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LevelPro TVU Series Universal Multi Color Display Controller

LevelPro TVU Series Universal Multi Color Display Controller Instruction Manual

Contents

LevelPro

LevelPro TVU Series Universal Multi Color Display Controller

Specifications

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    - Part Number TVU-1421 TVU-1429
    - Input: 4-20mA 4-20mA
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    - * optional

Product Usage Instructions

Front Panel Description

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- Infrared Receiver
- Bright Large Display
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- ○ Symbol used in the manual : [ESC/MENU]
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LevelPro® — TVU Series
Universal Multi-Color Display | Controller

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

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

Thresholds exceeding LED indicators (Relays)

Bright Large Display

Infrared Receiver

Programming Buttons

Function of Push Buttons

ESC MENU

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

ENTER

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

Power Supply 85 – 280V

			Relay 1		Relay 2		Relay 3		Relay 4	

1 2 | 3 4 | 5 6 | 7 8 | 9 10

Data + **Data -** **GND** | **4-20mA Sensor Input**

13 14 15 16 17 | 18 19 20 21 22

RS-485
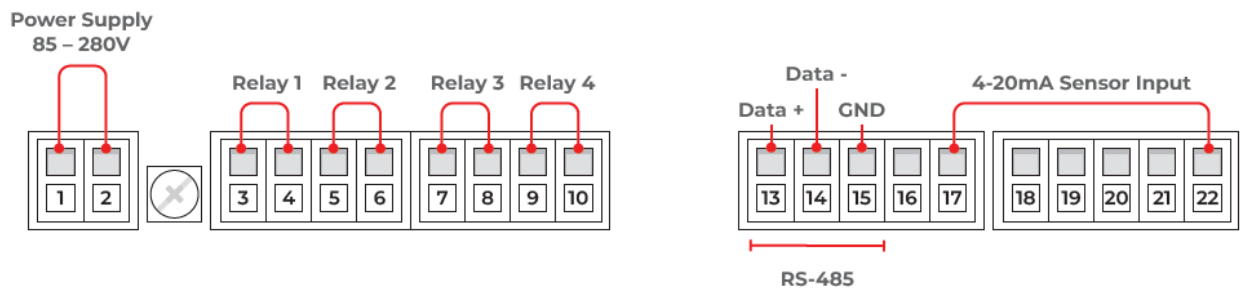
2 RELAY CONFIGURATION
One 4-20mA OUTPUT

Power Supply 85 – 280V

Relay 1 Relay 2

1 2 | 3 4 | 5 6 | 7 8 9 10

4-20mA Output - +

11 12

Data + **Data -** **GND** | **4-20mA Sensor Input**

13 14 15 16 17 | 18 19 20 21 22

RS-485
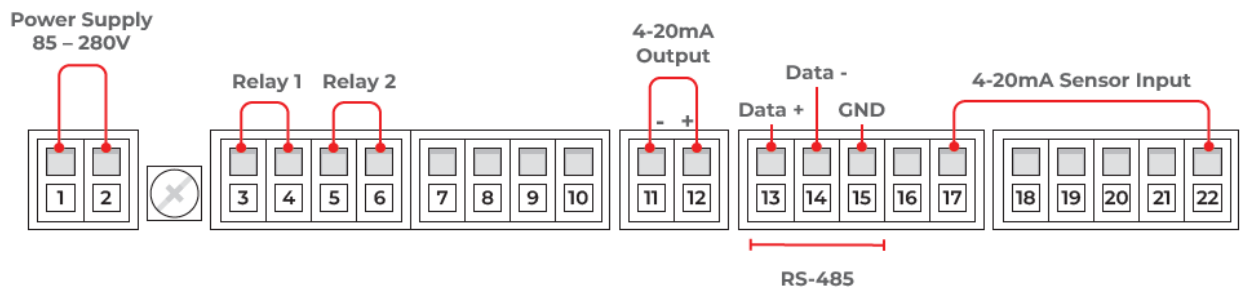
WIRE INSTALLATION

- 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	000.0	**MAIN DISPLAY**
2 Relay 1 ▸ ⌄ 5x	rEL.1	**RELAY 1** Settings
3 Input ▸ ENTER	inPt	**INPUT** Menu
4 Type ▸ ⌄ 4x	tYPE	**INPUT** Type
5 Low C	4mA ▸ ENTER	Lo C	Enter **LOW C	4mA**	Std = 0
6 Set 4mA Value ▸ ENTER 🕐 2 SEC	000.0	Press ⌃ or ⌄ to change digit Press ▭ to advance to next digit
7 Save Value ▸ ENTER + ⌄	SEt.?	**SAVE SELECTION** and advance to High C
8 High C	20mA ▸ ENTER	Hi C	Enter **HIGH C	20mA**
9 Set 20mA Value ▸ ENTER 🕐 2 SEC	408.0	Press ⌃ or ⌄ to change digit Press ▭ to advance to next digit
10 Save Value ▸ ENTER	SEt.?	**SAVE SELECTION**
11 Return to Main Display ▸ ESC MENU 2x	Hi C	Return to **MAIN DISPLAY**

