

Quick Start Manual



Read the user's manual carefully before starting to use the unit or software. Producer reserves the right to implement changes without prior notice.

Symbol Explanation



This symbol denotes especially important guidelines concerning the installation and operation of the device. Not complying with the guidelines denoted by this symbol may cause an accident, damage or equipment destruction.

Basic Requirements | User Safety



- Do not use the unit in areas threatened with excessive shocks, vibrations, dust, humidity, corrosive gasses and oils.
- Do not use the unit in areas where there is risk of explosions.
- Do not use the unit in areas with significant temperature variations, exposure to condensation or ice.
- The manufacturer is not responsible for any damages caused by inappropriate installation, not maintaining the proper environmental conditions and using the unit contrary to its assignment.
- If in the case of a unit malfunction there is a risk of a serious threat to the safety of people or property additional, independent systems and solutions to prevent such a threat must be used.
- The unit uses dangerous voltage that can cause a lethal accident. The unit must be switched off and disconnected from the power supply prior to starting installation of troubleshooting (in the case of malfunction).
- Do not attempt to disassemble, repair or modify the unit yourself. The unit has no user serviceable parts.
- Defective units must be disconnected and submitted for repairs at an authorized service center.

Specifications

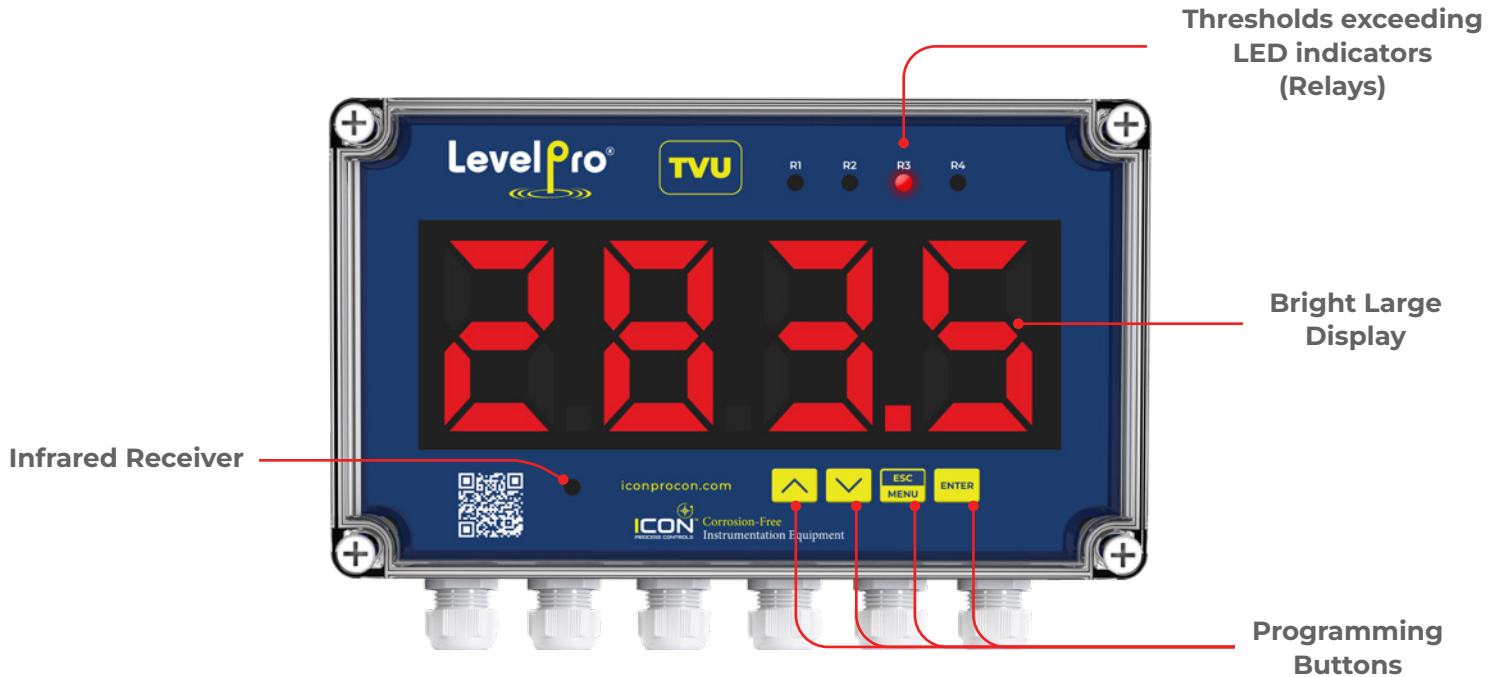
General	
Display	LED 4 x 57mm High Adjustable Color Adjustable Brightness
Displayed Values	-999 ± 9999
Stability	50 ppm °C
Transmission Parameters	1200...115200 bit/s, 8N1 / 8N2
Protection Class	NEMA 4X IP67
Input Signal Supply	
Standard	4-20mA 0-10V 0-150mV RTD
Voltage	85 - 260V AC/DC 16 - 35V AC, 19 - 50VDC*
Output Signal Supply	
Standard	4 x Relays (5A) 2 x Relay (5A) + 4-20mA
Voltage	24VDC
Passive current output*	4-20mA (Operating Range Max. 2.8 - 24mA)
Performance	
Accuracy	0.1% @ 25°C One Digit
Temperatures	
Operating Temperatures	-40 - 158°F -40 - 70°C
Materials Wetted	
Housing	Polycarbonate

