



MultiCONT PR-100

UNIVERSAL DISPLAY AND CONTROLLER



ABOUT MULTICONT

MultiCONT PR-100 series is first of all a controller and display capable to accomplish complex control tasks by itself.

Further it is a "Master" for Nivelco made smart transmitters as well as a universal interface between field devices with HART and other components of the process control system such as PC, PLC, displays and different actuators.

MultiCONT PR-100 unit supports communication with a maximum of 15 Nivelco 2- and/or 4-wire transmitters with HART. Remote programming of the transmitters, downloading the parameter set to the field unit and uploading the measured values are routine tasks for the MultiCONT. The large Dot-Matrix LCD panel facilitate a wide variety of display functions including tank content visualisation.

As a unique feature the MultiCONT can communicate with transmitters of mixed measuring technologies connected to the same multidrop system.

The MultiCONT is cost efficient as controller of a single transmitter (even with simple 4 ... 20 mA output) but it reaches unparalleled cost/channel ratio at its maximum configuration as a server for 15 transmitters.


- ◆ 1 ... 15 channel versions
- ◆ Remote programming of field devices
- ◆ Graphic display
- ◆ HART interface input
- ◆ Transmitter power supply
- ◆ Galvanic isolation
- ◆ IP65
- ◆ 4 ... 20 mA and relay outputs
- ◆ ATEX certified versions
- ◆ RS 485

MultiCONT PR-100Ex provides for the power supply of the Ex type 2-wire Nivelco transmitters in the hazardous areas and displays measurement values. Located outside of the hazardous space intrinsically safe version of the MultiCONT supports a multidrop system with a maximum of 4 field devices. MultiCONT may contain 2 programmable analogue output with 4 ... 20 mA, 4 relays programmable for different functions and RS485 user's interface.

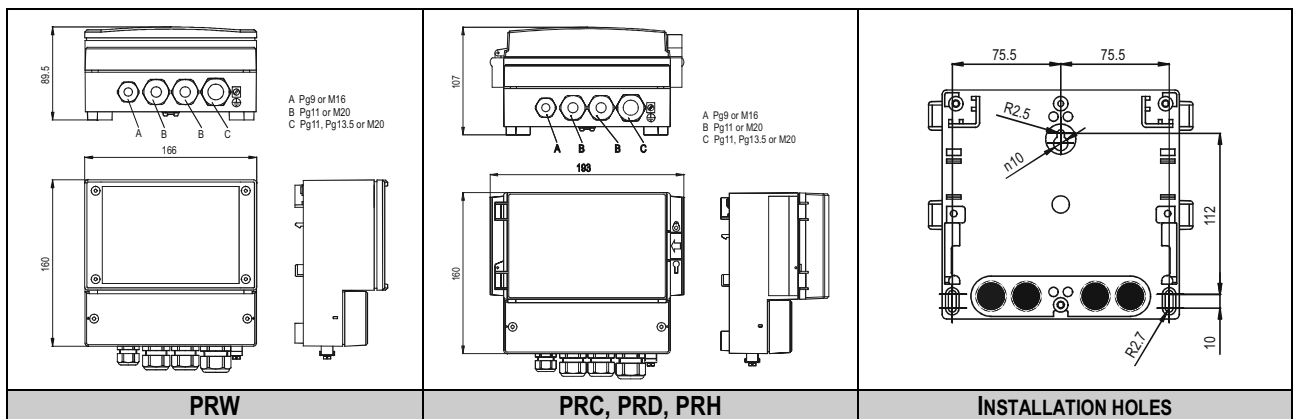
Another RS485 interface of the basic unit provides for communication between the (wall mounted) extension modules. These modules (under development) are as below:

- Relay module
- Analogue current output module
- Combined module (relays and current outputs)
- LAN and GSM module

