

ICON PROCESS CONTROLS TVF Series Flow Display Controller



ICON PROCESS CONTROLS TVF Series Flow Display Controller User Manual

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ICON PROCESS CONTROLS TVF Series Flow Display Controller



Read the user's manual carefully before starting to use the unit. 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 6 Digit 13mm High Red Adjustable Brightness
Displayed Values	0 ~ 999999
RS485 Transmission	1200...115200 bit/s, 8N1 / 8N2
Housing Material	ABS Polycarbonate
Protection Class	NEMA 4X IP67
Input Signal Supply	
Standard	Current: 4-20mA 0-20mA 0-5V* 0-10V*
Voltage	85 – 260V AC/DC 16 – 35V AC, 19 – 50V DC*
Output Signal Supply	
Standard	2 x Relays (5A) 1 x Relay (5A) + 4-20mA
Communication	RS485
Voltage	24VDC
Passive current output *	4-20mA (Operating Range Max. 2.8 – 24mA)
Performance	
Accuracy	0.1% @ 25°C One Digit
Temperatures	
Operating Temperature	-40 – 158°F -40 – 70°C

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 3 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/PAUSE]

Functions:

- Start to edit the parameter
- Enter into the sub-menu
- Confirmation of changes made in parameter being edited
- While batcher mode : Pause / Start Batching



Symbol used in the manual : [Σ/RESET]

Functions:

- Switching of the display between total and instantaneous measurements or batcher counter (while batcher mode only)
- Zeroing the currently displayed counter (Press & Hold for at least 2 Sec), the zeroing must be confirmed by [ENTER] button

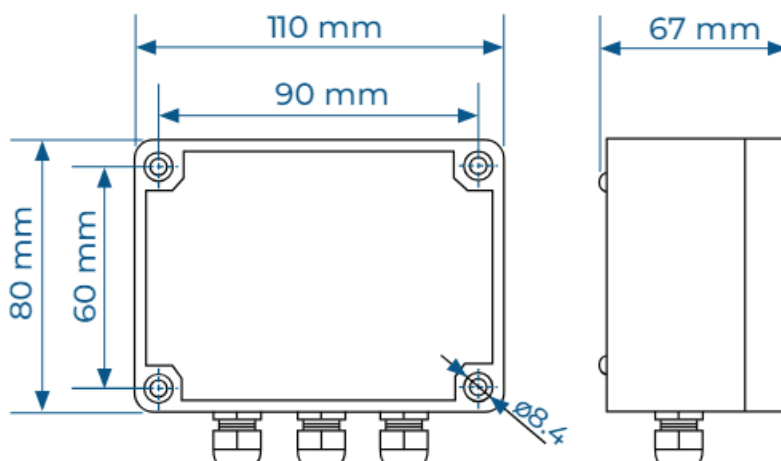


Symbol used in the manual : [^] [v]

