 5 lb-in (0.56 Nm) Digital I/O and RS-485: 2.2 lb-in (0.25 Nm) |
| **Overall Dimensions** | 6.4" x 8.0" x 8.5" (163 mm x 202 mm x 215 mm) (W x H x D) |
| **Weight** | Aluminum: 14.7 lbs (6.7 kg) Stainless Steel: 23.5 lbs (10.7 kg) |
| **Warranty** | 3 years parts & labor. See Warranty Information and Terms & Conditions on www.predig.com for complete details. |

## Input

| | |
|---|---|
| **Input Types** | NO or NC switches: No external excitation required Open collector transistor (NPN): Open circuit voltage approximately 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, F2M 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 audible alarm) 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 snubber should be connected to each relay contact switching inductive loads to prevent disruption to the microprocessor's operation. Recommended snubber value: 0.01 µF/470 Ω, 250 VAC (PDX6901). |
| **Relay Operation** | Relay 1: Alarm state until alarm is acknowledged. Relay 2: Alarm state while 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. |

## Enclosure

| | |
|---|---|
| **Material** | AL Models: ASTM A413 LM6 die-cast aluminum, copper-free, enamel coated<br>SS Models: ASTM A743 CF8M investment-cast 316 stainless steel |
| **Gasket** | Fluoroelastomer |
| **Rating** | NEMA 4X, IP68 Explosion-proof |
| **Color** | AL: Blue<br>SS: Silver |
| **Window** | Borosilicate glass |
| **Conduits** | Four ¾" NPT threaded conduit openings |
| **Conduit Stopping Plugs** | Sold separately |
| **Flanges** | Two built-in flanges for wall and pipe mounting |
| **Tamper-Proof Seal** | Cover may be secured with tamper-proof seal |
| **Overall Dimensions** | 6.4" x 8.0" x 8.5"<br>(163 mm x 202 mm x 215 mm)<br>(W x H x D) |
| **Weight** | AL: 14.7 lbs (6.7 kg)<br>SS: 23.5 lbs (10.7 kg) |
| **ATEX** | ⟨Ex⟩ II 2 G D<br>Ex db IIC Gb<br>Ex tb IIIC Db<br>IP66/IP68<br>Tamb: -55°C to +85°C<br>Certificate No.: Sira 19ATEX1252U |
| **IECEx** | Ex db IIC Gb<br>Ex tb IIIC Db<br>IP66/IP68<br>Tamb: -55°C to +85°C<br>Certificate No.: IECEx SIR 19.0075U |
| **CSA** | Class I, Division 1, Groups A, B, C, D<br>Class II, Division 1, Group E, F, G<br>Class III<br>Ex db IIC Gb<br>Ex tb IIIC Db<br>Class I, Zone 1, AEx db IIC Gb<br>Zone 21, AEx tb IIIC Db<br>IP66/IP68/TYPE 4X<br>Tamb: -55°C to +85°C<br>Certificate No.: CSA19.80011200U |
| **UL** | Class I, Division 1, Groups A, B, C, D<br>Class II, Division 1, Groups E, F, G<br>Class III<br>Class I, Zone 1, AEx db IIC Gb<br>Zone 21, AEx tb IIIC Db<br>Ex db IIC Gb<br>Ex tb IIIC Db<br>IP66/IP68/TYPE 4X<br>Tamb: -55°C to +85°C<br>Certificate Number: E518920 |