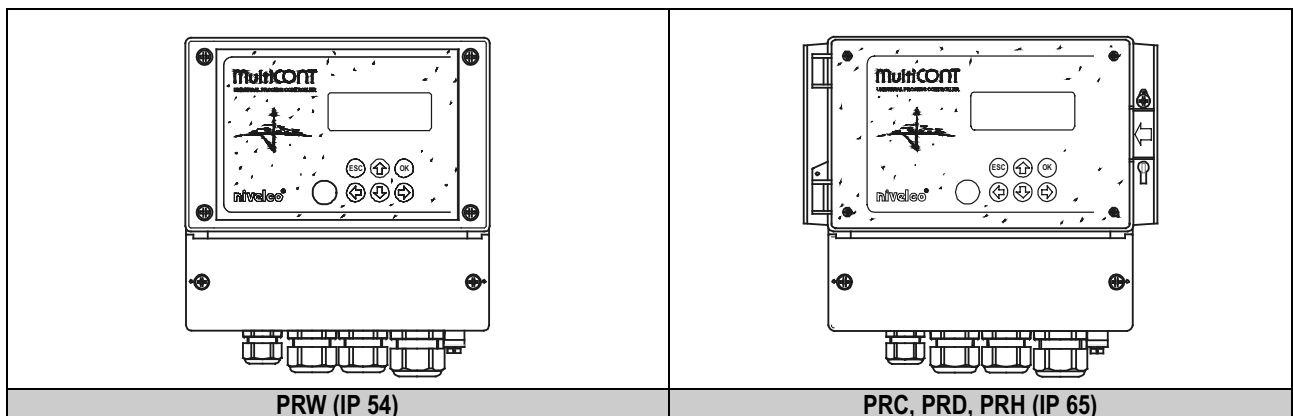
TECHNICAL DATA

TYPE		MultiCONT PR-100
Installation		Wall mounting
Ambient temperature	PRC, PRD, PRW	-20 °C ... +50 °C
	PRH	-30 °C ... +50 °C
Output	Transmitter power supply	25 V DC 60 mA, for Ex version 22 mA
	Display	120 x 32 Dot-matrix
	Analogue	Max. 2 x 4 ... 20 mA, galvanically isolated max load 500 ohm, over-voltage protection (isolation voltage 1000 V)
	Relay	Max. 4 x SPDT 250 V AC ; AC1, 5 A
	RS 485 interface	Galvanically isolated (isolation voltage 1000 V) MODBUS protocol
	HART	$U_s = 26,5$ V DC ($U_s = 25,8 \dots 26,2$ V DC Ex) 60 mA for 2-wire transmitters HART output signal level $0,5 \pm 0,1$ V _{pp} trapezoid 1200 / 2200 Hz Input resistance 255 Ohm. Cable max.75 Ohm, max. 225nF
Cables	Power, relays, analogue 4 ... 20 mA	0,5 ... 2,5 mm ² core cross section
	RS 485 interface	Shielded, twisted cable pair, cross section: 0,5 ... 2,5 mm ²
	HART cabling	Below 1500 m Shielded, twisted cable pair; cross section: 0,5 ... 2,5 mm ² Over 1500 m Two shielded, twisted cable
Number of field devices		15 ordinary or maximum 4 Ex
Power supply / consumption / maximum voltage		85 ... 255 V AC 50 ... 60 Hz / 12 VA / 255 V _{eff} 10,5 ... 28 V AC 50 ... 60 Hz / 12 VA / 28 V _{eff} 10,5 ... 40 V DC / 11 W / 40 V DC
Housing material		Polycarbonate (PC)
Ingress protection		IP54 with the model PRW and IP65 with the models PRC, PRD and PRH
Ex marking		 II (1) G [EEx] ia IIB
Intrinsical safety data		$U_{0max} = 30$ V $I_{max} = 140$ mA $P_{max} = 1$ W $L_{max} = 30$ mH $C_{max} = 300$ nF
Electric protection		Class II
Devices to be connected		max. 15 ordinary transmitters; max. 4 Ex transmitters
Mass		0,9 kg

