

Quick Start Manual



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



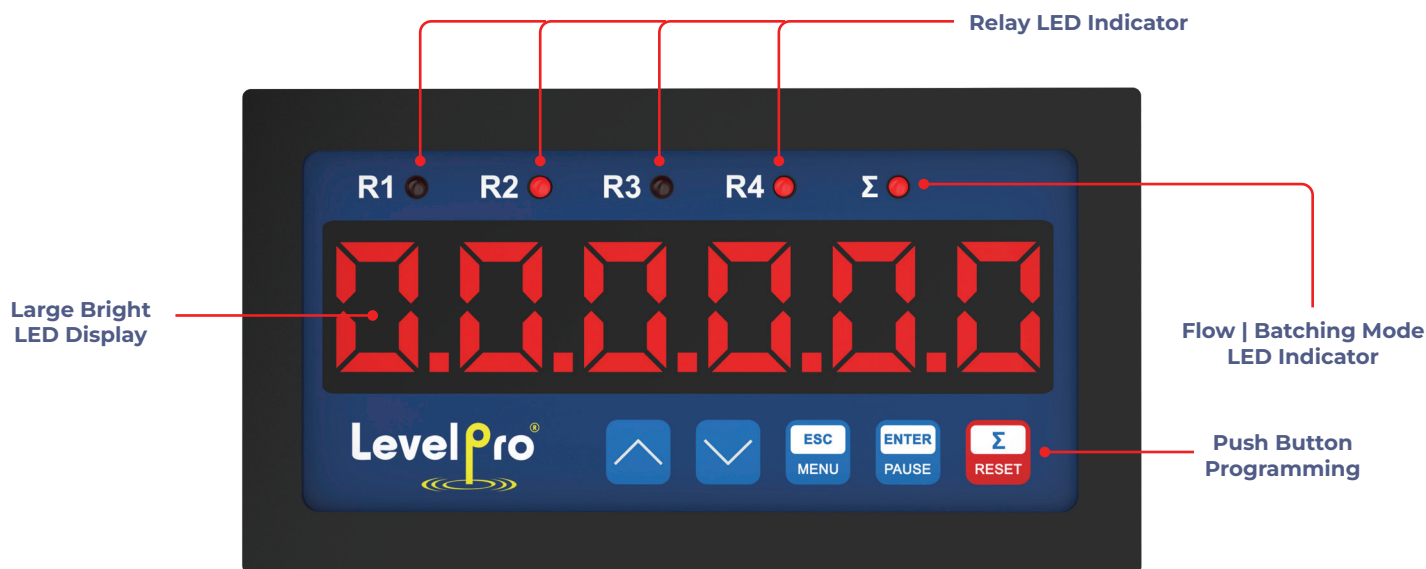
- Do not use the unit in areas threatened with excessive shocks, vibrations, dust, humidity, corrosive gasses and oils.
- Do not use the unit in areas where there is risk of explosions.
- Do not use the unit in areas with significant temperature variations, exposure to condensation or ice.
- The manufacturer 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
Displayed Values	0 ~ 999999
RS485 Transmission	1200...115200 bit/s, 8N1 / 8N2 RS485
Housing Material	NORYL
Protection Class	NEMA 4X IP65
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 (1A) 4-20mA + 1 x Relay (1A)
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	-4 - 122°F -20 - 50°C

*Optional

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
- In 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 (In batcher mode only)
- Zeroing the currently displayed counter (Press & Hold for at least 2 Sec), the zeroing must be confirmed by pressing [ENTER] button