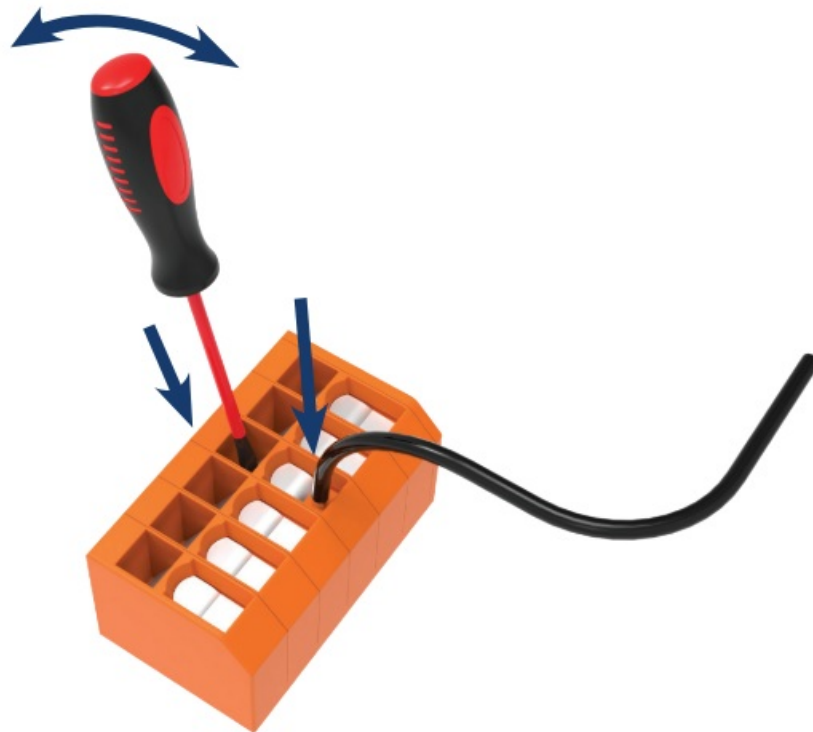
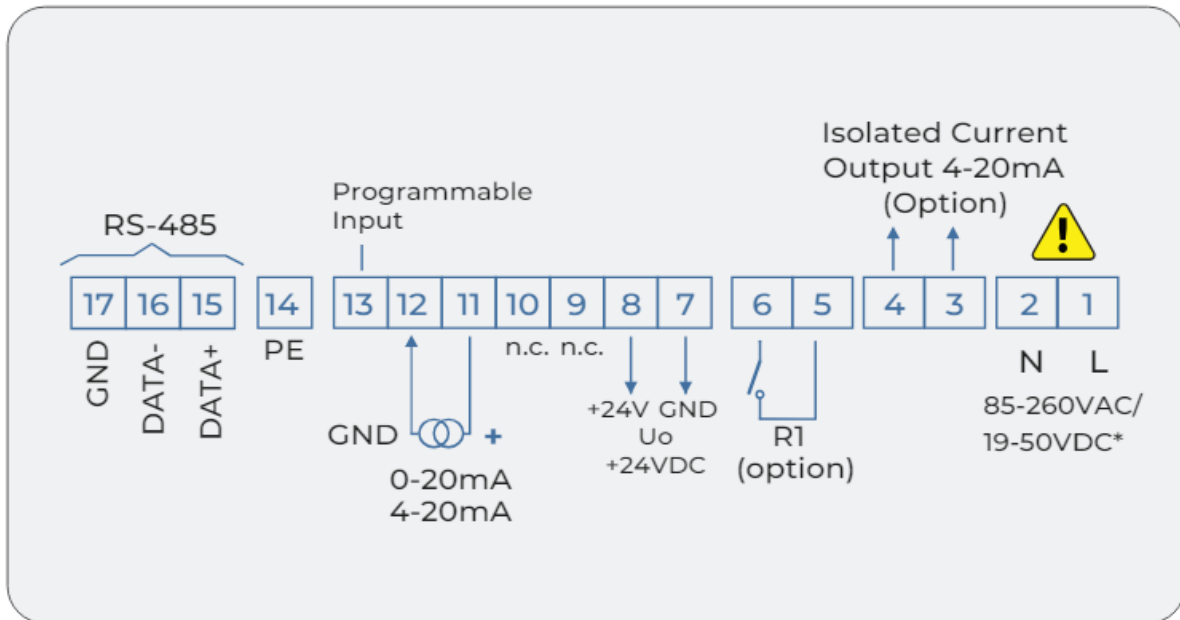
Functions:

- Change of the present menu
- Modification of the parameter value
- Switching of the display between relay thresholds and number of batches counter.

Dimensions



Wiring Diagram



WIRE INSTALLATION

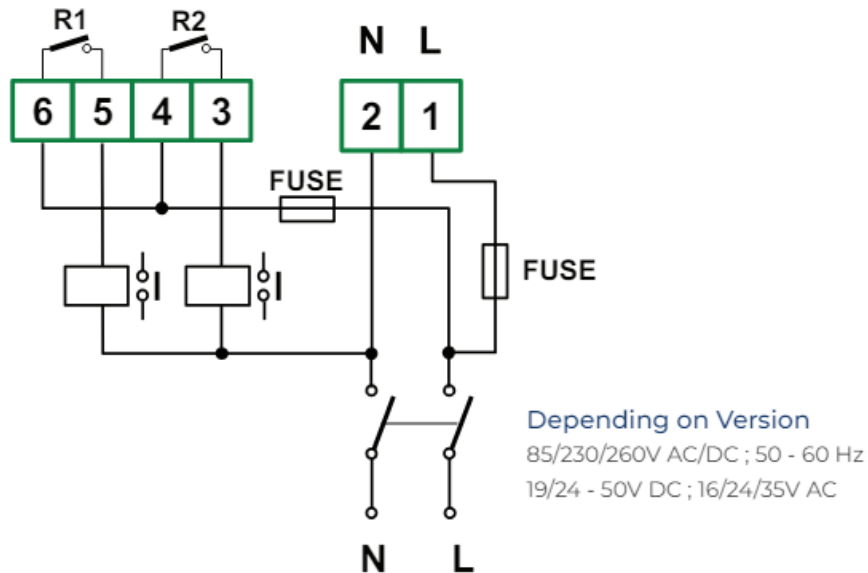
- Insert screwdriver and push wire locking mechanism open
- Insert wire
- Remove screwdriver

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 circuit breaker located near the unit

Connection

Power Supply & Relay Connection



Contacts of relay outputs are not equipped with spark suppressors. When using the relay outputs for switching of inductive loads (coils, contactors, power relays, electromagnets, motors etc.) it is required to use additional suppression circuit (typically capacitor 47nF/ min. 250VAC in series with 100R/5W resistor), connected in parallel to relay terminals or (better) directly on the load.