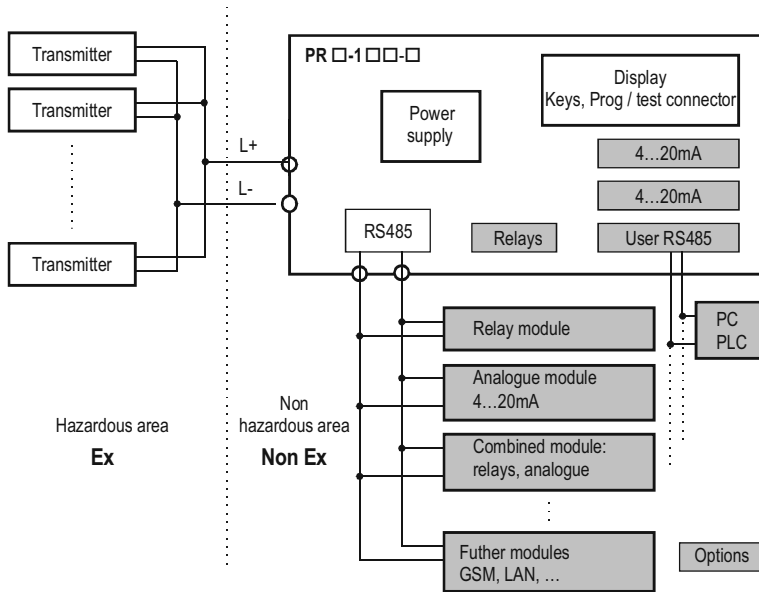
DIMENSIONS



FRONT PANEL



BLOCK DIAGRAM OF THE UNIT



The MultiCONT is accommodated in an IP 54 plastic box. If ordered with transparent lockable door its ingress protection will be upgraded to IP65. Due to its modular design configuring the unit to given application is simple by adding the following modules to the basic set-up:

- RS 485 interface*
 - HART interface
 - Relay module*
 - Current generator module*
- *under development*

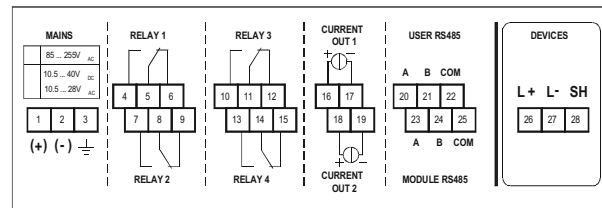
WIRING

CARRYING OUT WIRING

- After loosening threads and removing cover of the unit cables can be connected.
- The same cable must not be used for AC and DC, as well as Selv voltage and main voltage.
- Transmitters should be connected with shielded twisted cable pair. The length of the cable is depending on the number of transmitters and technical data of the cable.

NUMBER OF Tx-S	CABLE CAPACITY (pF / m)			
	65	95	160	225
1	2800	2000	1300	1000
5	2500	1800	1100	900
10	2200	1600	1000	800
15	1850	1400	900	700

ARRANGEMENT OF THE SCREW TERMINAL



Shielding of the interconnecting cable between the transmitter and the controller should be connected to the relevant screw of the terminal.

Intrinsically safe (Ex) transmitters should be connected through the terminals L+, L- to the controller. These points are galvanically isolated from the other parts of the electronics and the power supply for the Ex transmitter are current, voltage and power limited.

APPLICATION

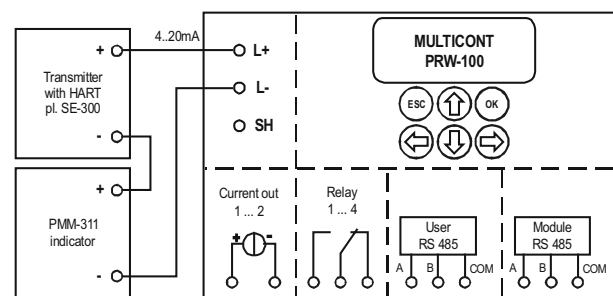
MULTICONT display and control unit working as a "MASTER" in HART surrounding is supporting 1 ... 15 field devices. In multidrop systems with more than one slave, units should be addressed. In accordance with HART standard this involves the limitation of the current to 4 mA.

This constraint may be subject to overwriting by programming of some transmitters.

Therefore with design of the system the total power consumption of the loop (60 mA with standard and 22 mA with Ex) should be taken into consideration.