Programming 4-20mA Output

STEPS	DISPLAY	OPERATION
1 Main Display ▸ 👉 [ESC MENU] 🕐 3 SEC	000.0	**MAIN DISPLAY**
2 Relay 1 ▸ 👉 [∨] 6x	rEL.1	**RELAY 1** Settings
3 Output ▸ 👉 [ENTER]	OUtP	**OUTPUT MENU**
4 Output Mode ▸ 👉 [∨]	Omod	**OUTPUT MODE**
5 Output Low ▸ 👉 [ENTER]	OUtL	Enter **OUTPUT LOW** | **4mA** | Std = 0
6 Set 4mA Value ▸ 👉 [ENTER] 🕐 2 SEC	000.0	Press [∧] or [∨] to change digit Press [▸] to advance to next digit
7 Save Value ▸ 👉 [ENTER] + [∨]	SEt.P	**Save Selection** and advance to Output High
8 Output High ▸ 👉 [ENTER]	OUtH	Enter **OUTPUT High** | **20mA**
9 Set 20mA Value ▸ 👉 [ENTER] 🕐 2 SEC	408.0	Press [∧] or [∨] to change digit Press [▸] to advance to next digit
10 Save Value ▸ 👉 [ENTER] + [∨]	SEt.P	**SAVE SELECTION**
11 Return to Main Display ▸ 👉 [ESC MENU] 2x	OUtH	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	**0 0 0.0**	**MAIN DISPLAY**
2 Relay 1 ▸ ☞ ENTER	**r E L.1**	**RELAY 1** Settings
3 Output ▸ ☞ ENTER	**S E t.P**	**OUTPUT MENU**
4 Set Relay Value ▸ ☞ ENTER 🕐 2 SEC	**0 2 0.0**	Press ⌃ or ⌄ to change digit Press ENTER to advance to next digit
5 Save Value ▸ ☞ ENTER + ⌄	**S E t.P**	**Save Selection** and advance to Hysterisis
6 Set Hysterisis ▸ ☞ ENTER	**H Y S t**	**Hysterisis** Settings
7 Save Value ▸ ☞ ENTER 🕐 2 SEC	**0 2 0.0**	Press ⌃ or ⌄ to change digit Press ENTER to advance to next digit
8 Return to Main Display ▸ ☞ ENTER	**S E t.P**	**Save Selection**
8 Return to Main Display ▸ ☞ ESC/MENU **2x**	**H Y S t**	Press ESC/MENU Button (2x) (Home Screen | Current Level Reading appears on display)

Programming Display Color

STEPS	DISPLAY	OPERATION
1 Main Display ▸ — 👉 [ESC MENU] 🕐 3 SEC	`000.0`	**MAIN DISPLAY**
2 Relay 1 ▸ — 👉 ⌄ 7x	`rEL1`	**RELAY 1** Settings
3 Color Menu ▸ — 👉 [ENTER]	`CoL`	**COLOR MENU**
4 Standard Color ▸ — 👉 [ENTER] + ⌃ ⌄	`SCoL`	**STANDARD COLOR**
5 Select Color ▸ — 👉 [ENTER] 🕐 2 SEC	`coL9`	**SELECT COLOR** Press ⌃ or ⌄ to change digit *(display color will change with each different value 1-9)*
6 Save Value ▸ — 👉 [ENTER] + ⌄	`SEt.?`	**SAVE SELECTION** and advance to relay color selection
7 Relay 1 Color ▸ — 👉 [ENTER] + ⌃ ⌄	`C8r.1`	**RELAY 1 COLOR**
8 Select Color ▸ — 👉 [ENTER] 🕐 2 SEC	`coL9`	**SELECT COLOR** Press ⌃ or ⌄ to change digit *(display color will change with each different value 1-9)*
9 Save Value ▸ — 👉 [ENTER] + ⌃ ⌄	`SEt.?`	**SAVE SELECTION** and advance to relay color selection Press ⌄ to select next relay *Repeat steps 7-8 for each relay color* 👆
10 Return to Main Display ▸ — 👉 [ESC MENU] 2x	`C8r.1`	Press [ESC MENU] Button (2x) (Home Screen | Current Level Reading appears on display)

Selected colour proportions

Color Number	Red [%]	Green [%]
coL1	100	0
coL2	87.5	12.5
coL3	75	25

Color Number	Red [%]	Green [%]
coL4	62.5	37.5
coL5	50	50
coL6	37.5	62.5

Color Number	Red [%]	Green [%]
coL7	25	75
coL8	12.5	87.5
coL9	0	100

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Documents / Resources

LevelPro TVU Series Universal Multi Color Display Controller [pdf] Instruction Manual
TVU Series, TVU Series Universal Multi Color Display Controller, Universal Multi Color Display
Controller, Multi Color Display Controller, Display Controller, Controller

References

- **User Manual**