

## Intrinsically Safe Galvanic Isolators A3-UNIT Series

### CURRENT LOOP SUPPLY

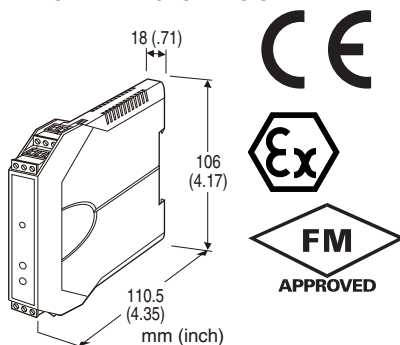
(HART communication)

#### Functions & Features

- Powers a 4 - 20 mA DC current loop
- Isolated intrinsically safe associated apparatus: no need of grounding
- Isolates and relays HART signals bidirectionally
- Shortcircuit protection
- Power LED

#### Typical Applications

- 2-wire HART transmitters



### MODEL: A3DYH-[1]A-R

### ORDERING INFORMATION

- Code number: A3DYH-[1]A-R

Specify a code from below for [1].

(e.g.: A3DYH-0A-R)

For the safety approval code 2, specify the product's destination country using Ordering Information Sheet (No. ESU-5971).

### [1] SAFETY APPROVAL

- 0: None
- 1: FM intrinsically safe
- 2: CENELEC intrinsic safety (ATEX)

### INPUT

#### Current

4 - 20 mA DC

### OUTPUT

#### Current

A: 4 - 20 mA DC

### POWER INPUT

#### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

### GENERAL SPECIFICATIONS

**Construction:** Stand-alone; terminal access at the front

**Connection:** Euro type connector terminal

**Housing material:** Flame-resistant resin (gray)

**Isolation:** Input to output to power

**Overrange output:** Approx. -10 to +110 %

**Zero adjustment:** -2 to +2 % (front)

**Span adjustment:** 98 to 102 % (front)

**Power indicator LED:** Green LED turns on while the power is supplied.

### SUPPLY OUTPUT

■ **SUPPLY OUTPUT** (across the terminals 1 - 2, 4 - 5)

**Output voltage:** Approx. 22 V DC with no load 14 V DC minimum at 20 mA.

A loop-powered device (e.g. indicator) through which the A3DYH supplies excitation voltage to a two-wire transmitter causes a certain voltage drop. Be sure that the voltage after the drop remains within the transmitter's operating range.

**Current rating:**  $\leq$  22 mA DC

- Shortcircuit Protection

**Current limited:** 30 mA max.

**Protected time duration:** No limit

### INPUT SPECIFICATIONS

■ **INPUT:** Input resistor incorporated.

Approx. 330 $\Omega$  as two-wire transmitter excitation supply;

approx. 45  $\Omega$  as isolator with 4 - 20 mA input

### OUTPUT SPECIFICATIONS

■ **LOAD RESISTANCE:** 550  $\Omega$  max. (230 min. required for HART communication)

### HART COMMUNICATION

**Frequency band:** 500 Hz - 5 kHz (within -3 dB)

**Communication directions:** Bidirectional

### INSTALLATION

**Power consumption**

- DC: Approx. 3 W

**Operating temperature:** -5 to +55°C (23 to 131°F)

**Operating humidity:** 0 to 95 %RH (non-condensing)

**Mounting:** DIN rail

**Weight:** 130 g (0.29 lb)



### PERFORMANCE in percentage of span

Accuracy:  $\pm 0.1\%$

Temp. coefficient:  $\pm 0.015\%/^{\circ}\text{C}$  ( $\pm 0.008\%/^{\circ}\text{F}$ )

Response time:  $\leq 0.1$  sec. (0 - 90 %)

Line voltage effect:  $\pm 0.1\%$  over voltage range

Insulation resistance:  $\geq 100\text{ M}\Omega$  with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute  
(input to output or power to ground)

500 V AC @ 1 minute (output to power)

### STANDARDS & APPROVALS

Refer to the manuals to comply with the standards.

#### CE conformity:

ATEX Directive (94/9/EC)(for ATEX intrinsic safety)

Ex ia EN 60079-11: 2012

Cat. 1G EN 60079-26: 2007

EMC Directive (2004/108/EC)

EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

#### Safety approval:

FM: Intrinsically safe associated apparatus

Class I, Div. 1, Groups A, B, C and D

Class II, Div. 1, Groups E, F and G

Class III, Div. 1

Class I, Zone 0, [AEx ia] IIC

(Class 3600: 1998)

(Class 3610: 2010)

(ANSI/ISA 60079-0: 2009)

(ANSI/ISA 60079-11: 2009)

CENELEC: Intrinsic safety associated apparatus (ATEX)

⊕ II (1)G, [Ex ia Ga] IIC

(EN 60079-0: 2012)

(EN 60079-11: 2012)

(EN 60079-26: 2007)