**Note:** The above approvals are for the enclosure only. See next page for approvals on the entire instrument.

## General Compliance Information
### Electromagnetic Compatibility

| | |
|---|---|
| **Emissions** | EN 55022<br>Class A ITE emissions requirements |
| Radiated Emissions | Class A |
| AC Mains Conducted Emissions | Class A |
| **Immunity** | EN 61326-1<br>Measurement, control, and laboratory equipment<br>EN 61000-6-2<br>EMC heavy industrial generic immunity standard |
| RFI - Amplitude Modulated | 80 -1000 MHz 10 V/m 80% AM (1 kHz)<br>1.4 - 2.0 GHz 3 V/m 80% AM (1 kHz)<br>2.0 - 2.7 GHz 1 V/m 80% AM (1 kHz) |
| Electrical Fast Transients | ±2kV AC mains, ±1kV other |
| Electrostatic Discharge | ±4kV contact, ±8kV air |
| RFI - Conducted | 10V, 0.15-80 MHz, 1kHz 80% AM |
| AC Surge | ±2kV Common, ±1kV Differential |
| Surge | 1KV (CM) |
| Power-Frequency Magnetic Field | 30 A/m 70%V for 0.5 period |
| Voltage Dips | 40%V for 5 & 50 periods<br>70%V for 25 periods |
| Voltage Interruptions | <5%V for 250 periods |

**Note:** Testing was conducted on meters with cable shields grounded at the point of entry representing installations designed to optimize EMC performance.

## Product Ratings and Approvals

| | |
|---|---|
| **CSA** | Class I, Division 1, Groups B, C, D<br>Class II, Division 1, Groups E, F, G<br>Class III, Division 1, T5<br>Class III, Division 1, T6 (Ta max = 60°C)<br>Ex db IIC T5<br>Ex db IIC T6 (Ta max = 60°C)<br>Ex tb IIIC T90°C<br>Ta = -55°C to +65°C<br>Enclosure: Type 4X & IP66 / IP68<br>CSA Certificate: CSA 12 2531731 |
| **ATEX** | II 2 G D<br>Ex db IIC T* Gb<br>Ex tb IIIC T90°C Db IP68<br>Ta = -55°C to +*°C<br>*T6 = -55°C to +60°C<br>*T5 = -55°C to +65°C<br>Certificate Number: Sira 12ATEX1182X |
| **IECEx** | Ex db IIC T* Gb<br>Ex tb IIIC T90°C Db IP68<br>Ta = -55°C to +*°C<br>*T6 = -55°C to +60°C<br>*T5 = -55°C to +65°C<br>Certificate Number: IECEx SIR 12.0073X |

***ATEX/IECEx Specific Conditions of Use:***
1. The equipment label and epoxy coating may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
2. Flameproof joints are not intended to be repaired.
3. All entry closure devices shall be suitably certified as "Ex d", "Ex t" and "IP66/68" as applicable. Suitable thread sealing compound (non-setting, non-insulating, non-corrosive, not solvent based, suitable for the ambient rating) must be used at the NPT conduit entries to achieve the IPx8 rating while maintaining the Ex protection concept.

***Year of Construction***
This information is contained within the serial number with the first four digits representing the year and month in the YYMM format.

***For European Community***
The ProtEX-MAX must be installed in accordance with the ATEX directive 2014/34/EU, the product manual, and the product certificate Sira 12ATEX1182X.

⚠ **WARNING**
Cancer and Reproductive Harm - **www.P65Warnings.ca.gov**

### Disclaimer

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# ORDERING INFORMATION

| PD8-154 and PD8-158 • Aluminum Enclosure | | |
|---|---|---|
| **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 |

| PD8-154 and PD8-158 • Stainless Steel Enclosure | | |
|---|---|---|
| **85-265 VAC Model** | **12-36 VDC   Model** | **Description** |
| PD8-154-6R2-1-SS | PD8-154-7R2-0-SS | 4-Point Annunciator |
| PD8-158-7R2-0-SS | PD8-158-7R2-0-SS | 8-Point Annunciator |

| Accessories | |
|---|---|
| **Model** | **Description** |
| PDAPLUG75 | 3/4" NPT 316 Stainless Steel Stopping Plug with Approvals |
| PDA-SSTAG | Stainless Steel Tag |
| PDA6848-SS | Pipe Mounting Kit Stainless Steel |

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