Dinel®

Isolating repeater IRU-420

Features

- **universal intrinsically safe isolating repeater of current signals 0/4 ÷ 20 mA with 0,07 % accuracy and with option voltage output 0 ÷ 10 V**
- **galvanic separation input and output signal**
- **for supply sensors with output 0/4 ÷ 20 mA e.g. CLM-36Xi, ULM-55Xi etc. in explosive area up to zone 0 (acc. to EN 60079-10)**
- **option bi-directional transmission of communication signal HART®**
- **classification of explosive-proof performance**
  Ex II (1)G [EEx ia] IIB / IIC
  Ex I (M1) [EEx ia] I
- **instalation on DIN rail 35 mm**
- **variants for 24V and 230V**

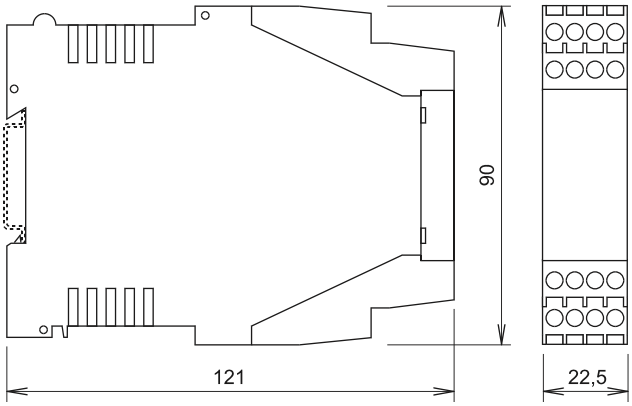
Description

Universal intrinsically safe isolating repeater IRU-420 is designed for supply transducers of physical value (sensors) in explosive areas and for conversion of input signal 0/4 ÷ 20 mA to output signal. Galvanic separation of current signal 0/4 ÷ 20 mA from transducer in explosive area to transducer in non-explosive area.

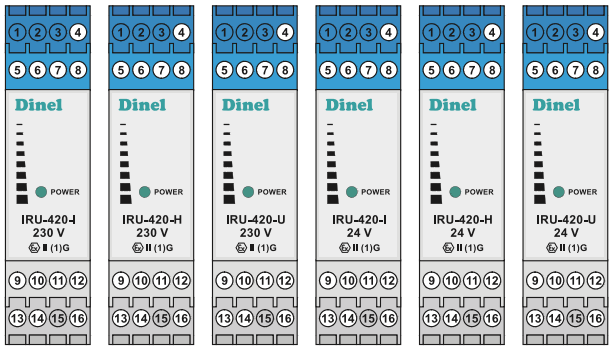
Variants:

IRU - 420 - I - convert's signal 0/4 ÷ 20 mA to 0/4 ÷ 20 mA
IRU - 420 - H - convert's signal 4 ÷ 20 mA to 4 ÷ 20 mA and bi-directional transmission of HART® communication signal
IRU - 420 - U - convert's signal 4 ÷ 20 mA to 0 ÷ 10V

Dimension drawing



Front view and LED function



Green LED **"POWER"**
- on - connected with power supply, correct function
- off - output terminals 9 and 11 are overload
- internal failure

List of all variants

variants 24 V
IRU-420-I-24V
IRU-420-H-24V
IRU-420-U-24V

variants 230 V
IRU-420-I-230V
IRU-420-H-230V
IRU-420-U-230V

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Input signal	0/4 ÷ 20 mA	4 ÷ 20 mA	4 ÷ 20 mA
Output signal	0/4 ÷ 20 mA	4 ÷ 20 mA	0 ÷ 10 V
Bi-directional transmission communication signal HART®	NO	YES	NO
Nominal supply voltage: variant 230 V variant 24 V	60 ÷ 230 V AC / 50 ÷ 60 Hz, 85 ÷ 230 V DC (+10 %) 18 ÷ 30 V AC / 50 ÷ 60 Hz, 18 ÷ 40 V DC (+10 %)		
Nominal power demand: variant 230 V variant 24 V	7 VA 4 W		
Voltage on active input (terminals 5 and 6)	typ. 24,1 V DC (0 mA) / min. 18V DC (20 mA)		
Output auxiliary voltage (terminals 9 and 11)	24 V DC (max. 25 mA)		
Linearity	≤ 0,05 % (4 ÷ 20 mA) / ≤ 0,07 % (0 ÷ 20 mA)		≤ 0,05 %
Temperature error	≤ 0,05 % / 10 K		
Allowed short circuit time (input and output)	unlimited (short on output is indicated by off LED)		
Ambient temperature	-20 to +60 °C		
Protection class	IP 20		
Weight	ca. 0,2 kg		
Housing material	polycarbonate		
Material of terminals	CuBe		
Max. conductor size	1 x 2,5 mm^2		
Isolating voltage: main terminals / input + output	3,5 kV		
Isolating voltage: input / output	3,5 kV		

