Intrinsically Safe Galvanic Isolators A3-UNIT Series

CURRENT LOOP SUPPLY

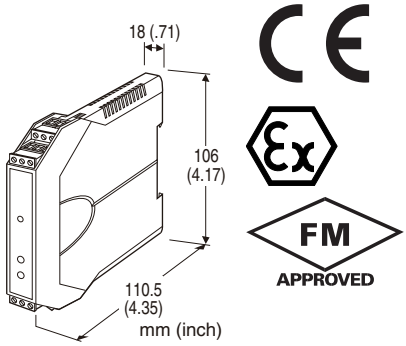
(HART communication)

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 ±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 mm^2, stripped length: 8 mm)
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: ≤ 22 mA DC
• Shortcircuit Protection
Current limited: 30 mA max.
Protected time duration: No limit

INPUT SPECIFICATIONS

■ INPUT: Input resistor incorporated.
Approx. 330Ω 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: ±0.1 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: ≤ 0.1 sec. (0 – 90 %)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ 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
EN 50581
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)
CENELEC: Intrinsic safety associated apparatus (ATEX)
Ⓔx II (1) G, [Ex ia Ga] IIC
(EN 60079-0)
(EN 60079-11)

HART COMMUNICATION

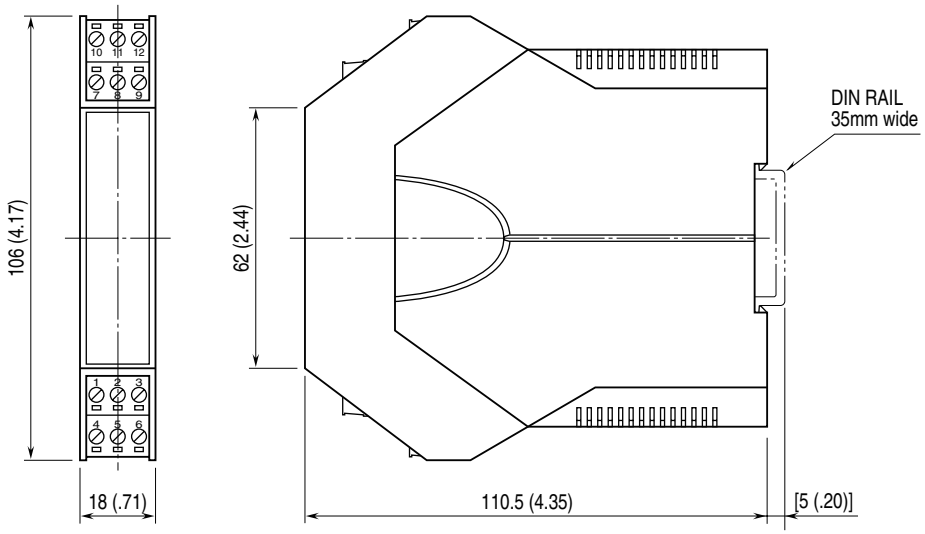
■ **CENELEC (ATEX)**

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**

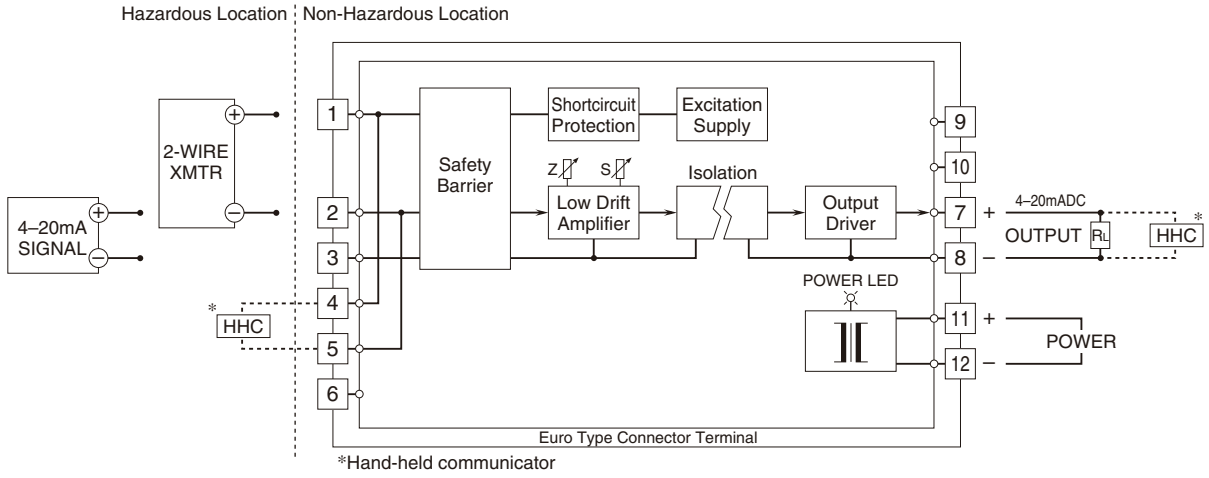
Terminal No.	Voltages, Currents and Powers	Group (NEC 500)	Group (NEC 505)	Ca (Co) [µF]	La (Lo) [mH]	La / Ra (Lo / Ro) [µH / Ω]
1 or 4 to 2, 3 or 5	Voc (Uo) = 27.5V Isc (Io) = 93mA Po = 640mW	A or B	IIC	0.075	4	54
		C or E	IIB	0.65	16.2	220
		D, F or G	IIA	2.15	32.5	442
2 or 5 to 3	Voc (Uo) = 1.1V Isc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