

Intrinsically Safe Galvanic Isolators A3-UNIT Series

CURRENT LOOP SUPPLY

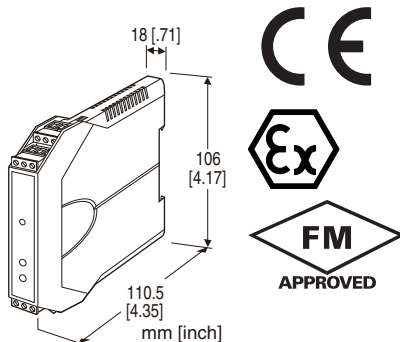
(HART communication)

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: ATEX intrinsic safety

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
 (applicable wire size: 0.2 to 2.5 mm², stripped length 8 mm)
Housing material: Flame-resistant resin (gray)
Isolation: Input to output to power
Ovrange 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 Ω as two-wire transmitter excitation supply;
 approx. 45 Ω as isolator with 4 - 20 mA input

OUTPUT SPECIFICATIONS

■ **LOAD RESISTANCE:** 550 Ω 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: ≤ 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.

EU conformity:

ATEX Directive (for ATEX intrinsic safety)

Ex ia EN 60079-11

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

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)

(Class 3610)

(ANSI/ISA 60079-0)

(ANSI/ISA 60079-11)

ATEX: Intrinsic safety associated apparatus

⊕ II (1) G, [Ex ia Ga] IIC

(EN 60079-0)

(EN 60079-11)

HART COMMUNICATION

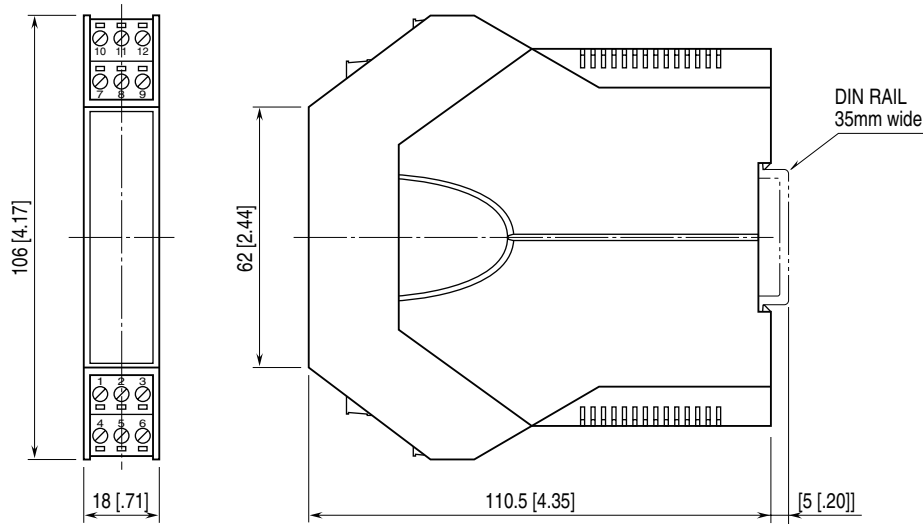
■ ATEX

Terminal No.	Voltages, Currents and Powers	Group	Co [μF]	Lo [mH]	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	----	----
		IIB	0.650	16.2	----	----
		IIA	2.150	28.0	----	----
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

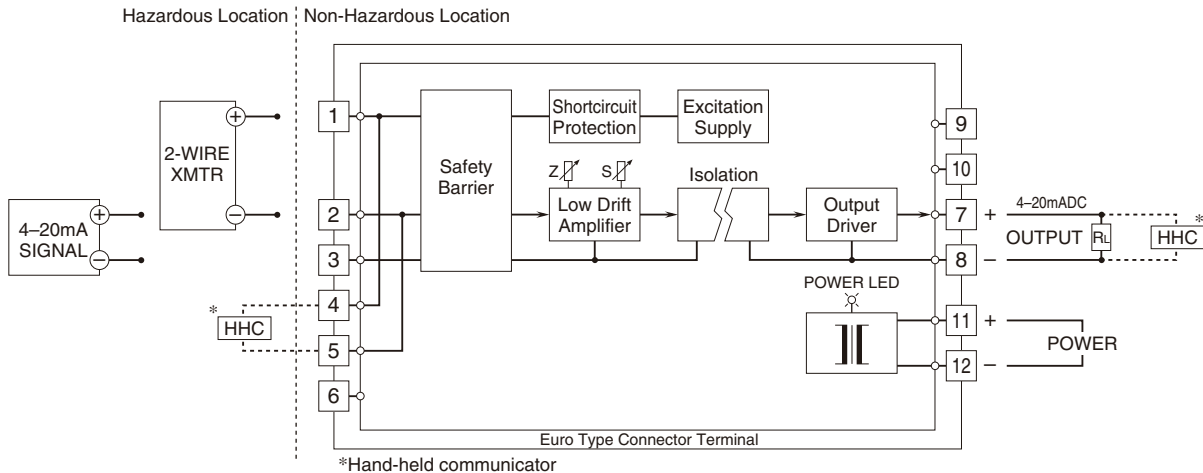
Terminal No.	Voltages, Currents and Powers	Group (NEC 500)	Group (NEC 505)	Ca (Co) [μF]	La (Lo) [mH]	La / Ra (Lo / Ro) [μH / Ω]
1 or 4 to 2, 3 or 5	Voc (Uo) = 27.5V Isc (Io) = 93mA Po = 640mW	A or B	IIC	0.075	4	54
		C or E	IIB	0.65	16.2	220
		D, F or G	IIA	2.15	32.5	442
2 or 5 to 3	Voc (Uo) = 1.1V Isc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