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

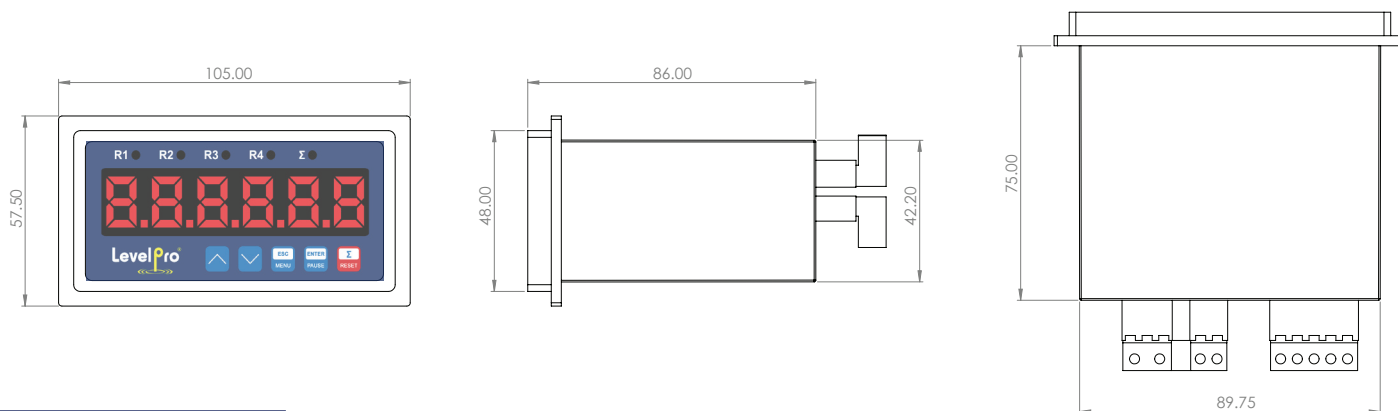
Functions:

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

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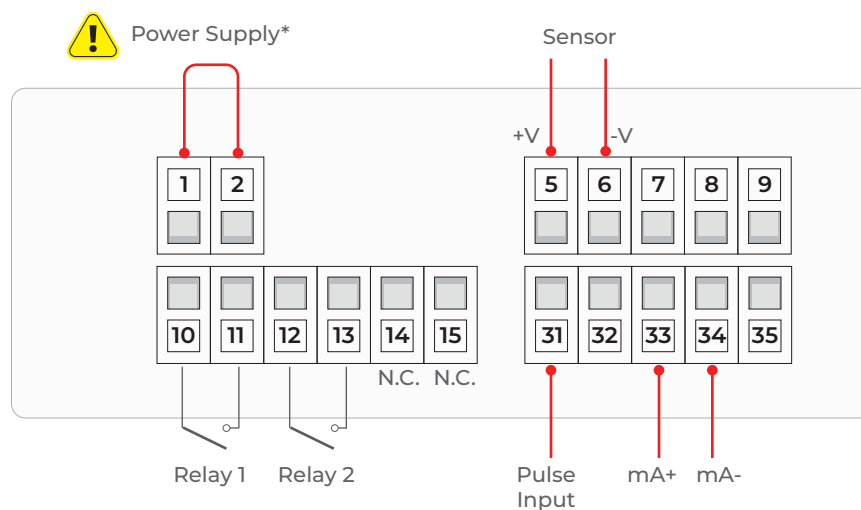
Dimensions



Wiring Diagram

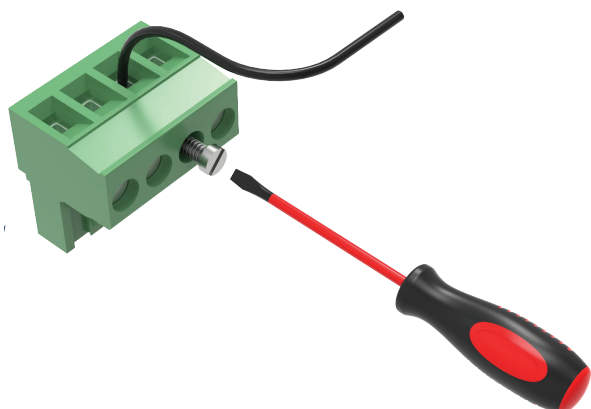


* Depending on Version
85/230/260V AC/DC ; 50 - 60 Hz
19/24 - 50V DC ; 16/24/35V AC