Suppression Circuit Connection

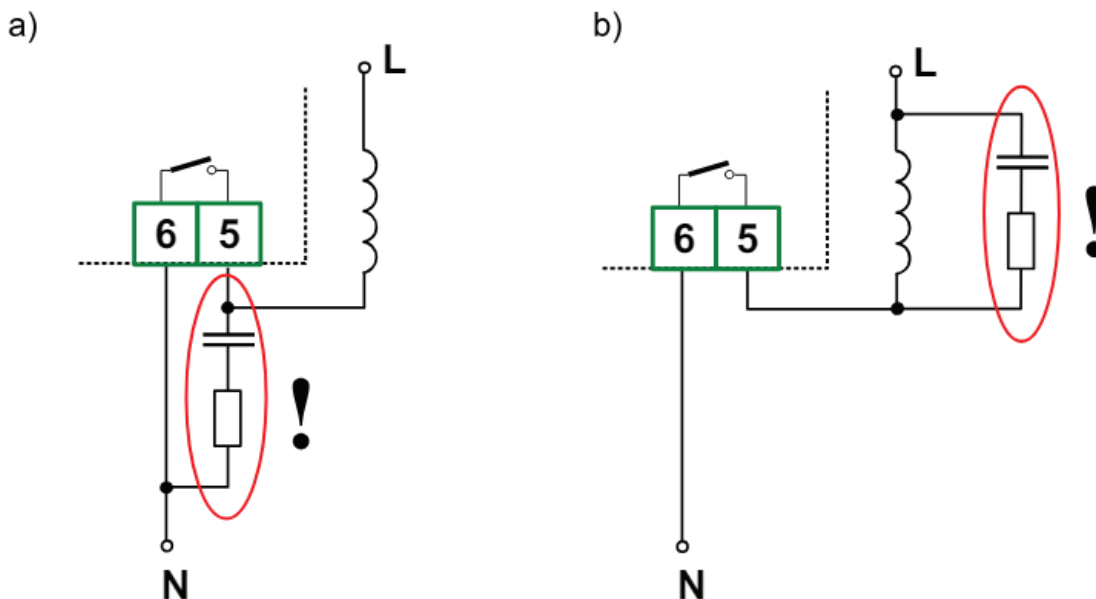


Figure: Examples of Suppression Circuit Connection
a) To Stepper Relay Terminals b) To the Inductive Load (Motor)