**HART COMMUNICATION**

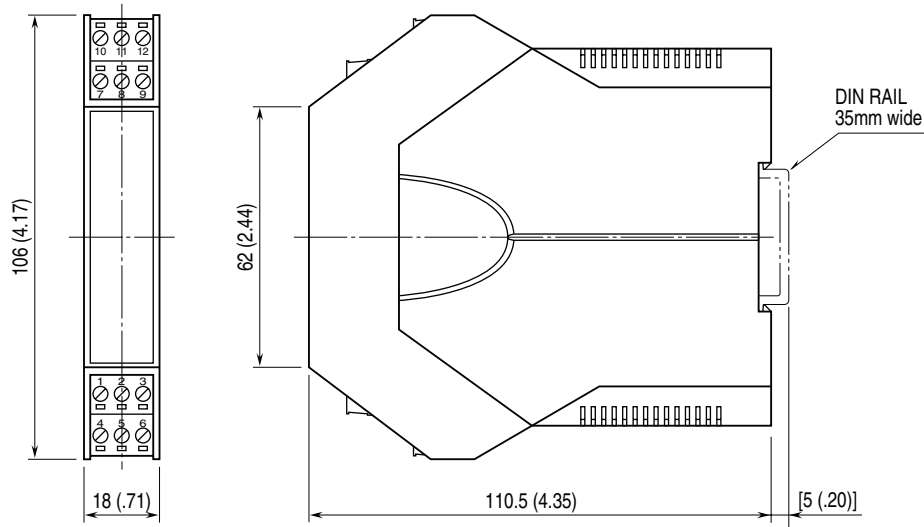
■ CENELEC (ATEX)

Terminal No.	Voltages, Currents and Powers	Group	Co [μF]	Lo [mH]	Lo / Ro [μH / Ω]	Ci [μF]	Li [μH]
1 or 4 to 2, 3 or 5	Uo = 26.25V Io = 88.4mA Po = 580mW	IIC	0.075	2.2	30	----	----
		IIB	0.650	16.2	220	----	----
		IIA	2.150	28.0	378	----	----
2 or 5 to 3	Uo = 1.1V Io = 45mA Po = 13mW	IIC, IIB or IIA	100	17.5	----	----	----
	Ui = 30V Ii = 250mA Pi = 1W	IIC, IIB or IIA	----	----	----	0	0
7 to 8 and 11 to 12	Um = 250Vrms				----		

■ FM

Terminal No.	Voltages, Currents and Powers	Group (NEC 500)	Group (C 505)	Ca (Co) [mH]	La (Lo) [μH / Ω]	La / Ra (Lo / Ro) [mH]
1 or 4 to 2, 3 or 5	Voc (Uo) = 27.5V Isc (Io) = 93mA Po = 640mW	A or B	IIC	0.075	4	54
		C or E	IIB	0.65	16.2	220
		D, F or G	IIA	2.15	32.5	442
2 or 5 to 3	Voc (Uo) = 1.1V Isc (Io) = 45mA Po = 13mW	A, B, C, D E, F or G	IIC, IIB or IIA	100	18	----
7 to 8 and 11 to 12	Um = 250Vrms				----	

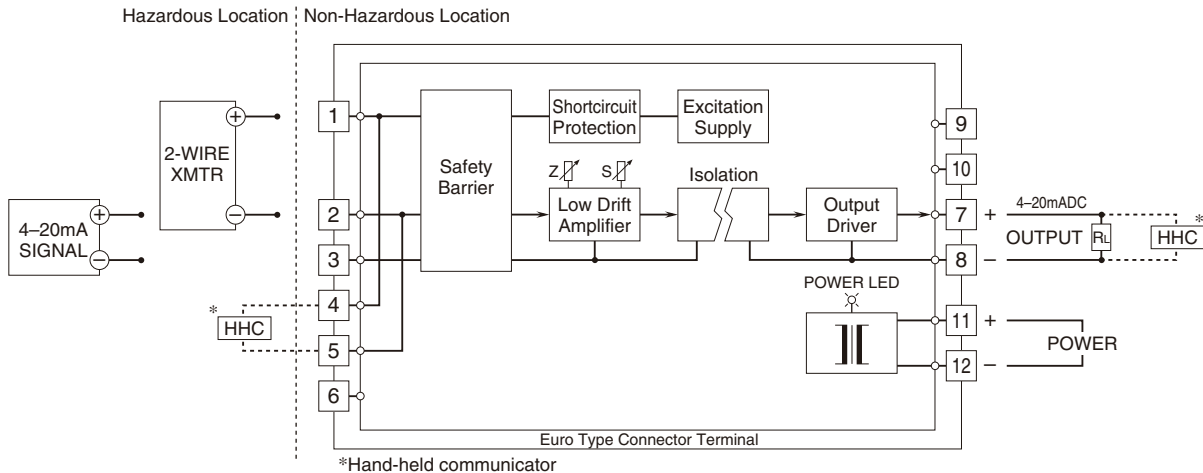
**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)**



• When mounting, no extra space is needed between units.



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.