Wire Connection

- Loosen Set Screw
- Insert Wire
- Tighten Set Screw

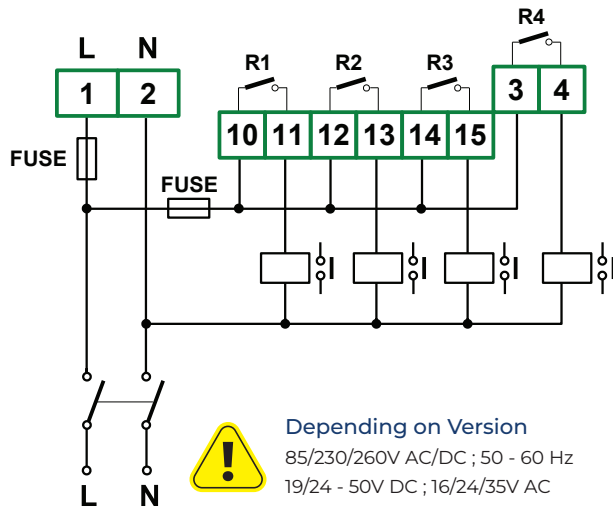


Due to possible significant interference in industrial installations, appropriate measures assuring correct operation of the unit must be applied.

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.

Power Supply & Relay Connection



Note:

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

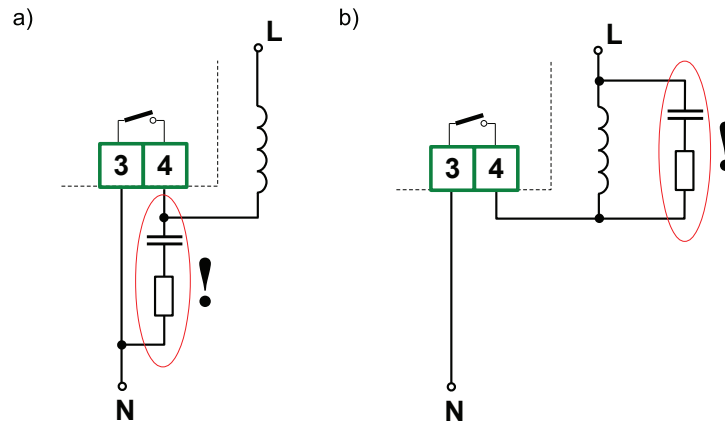


Figure: Examples of Suppression Circuit Connection
a) To Stepper Relay Terminals b) To the Inductive Load (Motor)

OC-Type Output Connection*

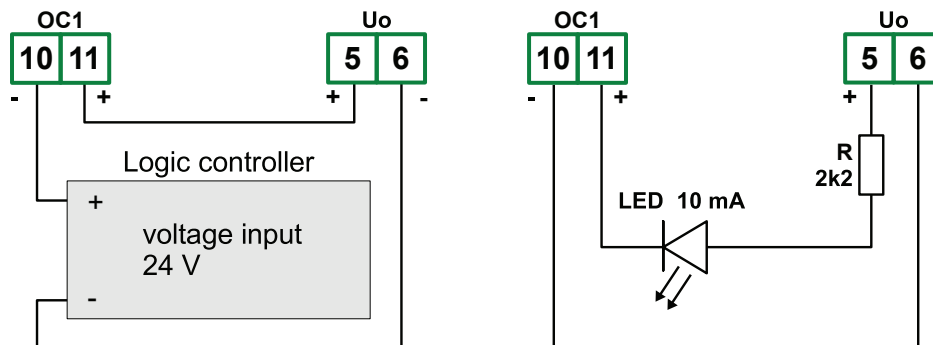


Figure: Examples of OC-type output connection

*Certain Models Only

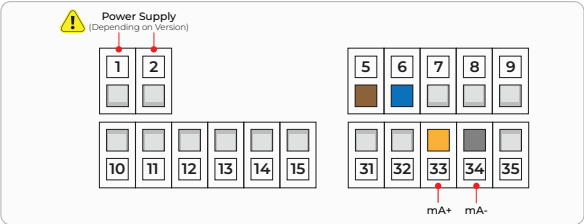
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Flow Meter Connections

