FlexVu® Explosion-Proof Universal Display Unit Model UD10

DESCRIPTION

The FlexVu® Model UD10 is recommended for applications that require a gas detector with digital readout of detected gas levels as well as analog 4–20 mA output with HART, relay contacts, and Modbus RS485. The UD10 is designed for use with Det-Tronics gas detectors such as GT3000, PIR9400, PIRECL, PIRECL CO_2, OPECL, C706x*, Model 505/CGS, CGS**, NTMOS, ATX100/AV10, PIRDUCT, or LS2000, as well as generic linear 4–20 mA sensors. The display unit is designed and approved as a "stand alone" device and performs all the functions of a gas controller.

Gas concentration and unit of measurement are indicated on a digital display. The display unit provides a linear isolated/non-isolated 4–20 mA DC output signal (with HART) that corresponds to the detected gas concentration.

All electronics are enclosed in an explosion-proof aluminum or stainless steel housing. The display unit is used with a single detector that may be either coupled directly to the UD10, or remotely located using a sensor termination box. The UD10 features non-intrusive calibration. A magnet is used to perform calibration as well as to navigate the UD10's internal menu.

The UD10 can be used with various 4–20 mA gas detection devices, with or without HART. The unit provides display, output, and control capabilities for the gas detector.

The UD10 utilizes the following I/O:

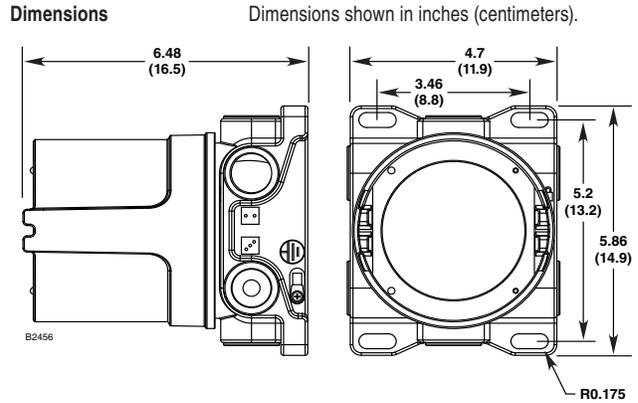|	
Signal Inputs:	4–20 mA loop from the sensing device
User Inputs:	Magnetic switches (4) on the display panel HART communication
Signal Outputs:	4–20 mA output loop with HART Modbus RS485 Three alarm relays and one fault relay
Visible Outputs:	Backlit LCD display HART slave interface via HART Communicator

FEATURES AND BENEFITS

▲ Universal design supports multiple Det-Tronics sensors or generic linear 4–20 mA sensors

▲ Local digital LCD display continuously indicates gas level, gas type, and units measured

▲ Backlit and heated display

▲ Non-intrusive calibration quickly performed by one person

▲ Rugged construction approved for use in classified hazardous areas

▲ Linear isolated/non-isolated 4–20 mA output with HART

▲ Non-intrusive menu allows device configuration without de-classifying the hazardous area

▲ Internal magnetic switches provide a non-intrusive user interface

▲ Smart capabilities with access to sensor information and measurement range

▲ Event logs: Calibration with date and time stamp

▲ Fault logs: Detector fault, Low power, and General fault

▲ Alarm logs: High gas alarm, Low gas alarm, and Aux alarm

▲ SIL2 models certified to IEC61508 by exida®

* C7065E O_2 detector is not supported.

** Requires the use of a CGS Interface Board. See Instruction Manual 95-8661 for details.

SPECIFICATIONS

Operating Voltage — 24 Vdc nominal, operating range is 18 to 30 Vdc.

Operating Power — Standard model, with heater and backlight off:

No alarm: 1.5 watts @ 24 Vdc.
Alarm: 3 watts @ 24 Vdc (20 mA current output and all 3 alarm relays energized).
Backlight on: 0.5 watt additional.
Heater on: 3.5 watts additional.
CGS model: Add 4 watts with CGS interface board and CGS sensor installed.