* optional

Model Selection

TVU — Universal Multi-Color LED Display		
Part Number	Input	Output
TVU-1421	4-20mA	4 Relay
TVU-1429	4-20mA	4-20mA + 2 Relay

Front Panel Description



Function of Push Buttons



Symbol used in the manual : [ESC/MENU]

Functions:

- Enter to main menu (press and hold for at least 2 sec.)
- Exit the current Screen and Enter to previous menu (or measure mode)
- Cancel the changes made in parameter being edited



Symbol used in the manual : [ENTER]

Functions:

- Start to edit the parameter
- Enter into the sub-menu
- Confirmation of changes made in parameter being edited



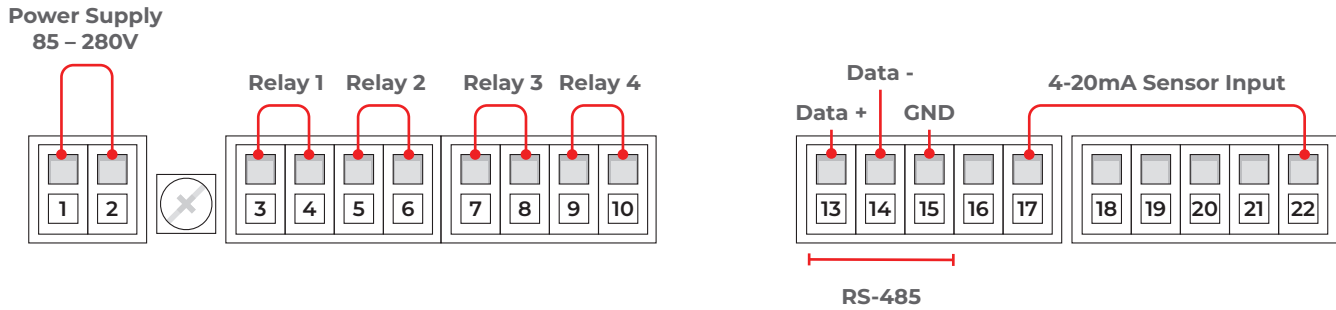
Symbol used in the manual : [^] [v]

Functions:

- Change of the present menu
- Modification of the parameter value
- Change of the display mode

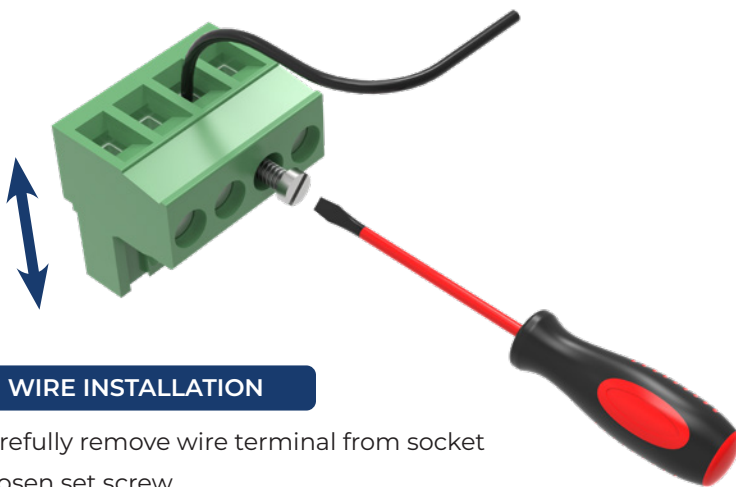
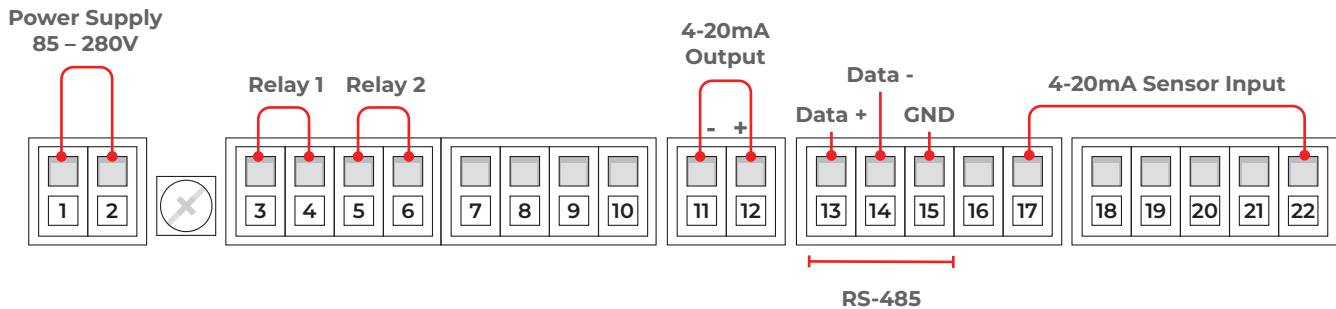
Wiring Diagram