TKM Series : 4-20mA Output

450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
33	Yellow	mA+
34	Grey	mA-

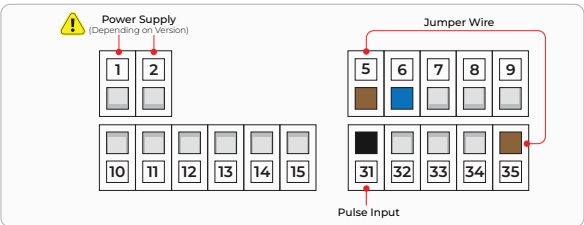


TKS Series : Pulse Output

GPM/Pulse = K factor

450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	Black	NPN Pulse

Note : Jump 5 & 35

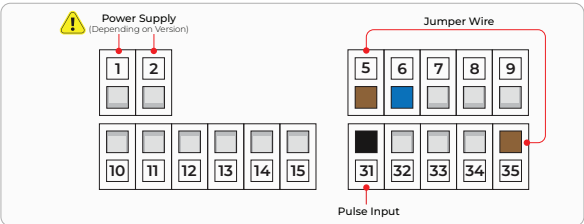


TKW Series : Pulse Output

GPM/Pulse = K factor

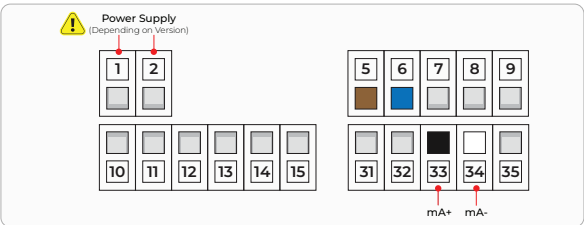
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	Black	Pulse

Note : Jump 5 & 35



TKW Series : 4-20mA Output

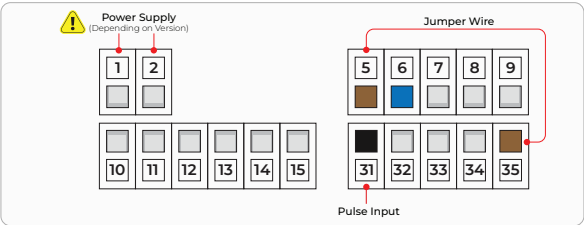
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
33	Black	mA+
34	White	mA-



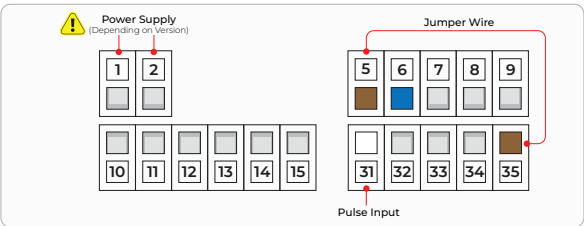
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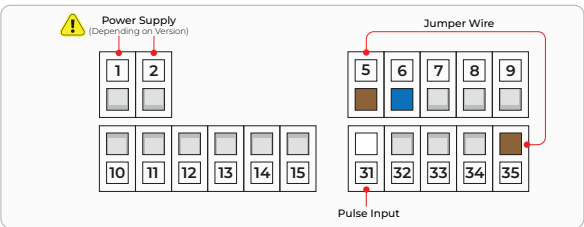
TKM TKP Series : Pulse Output		
GPM/Pulse = K factor		
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	Black	Pulse
Note : Jump 5 & 35		



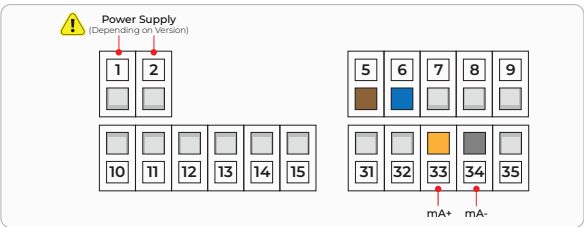
TIW Series : Pulse Output		
GPM/Pulse = K factor		
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	White	Pulse
Note : Jump 5 & 35		