OC-Type Output Connection

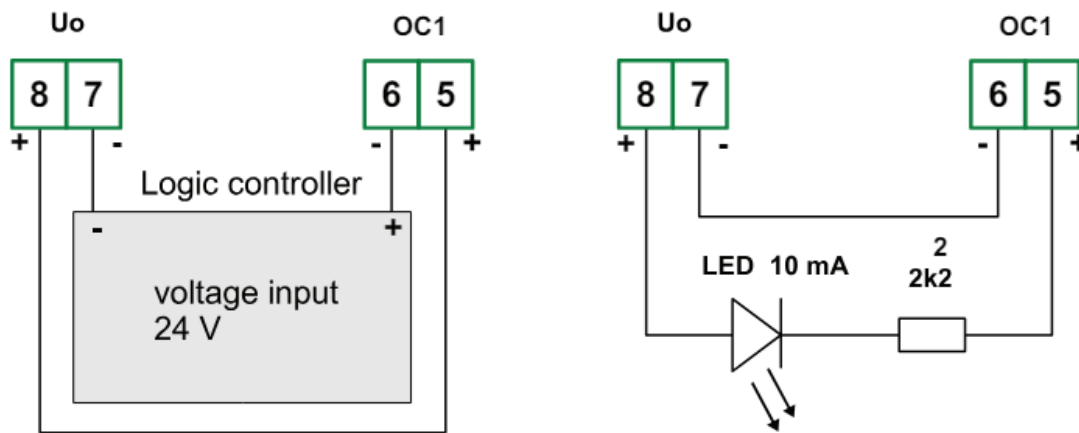


Figure: Examples of OC-type output connection

Current Output Connection Using Internal Power Supply

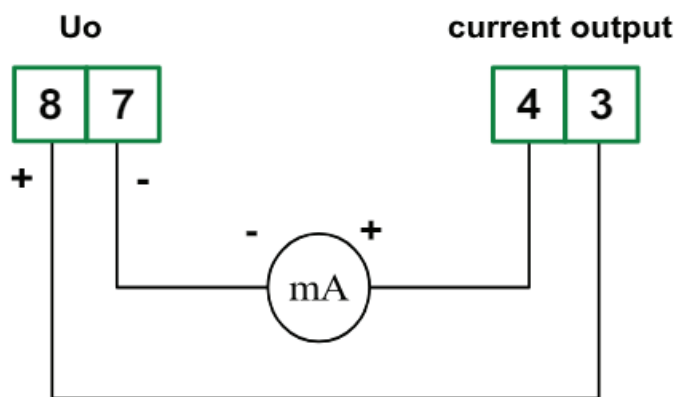


Figure: Example of current output connection using internal power supply

Current Output Connection Using External Power Supply

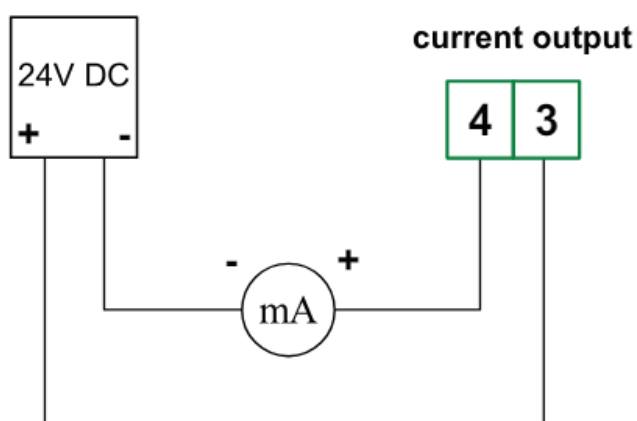
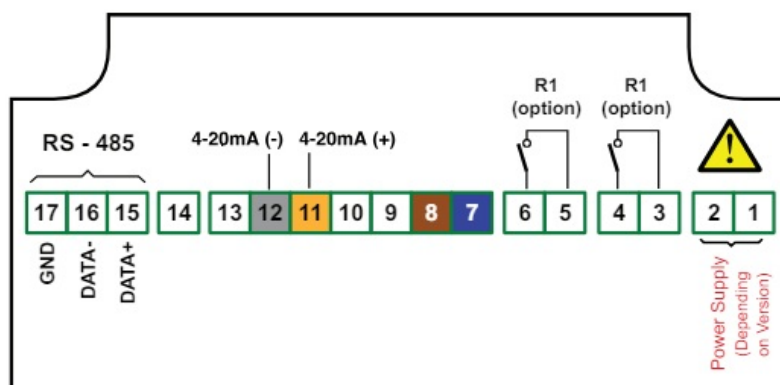


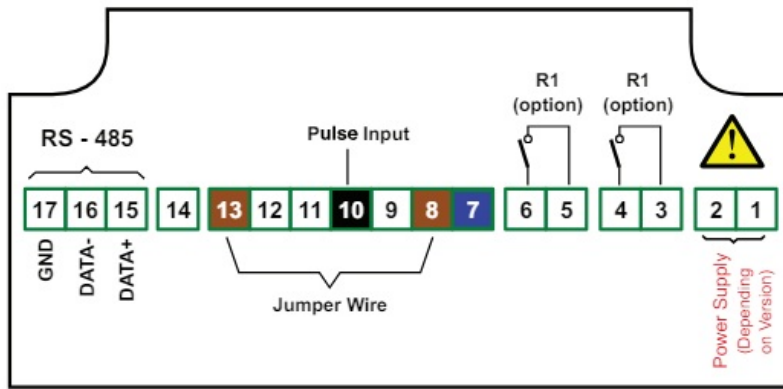
Figure: Example of current output connection using external power supply

Flow Meter Connections (Relay Type)

TKM Series : 4-20mA Output		
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
11	Yellow	mA+
12	Grey	mA-



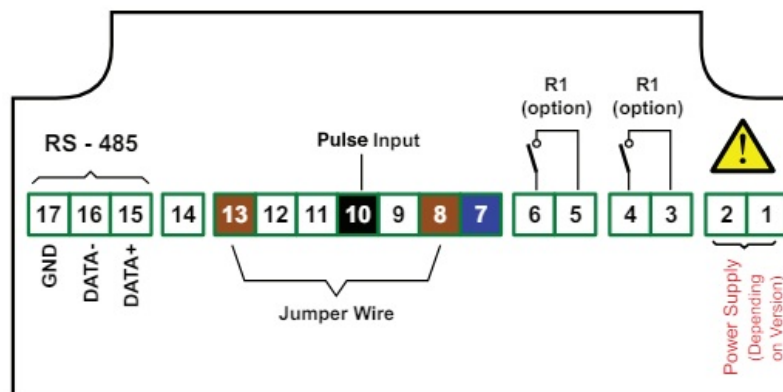
TKS Series : Pulse Output		
GPM/Pulse = K factor		
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	Black	NPN Pulse
Jump 13 & 8		