Maximum power in alarm, with heater and backlight on:
7 watts @ 30 Vdc (Standard model)
11 watts @ 30 Vdc (CGS model)

NOTES:
– Heater turns on when the internal temperature drops below –10°C. Heater function can be disabled to save power.

– Appropriate relays will be activated when a fault or alarm occurs.

Current Output — Linear isolated 4–20 mA output with HART. Maximum loop resistance 600 ohms at 18 to 30 Vdc.

Relay Contacts — Three Alarm Relays:
Form C, 5 amperes at 30 Vdc.
Selectable energized/de-energized.
Selectable latching/non-latching.

One Fault Relay:
Form C, 5 amperes at 30 Vdc.
Normally energized for no fault condition with power applied.

Operating Temperature — –55°C to +75°C.

Storage Temperature — –55°C to +75°C.

Humidity Range — 5 to 95% RH (Det-Tronics verified).

Wiring Terminals — 14 to 18 AWG, 2.5-0.75 mm^2 wire can be used.

Conduit Entries — 3/4" NPT or M25.

Enclosure Material — Epoxy coated aluminum or 316 stainless steel.

Shipping Weight — Aluminum: 4.15 pounds (1.88 kilograms).
Stainless Steel: 10.5 pounds (4.76 kilograms).

Warranty — 12 months from date of installation or 18 months from date of shipment, whichever occurs first.

Electro-Magnetic Compatibility — EMC Directive 2004/108/EC
EN55011 (Emissions)
EN50270 (Immunity).

Refer to Instruction Manual 95-8661 for in-depth information regarding the FlexVu UD10 Universal Display Unit.

Dimensions

Dimensions shown in inches (centimeters).

6.48 (16.5)   4.7 (11.9)   3.46 (8.8)   5.2 (13.2)   5.86 (14.9)   R0.175

B2456

Certification

FM: Class I, Div. 1, Groups B, C & D (T5);
Class I, Div. 2, Groups B, C & D (T4);
Class I, Zone 1/2 AEx d IIC (T5);
Class II/III, Div. 1/2, Groups E, F & G.
T_{amb} –50°C* to +75°C
NEMA/Type 4X, IP66
Conduit seal not required.

Performance verified in accordance with:
ANSI/ISA-92.00.01
ANSI/ISA-12.13.01 (CGS excluded)
FM 6310/6320
ANSI/ISA-12.13.04/FM 6325

CSA: CSA 08 2029512.
Class I, Div. 1, Groups B, C & D (T5);
Class I, Div. 2, Groups B, C & D (T4);
Class II/III, Div. 1/2, Groups E, F & G.
(T_{amb} = –55°C to +75°C)
Type 4X
Conduit seal not required.
Performance verified in accordance with:
CSA C22.2 #152.

ATEX: CE 0539 ⟨Ex⟩ II 2 G
Ex d IIC T5 Gb
T_{amb} –50°C* to +75°C
FM08ATEX0042X
IP66
Performance verified in accordance with:
EN 60079-29-1:2007 and EN 60079-29-4:2010

IECEx: Ex d IIC T5 Gb
T_{amb} –50°C* to +75°C
IECEx FMG 08.0010X
IP66
Performance verified in accordance with:
IEC 60079-29-1:2007

SIL: All safety certified UD10 models are SIL2 certified per IEC61508

*UD10 hazardous location and performance testing was successfully completed down to –55°C, however, the FM approved rating is limited to –50°C because there are no conduit fittings, cables, or cable glands that are presently listed for use below –50°C in the U.S. FM approvals policy does not allow product temperature ratings to exceed required installation components (such as conduit seals). The user must ensure that conduit fittings, cables, cable glands, etc., are rated for the expected minimum ambient temperature of the installation.

DET-TRONICS

Carrier