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Classification	Limiting parameters of instrinsically safe circuit	
	Active input - terminals 5 and 6	Passive input - terminals 6 and 7
	U_o=27,3 V, I_o=93 mA, P_o=0,64 W, C_o=86 nF, L_o=2 mH U_o=27,3 V, I_o=93 mA, P_o=0,64 W, C_o=0,68 μF, L_o=8 mH U_o=27,3 V, I_o=93 mA, P_o=0,64 W, C_o=1,0 μF, L_o=10 mH	U_i=28 V, I_i=93 mA, P_i=0,8 W, C_i~0 μF, L_i~0 mH

Maximum voltage which can be connected on terminals 9 to 16 without failure of intrinsically safe: U_m= 253 V

Isolating repeater is equipped with protection against input and output current overload.
Working areas acc. to EN 60079-10 - non-explosive, or installation in flameproof enclosure "d".
Connection to supply can be only through fuse or overcurrent circuit breaker - max. 16 A.
Unit is sheltered by fuse T80 mA (variant 230 V) and T500 mA (variant 24 V).
Electrical equipment of protection group II.
Electrical safety according to EN 61010 - 1.
EMC according to EN 55022, EN 61326, EN 61000-6-2, EN 61000-4-2, -3, -4, -5, -6, -11.
Intrinsically safety according to EN 50014 and EN 50020.

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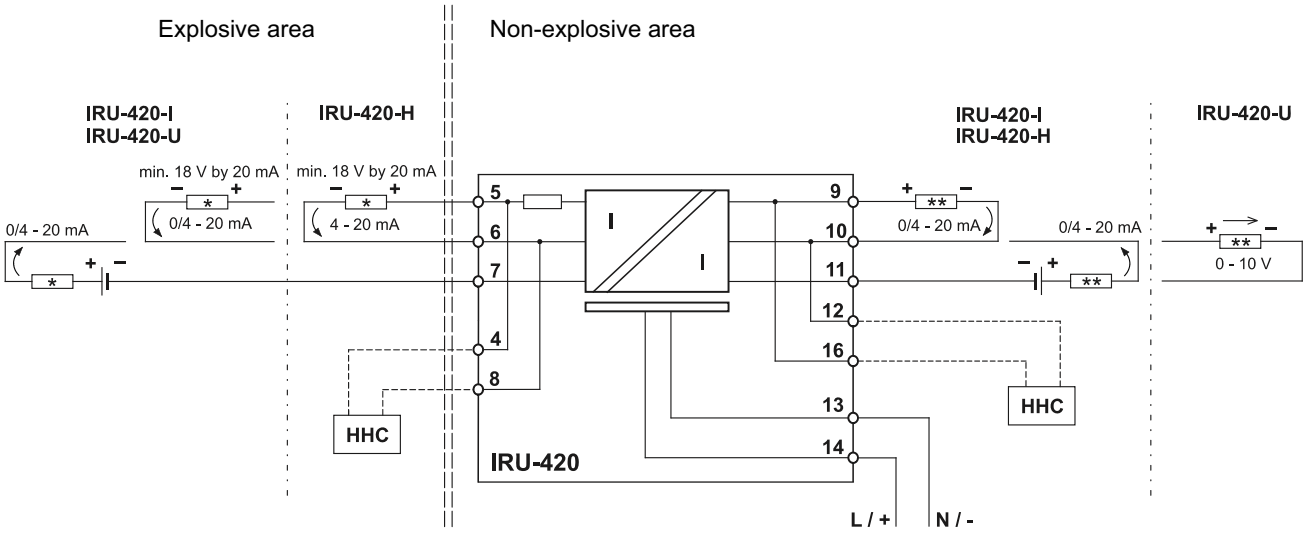

variant : 60 ÷ 230 V AC / 50 ÷ 60 Hz, 85 ÷ 230 V DC
variant : 18 ÷ 30 V AC / 50 ÷ 60 Hz, 18 ÷ 40 V DC

Notes:

HHC - Hand-held communicator (communicator HART®).
Only for variant IRU-420-H.

* - Device in explosive area with output signal 0/4 ÷ 20 mA
(two-wire intrinsically safe level meters, e.g. ULM-55Xi, CLM-36Xi, etc.).
IRU-420-U only convert signal 4 ÷ 20 mA to 0 ÷ 10 V.

** - Output devices (e.g. programmable display unit PDU, analog input PLC etc.).
For bi-directional transmission HART® communication signal,the loop's resistance must be min. 250 Ω.
For variant with voltage output, the device resistance must be min. 500 Ω.

HART® is registered mark of HART Communication Foundation