TKW Series : Pulse Output

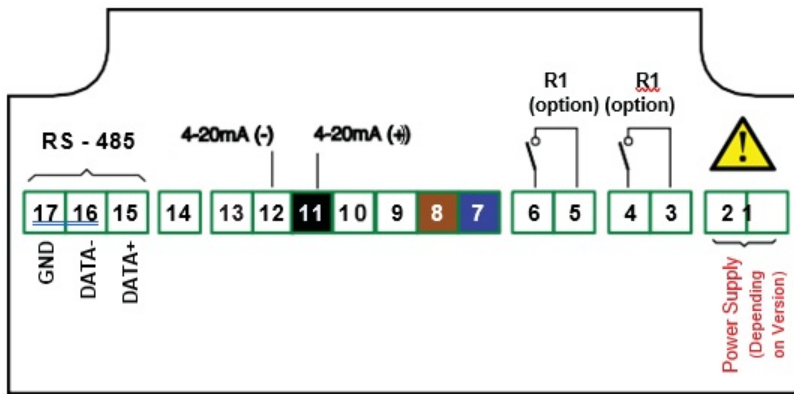
GPM/Pulse = K factor

TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	Black	Pulse
Jump 13 & 8		



TKW Series : 4-20mA Output

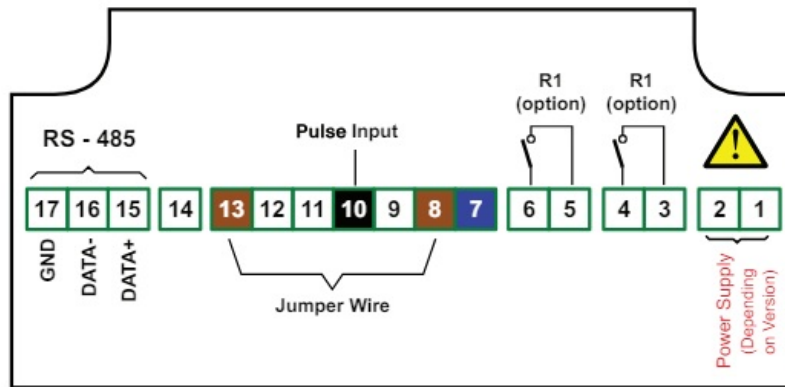
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
11	Black	mA+
12	White	mA-



TKP Series : Pulse Output

GPM/Pulse = K factor

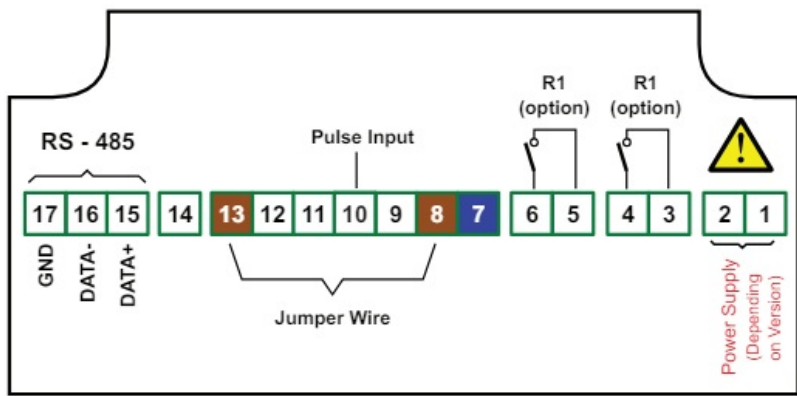
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	Black	Pulse
Jump 13 & 8		