4 RELAY CONFIGURATION



2 RELAY CONFIGURATION

One 4-20mA OUTPUT



WIRE INSTALLATION

- Carefully remove wire terminal from socket
- Loosen set screw
- Insert wire
- Tighten set screw
- Replace wire terminal into socket
































Due to possible significant interference in industrial installations, appropriate measures assuring correct operation of the unit must be applied.

The unit is not equipped with an internal fuse or power supply circuit breaker.































For this reason, an external time-delay cut-out fuse with a small nominal current value must be used (recommended bipolar, max. 2A) and a power supply circuitbreaker located near the unit.

In the case of using a monopolar fuse it must be mounted on the phase cable.

Programming 4-20mA Input

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  ✓ 5x		RELAY 1 Settings
3 Input  ENTER		INPUT Menu
4 Type  ✓ 4x		INPUT Type
5 Low C 4mA  ENTER		Enter LOW C 4mA Std = 0
6 Set 4mA Value  ENTER 2 SEC		Press  or  to change digit Press  to advance to next digit
7 Save Value  ENTER + 		SAVE SELECTION and advance to High C
8 High C 20mA  ENTER		Enter HIGH C 20mA
9 Set 20mA Value  ENTER 2 SEC		Press  or  to change digit Press  to advance to next digit
10 Save Value  ENTER		SAVE SELECTION
11 Return to Main Display  ESC MENU 2x		Return to MAIN DISPLAY

Programming 4-20mA Output

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  6x		RELAY 1 Settings
3 Output  ENTER		OUTPUT MENU
4 Output Mode 		OUTPUT MODE
5 Output Low  ENTER		Enter OUTPUT LOW 4mA Std = 0
6 Set 4mA Value  ENTER 2 SEC		Press  or  to change digit Press  to advance to next digit
7 Save Value  ENTER + 		Save Selection and advance to Output High
8 Output High  ENTER		Enter OUTPUT High 20mA
9 Set 20mA Value  ENTER 2 SEC		Press  or  to change digit Press  to advance to next digit
10 Save Value  ENTER + 		SAVE SELECTION
11 Return to Main Display  ESC MENU 2x		Return to MAIN DISPLAY

Calculating 4-20mA Input

Sensor Type	20mA Set Point
Submersible	Range of sensor / Specific Gravity = 20mA (for inches)
Ultrasonic	Tank Height
Radar	Tank Height

Programming Relays

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  ENTER		RELAY 1 Settings
3 Output  ENTER		OUTPUT MENU
4 Set Relay Value  ENTER 2 SEC		Press  or  to change digit Press ENTER to advance to next digit
5 Save Value  ENTER + 		Save Selection and advance to Hysterisis
6 Set Hysterisis  ENTER		Hysterisis Settings
7 Save Value  ENTER 2 SEC		Press  or  to change digit Press ENTER to advance to next digit
8 Return to Main Display  ENTER		Save Selection
8 Return to Main Display  ESC MENU 2x		Press  Button (2x) (Home Screen Current Level Reading appears on display)

Programming Display Color

STEPS	DISPLAY	OPERATION
1 Main Display ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1 7x		RELAY 1 Settings
3 Color Menu ENTER		COLOR MENU
4 Standard Color ENTER +		STANDARD COLOR
5 Select Color ENTER 2 SEC		SELECT COLOR Press or to change digit <i>(display color will change with each different value 1-9)</i>
6 Save Value ENTER +		SAVE SELECTION and advance to relay color selection
7 Relay 1 Color ENTER +		RELAY 1 COLOR
8 Select Color ENTER 2 SEC		SELECT COLOR Press or to change digit <i>(display color will change with each different value 1-9)</i>
9 Save Value ENTER +		SAVE SELECTION and advance to relay color selection Press to select next relay <i>Repeat steps 7-8 for each relay color</i>
10 Return to Main Display ESC MENU 2x		Press Button (2x) <i>(Home Screen Current Level Reading appears on display)</i>

Selected colour proportions

Color Number	Red [%]	Green [%]	Color Number	Red [%]	Green [%]	Color Number	Red [%]	Green [%]
coL1	100	0	coL4	62.5	37.5	coL7	25	75
coL2	87.5	12.5	coL5	50	50	coL8	12.5	87.5
coL3	75	25	coL6	37.5	62.5	coL9	0	100