TIM TIP Series : Pulse Output		
GPM/Pulse = K factor		
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	White	Pulse
Note : Jump 5 & 35		



TIM Series : 4-20mA Output		
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
33	Yellow	mA+
34	Grey	mA-

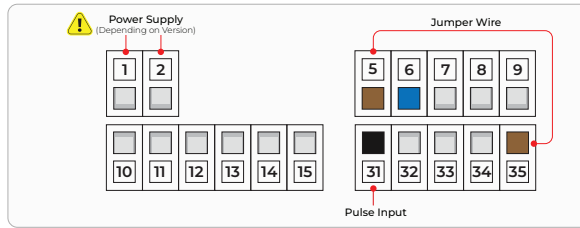


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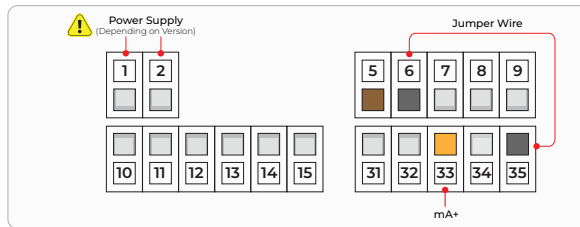
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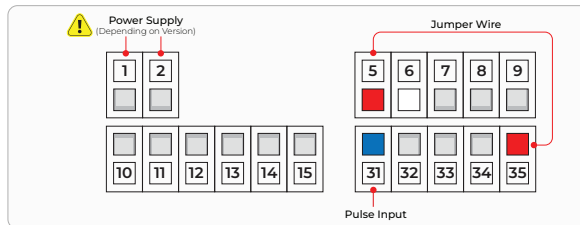
UF 1000 4000 5000 – Pulse Output		
GPM/Pulse = K factor		
450 Terminal	Pin	Description
5	1	+VDC
31	2	Pulse
6	3	-VDC
Note : Jump 5 & 35		



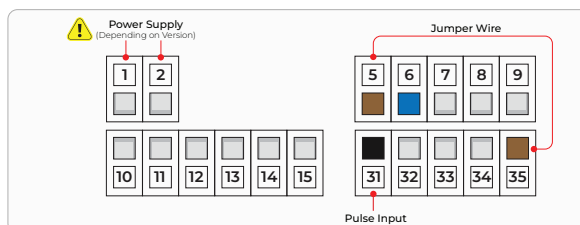
UF 1000 4000 5000 – 4-20mA Output		
450 Terminal	Pin	Description
5	1	+VDC
33	2	+mA
6	3	-VDC
Note : Jump 6 & 35		



ProPulse (Flying Lead) – Pulse Output		
GPM/Pulse = K factor		
450 Terminal	Wire Color	Description
5	Red	+VDC
6	Shield	-VDC
31	Blue	Pulse
Note : Jump 5 & 35		



ProPulse®2 – Pulse Output		
450 Terminal	Wire Color	Description
5	Brown	+VDC
6	Blue	-VDC
31	Black	Pulse
Note : Jump 5 & 35		



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Industrial Flow Batching Controller

Programming K Factor

STEPS	DISPLAY	OPERATION
1 Main Display ▶  ESC MENU  3 SEC		MAIN DISPLAY
2 Relay 1 ▶   X 5		RELAY 1 Settings
3 Input ▶  ENTER PAUSE		INPUT Menu
4 K Factor ▶  ENTER PAUSE		Press  or  → Select PULSEL (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		PULSEL
8 Input ▶  ESC MENU		Input Menu
9 Main Display ▶		Main Display

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Programming Relays

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








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Industrial Flow Batching Controller

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

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Industrial Flow Batching Controller

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

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Industrial Flow Batching Controller

Programming Batching

STEPS	DISPLAY	OPERATION
1 Main Display  ESC MENU 3 SEC		MAIN DISPLAY
2 Relay 1  ENTER PAUSE		RELAY 1 Settings
3 Source  ENTER PAUSE		SOURCE Menu
4 FLo bAt tot  ENTER PAUSE		Press  or  → Select bAt (Batch)
5 Save  ENTER PAUSE		Save Selection
6 Source  		Source Menu
7 Set Point  ENTER PAUSE		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  		Main Display
13 Batching Mode  ENTER PAUSE to start batching		BATCHING MODE    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