TIW Series : Pulse Output

GPM/Pulse = K factor

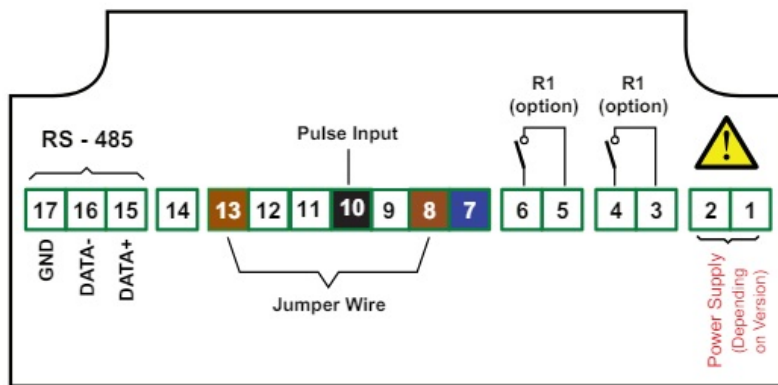
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	White	Pulse
Jump 13 & 8		



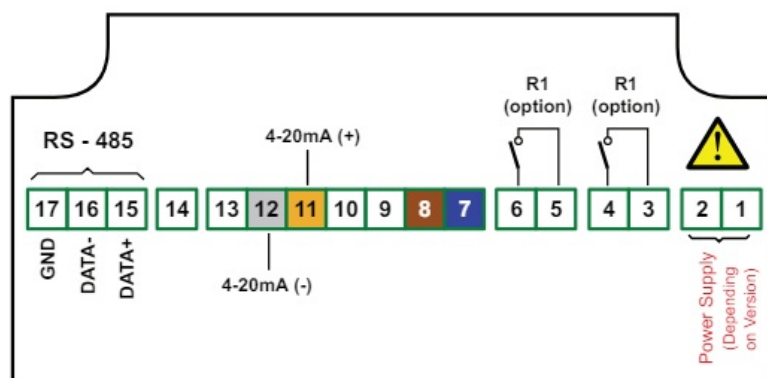
TIM | TIP Series : Pulse Output

GPM/Pulse = K factor

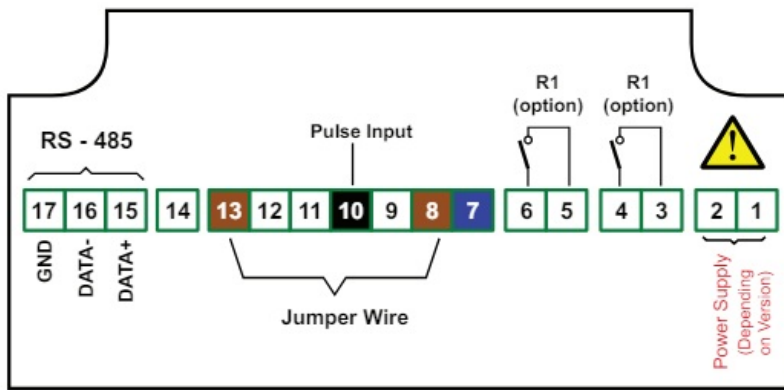
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	Black	Pulse
Jump 13 & 8		



TIM Series : 4-20mA Output		
TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
11	Yellow	mA+
12	Grey	mA-

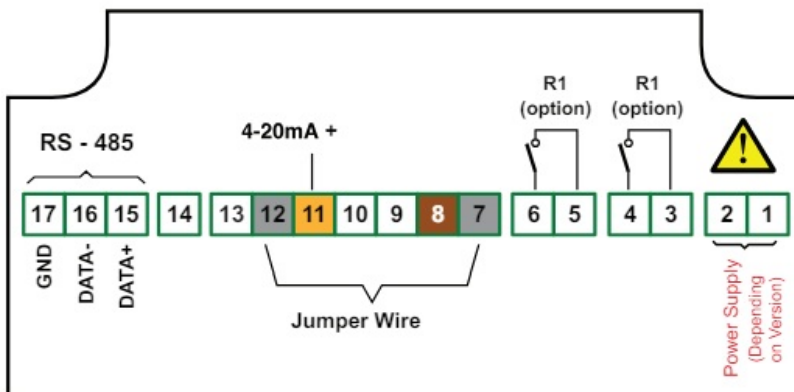


UF 1000 4000 5000 – Pulse Output		
GPM/Pulse = K factor		
TVF Terminal	Pin	Description
8	1	+VDC
10	2	Pulse
7	3	-VDC
Jump 13 & 8		