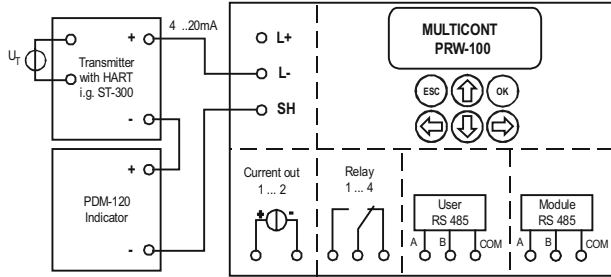
2-WIRE TRANSMITTER

Measurement values displayed on site and in the control room



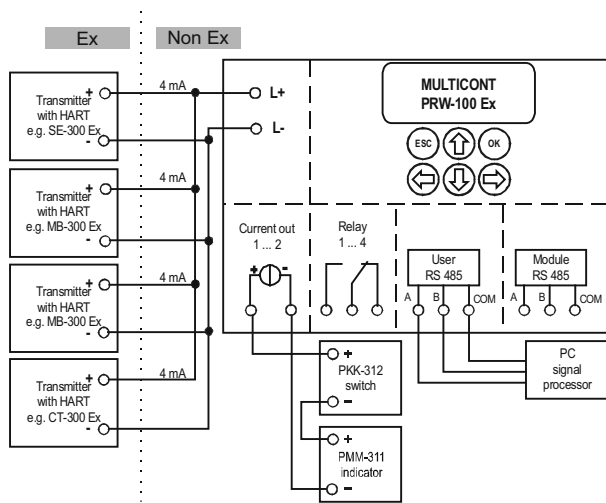
THE 4-WIRE TRANSMITTER

Measurement values displayed on site and in the control room



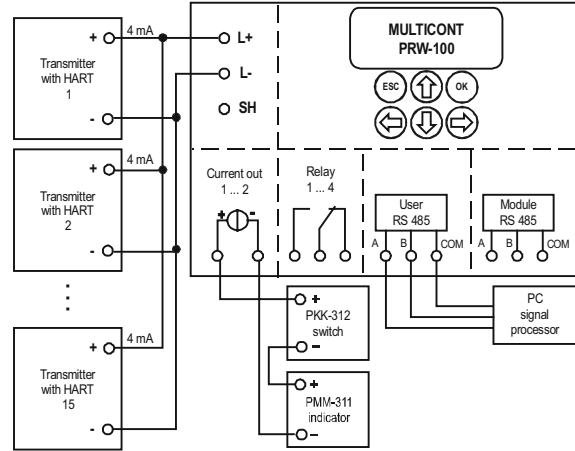
2-WIRE TRANSMITTER

Current output fixed to 4 mA



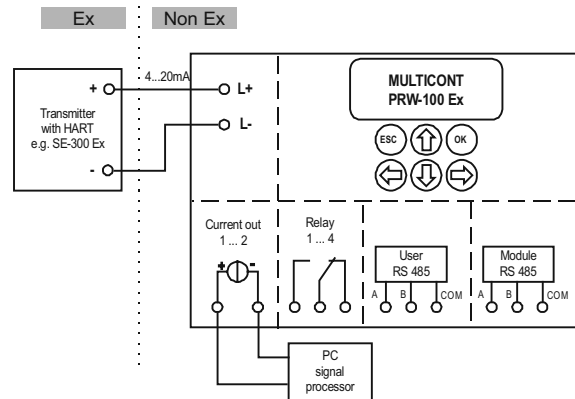
MAX. 15 ORDINARY (NOT Ex) TRANSMITTERS

Current output fixed to 4 mA.



GALVANICAL SEPARATION OF THE 2-WIRE TRANSMITTER

Connection to the PLC



ORDER CODE

Multicont P - 1 -

EXTENSION	CODE	ENCLOSURE	CODE	INPUT (Tx WITH HART)	CODE	OUTPUT	CODE	POWER SUPPLY	CODE
Standard	R	IP 54 box	W	1	1	Display only	0	85 ... 255 V AC	1
Not extendable	E	box+transp. cover IP 65	C	2	2	1 relay	1	24 V AC / DC	2
		box+ lockable cover IP 65	D	4	4	2 relay	2	EX VERSIONS	
		IP 65 box + transp. cover + heating	H	8	8	3 relay	3	85 ... 255 V AC Ex	5
				15	M	4 relay	4	24 V AC / DC Ex	6
						1 relay + 1x 4 ... 20 mA analogue output	5		
						2 relay + 1x 4 ... 20 mA analogue output	6		
						3 relay + 1x 4 ... 20 mA analogue output	7		
						4 relay + 1x 4 ... 20 mA analogue output	8		
						4 relay + 2x 4 ... 20 mA analogue output	9		
						RS 485 interface	A		
						Internet communication	B		
						GSM communication	C		