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Programming Output (For 4-20mA Output Models)


















STEPS	DISPLAY	OPERATION
1 Main Display    3 SEC		MAIN DISPLAY
2 Relay 1   X 9		Relay 1 Settings
3 Output  		OUTPUT Menu
4 Output Mode  		OUTPUT MODE
5 4-20mA  		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

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Industrial Flow Batching Controller






STEPS	DISPLAY	OPERATION
<div>11</div> <div>Source</div> <div>  </div>		Source Menu
<div>12</div> <div>4mA</div> <div>  </div>		Setting 4mA (LOW VALUE)
<div>13</div> <div>4mA Value</div> <div>  <div>2 SEC</div> </div>		Enter 4mA Value <div> Press  or  to change digit Press  to advance to next digit </div>
<div>14</div> <div>Save</div> <div>  </div>		Save Value
<div>15</div> <div>4mA</div> <div>  </div>		4mA (Low Value)
<div>16</div> <div>20mA</div> <div>  </div>		Setting 20mA (HIGH VALUE)
<div>17</div> <div>20mA Value</div> <div>  <div>2 SEC</div> </div>		Enter 20mA Value <div> Press  or  to change digit Press  to advance to next digit </div>
<div>18</div> <div>Save</div> <div>  </div>		Save Value
<div>19</div> <div>20mA</div> <div>  </div>		20mA (High value)
<div>20</div> <div>Output</div> <div>  </div>		Output Menu
<div>21</div> <div>Main Display</div>		Main Display

Resetting Batch

STEPS	DISPLAY	OPERATION
<div>1</div> <div>Main Display</div> <div><div>ESC MENU</div><div> 3 SEC</div></div>		MAIN DISPLAY
<div>2</div> <div>Relay 1</div> <div><div>✓</div><div>x 7</div></div>		Relay 1 Settings
<div>3</div> <div>Batch Settings</div> <div><div>ENTER PAUSE</div></div>		BATCH Menu
<div>4</div> <div>Batch Resolution</div> <div><div>✓</div><div>x 5</div></div>		BATCH RESOLUTION
<div>5</div> <div>Mode Clear</div> <div><div>ENTER PAUSE</div></div>		MODE CLEAR
<div>6</div> <div>oFF on</div> <div><div>ENTER PAUSE</div></div>		Press  or  → Select on
<div>7</div> <div>Save</div> <div><div>ENTER PAUSE</div></div>		Save Selection
<div>8</div> <div>Mode Clear</div> <div><div>ESC MENU</div></div>		Mode Clear
<div>9</div> <div>Batch Settings</div> <div><div>ESC MENU</div></div>		Batch Menu
<div>10</div> <div>Main Display</div> <div><div>Σ RESET</div></div>		Main Display

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Industrial Flow Batching Controller














STEPS	DISPLAY	OPERATION
<div>11</div> <div>Batching Mode</div> <div>  <div> <div>Σ</div> <div>RESET</div> </div> <div>3 SEC</div> </div>		<div> <div>BATCHING MODE</div> <div> <div>R1</div> <div>R2</div> <div>Σ</div> </div> </div> <div>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.</div> <div>Σ LED ON : Totalizer Σ LED OFF: Flow Rate Σ LED Pulsing: Batching</div>
<div>12</div> <div>Clear Batch</div> <div>  <div>ENTER PAUSE</div> </div>		<div>Clear Batch</div>
<div>13</div> <div>Main Display</div>		<div>Main Display</div>