UF 1000 | 4000 | 5000 – 4-20mA Output

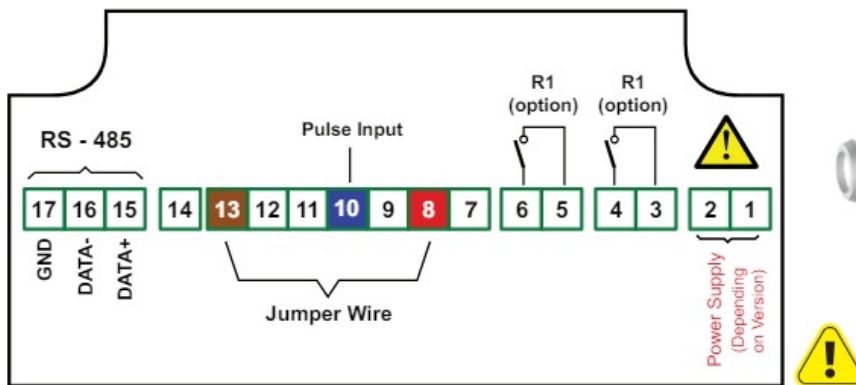
TVF Terminal	Pin	Description
8	1	+VDC
11	2	+mA
7	3	-VDC
Jump 12 & 7		



ProPulse (Flying Lead) – Pulse Output

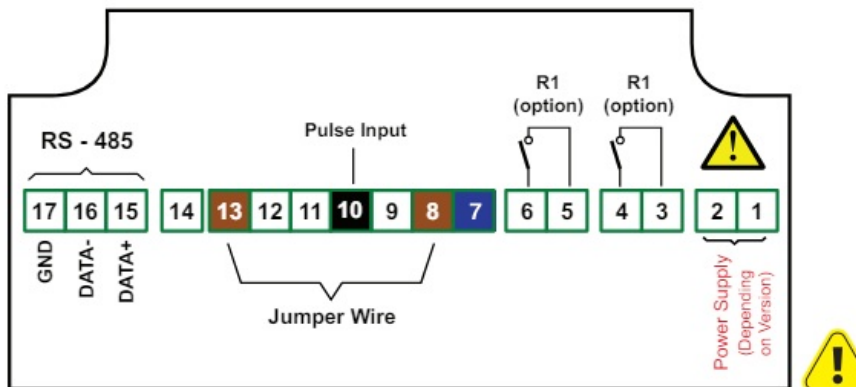
GPM/Pulse = K factor

TVF Terminal	Wire Color	Description
7	Shield	-VDC
8	Red	+VDC
10	Blue	Pulse
Jump 13 & 8		



ProPulse®2 – Pulse Output




TVF Terminal	Wire Color	Description
7	Blue	-VDC
8	Brown	+VDC
10	Black	Pulse
Jump 13 & 8		



Programming K Factor

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  X 2		RELAY 1 Settings
3 Input  ENTER PAUSE		INPUT Menu
4 K Factor  ENTER PAUSE		Press  or  → Select PULSE (K Factor)
5 K Factor Value  ENTER PAUSE 2 SEC		Enter K FACTOR Value Press  or  to change digit Press  to advance to next digit Note: Enter the K Factor value according to the Flow Unit. Eg: To display flow in GPM, Enter K Factor corresponding to GPM.
6 Save Value  ENTER PAUSE		Save Selection
7 K Factor  ESC MENU		PULSE
8 Input  ESC MENU		Input Menu
9 Main Display		Main Display

Programming Relays



















STEPS	DISPLAY	OPERATION
1 Main Display   3 SEC		MAIN DISPLAY
2 Relay 1  		RELAY 1 Settings
3 Source  		SOURCE Menu
4 FLo bAt tot  		Press  or  → Select FLo (Flow)
5 Save  		Save Selection
6 Source  		Source
7 Set Point 1  		SET POINT 1
8 Set Point 1 Value   2 SEC		Enter SET POINT 1 Value Press  or  to change digit Press  to advance to next digit
9 Save  		Save Value
10 Set Point 1  		SET POINT 1

STEPS	DISPLAY	OPERATION
11 Set Point 2 		SET POINT 2* * Option available only when the MODE is set to In/Out
12 Set Point 2 Value 2 SEC		Enter SET POINT 2 Value Press or to change digit Press to advance to next digit
13 Save 		Save Value
14 Set Point 2 		Set Point 2
15 Hysteresis 		HYSTERISIS Menu
16 Hysteresis Value 2 SEC		Enter HYSTERISIS Value Press or to change digit Press to advance to next digit
17 Save 		Save Value
18 Hysteresis 		Hysteresis Menu
19 Mode 		MODE Menu
20 On Off In Out 		Press or → Select On OFF In Out

STEPS	DISPLAY	OPERATION
<div>21 Save</div> <div> </div>		Save Selection
<div>22 Mode</div> <div> </div>		Mode Menu
<div>23 Relay 1</div> <div> </div>		Relay 1 Menu
<div>24 Main Display</div>		Main Display

Programming Batching

STEPS	DISPLAY	OPERATION
<div>1 Main Display</div> <div> </div>		MAIN DISPLAY
<div>2 Relay 1</div> <div> </div>		RELAY 1 Settings
<div>3 Source</div> <div> </div>		SOURCE Menu
<div>4 FL0 bAt tot</div> <div> </div>		Press or → Select bAt (Batch)
<div>5 Save</div> <div> </div>		Save Selection
<div>6 Source</div> <div> </div>		Source Menu
<div>7 Set Point</div> <div> </div>		SET POINT

8	Set Point Value	 ENTER PAUSE 2 SEC		Enter SET POINT Value	Press  or  to change digit Press  to advance to next digit
9	Save	 ENTER PAUSE		Save Value	
10	Set Point	 ESC MENU		Set Point	
11	Relay 1	 ESC MENU		Relay 1 Menu	
12	Main Display	 RESET		Main Display	
13	Batching Mode	 ENTER PAUSE to start batching		BATCHING MODE	 R1  R2  Σ
				Note: Switching between Flow rate, Totalizer and Batching can be done by pressing Σ/RESET button. Kind of displayed value is signalised by "Σ" LED. Σ LED ON : Totalizer Σ LED OFF: Flow Rate Σ LED Pulsing: Batching	

STEPS	DISPLAY	OPERATION
1	Main Display	
 ESC MENU 3 SEC		MAIN DISPLAY
2	Relay 1	
 X 9		Relay 1 Settings
3	Output	
 ENTER PAUSE		OUTPUT Menu
4	Output Mode	
 ENTER PAUSE		OUTPUT MODE
5	4-20mA	
 ENTER PAUSE		Press  or  → Select 4-20

6	Save			Save Selection
7	Output Mode			Select OUTPUT MODE
8	Source			SOURCE Menu
9	FLo bAt tot			Press or → Select FLo (Flow)
10	Save			Save Selection

STEPS	DISPLAY	OPERATION
11		Source Menu
12		Setting 4mA (LOW VALUE)
13		Enter 4mA Value Press or to change digit Press to advance to next digit
14		Save Value
15		4mA (Low Value)

16	20mA			Setting 20mA (HIGH VALUE)
17	20mA Value	2 SEC		Enter 20mA Value Press or to change digit Press to advance to next digit
18	Save			Save Value
19	20mA			20mA (High value)
20	Output			Output Menu
21	Main Display			Main Display


Resetting Batch



STEPS	DISPLAY	OPERATION
1 Main Display 3 SEC		MAIN DISPLAY
2 Relay 1 X 4		Relay 1 Settings
3 Batch Settings 		BATCH Menu
4 Batch Resolution X 5		BATCH RESOLUTION
5 Mode Clear 		MODE CLEAR

6	off on			Press or → Select on
7	Save			Save Selection
8	Mode Clear			Mode Clear
9	Batch Settings			Batch Menu
10	Main Display			Main Display

STEPS	DISPLAY	OPERATION
11		BATCHING MODE <p>Note: Switching between Flow rate, Totalizer and Batching can be done by pressing Σ/RESET button. Kind of displayed value is signalised by "Σ" LED.</p> <p>Σ LED ON : Totalizer Σ LED OFF: Flow Rate Σ LED Pulsing: Batching</p>
12		Clear Batch
13		Main Display

Resetting Totalizer

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  ↓ X 5		Relay 1 Settings
3 Totalizer Menu  ENTER PAUSE		TOTALIZER Menu
4 Totalizer Resolution  ↓ X 5		BATCH RESOLUTION
5 Mode Clear  ENTER PAUSE		MODE CLEAR
6 oFF on  ENTER PAUSE		Press ↓ or ↑ → Select on

STEPS	DISPLAY	OPERATION
7 Save  ENTER PAUSE		Save Selection
8 Mode Clear  ESC MENU		Mode Clear
9 Totalizer Menu  ESC MENU		Totalizer Menu
10 Main Display  Σ RESET X 2		Main Display
11 Totalizer Mode  Σ RESET 3 SEC		TOTALIZER MODE  <p>Note: Switching between Flow rate, Totalizer and Batching can be done by pressing Σ/RESET button. Kind of displayed value is signalled by "Σ" LED. Σ LED ON : Totalizer Σ LED OFF: Flow Rate Σ LED Pulsing: Batching</p>
12 Clear  ENTER PAUSE		Clear Totalizer
13 Main Display		Main Display

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For additional product documentation and technical support

- visit: www.iconprocon.com
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- or support@iconprocon.com
- Ph: 905.469.9283

Documents / Resources



[ICON PROCESS CONTROLS TVF Series Flow Display Controller](#) [pdf] User Manual
TVF Series, TVF Series Flow Display Controller, Flow Display Controller, Display Controller, Controller

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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