Resetting Totalizer

STEPS	DISPLAY	OPERATION
<div>1</div> <div>Main Display</div> <div>  <div>ESC MENU</div> <div>3 SEC</div> </div>		<div>MAIN DISPLAY</div>
<div>2</div> <div>Relay 1</div> <div>  <div>✓</div> <div>X 8</div> </div>		<div>Relay 1 Settings</div>
<div>3</div> <div>Totalizer Menu</div> <div>  <div>ENTER PAUSE</div> </div>		<div>TOTALIZER Menu</div>
<div>4</div> <div>Totalizer Resolution</div> <div>  <div>✓</div> <div>X 5</div> </div>		<div>BATCH RESOLUTION</div>
<div>5</div> <div>Mode Clear</div> <div>  <div>ENTER PAUSE</div> </div>		<div>MODE CLEAR</div>
<div>6</div> <div>oFF on</div> <div>  <div>ENTER PAUSE</div> </div>		<div>Press  or  → Select on</div>

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STEPS	DISPLAY	OPERATION
<div>7</div> <div>Save</div> <div>  <div>ENTER</div> <div>PAUSE</div> </div>		Save Selection
<div>8</div> <div>Mode Clear</div> <div>  <div>ESC</div> <div>MENU</div> </div>		Mode Clear
<div>9</div> <div>Totalizer Menu</div> <div>  <div>ESC</div> <div>MENU</div> </div>		Totalizer Menu
<div>10</div> <div>Main Display</div> <div>  <div>Σ</div> <div>RESET</div> <div>X 2</div> </div>		Main Display
<div>11</div> <div>Totalizer Mode</div> <div>  <div>Σ</div> <div>RESET</div> <div>3 SEC</div> </div>		<div> <div>TOTALIZER MODE</div> <div> <div>R1</div> <div>R2</div> <div>Σ</div> </div> </div> <div> 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 </div>
<div>12</div> <div>Clear</div> <div>  <div>ENTER</div> <div>PAUSE</div> </div>		Clear Totalizer
<div>13</div> <div>Main Display</div>		Main Display

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Setting Decimal Point

STEPS	DISPLAY	OPERATION
<div>1</div> <div>Main Display</div> <div>  <div> <div>ESC</div> <div>MENU</div> </div> <div>  <div>3 SEC</div> </div> </div>		MAIN DISPLAY
<div>2</div> <div>Relay 1</div> <div>  <div>  <div>X 6</div> </div> </div>		Relay 1 Settings
<div>3</div> <div>Flow Menu</div> <div>  <div> <div>ENTER</div> <div>PAUSE</div> </div> </div>		FLOW Menu *
<div>4</div> <div>Flow Precision</div> <div>  <div> <div>ENTER</div> <div>PAUSE</div> </div> </div>		FLOW PRECISION
<div>5</div> <div>Decimal Point</div> <div>  <div> <div>ENTER</div> <div>PAUSE</div> </div> </div>		DECIMAL POINT
		Press  or  to change Decimcal Point
<div>6</div> <div>Save</div> <div>  <div> <div>ENTER</div> <div>PAUSE</div> </div> </div>		Save Selection
<div>7</div> <div>Flow Precision</div> <div>  <div> <div>ESC</div> <div>MENU</div> </div> </div>		Flow Precision
<div>8</div> <div>Flow Menu</div> <div>  <div> <div>ESC</div> <div>MENU</div> </div> </div>		Flow Menu
<div>9</div> <div>Main Display</div>		Main Display

* To change decimal points for Batch | Totalizer, select Batch | Totalizer Menu

Warranty, Returns and Limitations

Warranty

Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by **Icon Process Controls Ltd** for a period of one year from the date of sale of such products. **Icon Process Controls Ltd** obligation under this warranty is solely and exclusively limited to the repair or replacement, at Icon Process Controls Ltd option, of the products or components, which **Icon Process Controls Ltd** examination determines to its satisfaction to be defective in material or workmanship within the warranty period. **Icon Process Controls Ltd** must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

Returns

Products cannot be returned to **Icon Process Controls Ltd** without prior authorization. To return a product that is thought to be defective, go to www.iconprocon.com, and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to **Icon Process Controls Ltd** must be shipped prepaid and insured. **Icon Process Controls Ltd** will not be responsible for any products lost or damaged in shipment.

Limitations

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