

Input	<input type="checkbox"/> programmable, <input type="checkbox"/> on request (see device label)
Outputs:	up to 2
Electromechanical relay	5A/250VAC with NO/NC or NO contact
SSR	1A/250VAC
MOS gate	0.1A/60V, optically isolated
Output for external SSR	5...24 VDC, 30 mA
- K1	<input type="checkbox"/> relay, <input type="checkbox"/> SSR, <input type="checkbox"/> MOS gate, <input type="checkbox"/> for ext. SSR
- K2	<input type="checkbox"/> relay, <input type="checkbox"/> SSR, <input type="checkbox"/> MOS gate, <input type="checkbox"/> for ext. SSR
Power Supply	<input type="checkbox"/> 230 VAC, <input type="checkbox"/> 115 VAC, <input type="checkbox"/> 90...250 VAC/DC, <input type="checkbox"/> 24 VDC, <input type="checkbox"/> 12...24 VAC/DC,
Auxiliary Supply Output	<input type="checkbox"/> .....
Consumption	<input type="checkbox"/> ≤ U <sub>b</sub> (DC); ≤1.2*U <sub>b</sub> (AC), <input type="checkbox"/> 24 VDC, 30 mA less than 1.5 VA
Measurement Error	≤ ± 0.3% from span
Temperature Drift	≤ ± 0.02% from span for 1 °C
Ambient Temperature / Humidity	-10...65 °C / 0...85% RH, non-condensing
Protection Class: front / terminals	IP44 / IP20

Warranty and Support

.....  
serial number

.....  
manufacturing date

QC check mark .....(passed)  
(stamp)

**Warranty**  
COMECO warrants this product to be free from defects in materials and workmanship for 2 years. If your unit is found to be defective within that time, we will promptly repair or replace it. This warranty does not cover accidental damage, wear or tear, or consequential or incidental loss. This warranty does not cover any defects caused by wrong transportation, storage, installation, or operating (see 'Specifications').

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**Technical support**  
In the unlikely event that you encounter a problem with your COMECO device, please call your local dealer or contact directly our support team.

QD-8.2.4-WC

PROCESS INDICATOR (TRIP ALARM UNIT)

T108-R

OPERATION MANUAL



Please read this Operation Manual before mounting and operating!  
Save the Manual for future references!

Parameter	Symbol	Description
<b>Configuration Parameters</b> (These parameters are part of Configuration level)		
Point Position	$\bullet$ Pnt	The display decimal point position
Input Type	i nP	The type of the signal that can be connected to the device input
Input Low	i L0	Display value at low limit of the input range
Input High	i H1	Display value at high limit of the input range
Display Offset	oFS	Specifies a constant to be added to the measured input value
Filter Time	F.t	Specifies the relative time constant of the input filter
Filter Band	F.b	Specifies a zone around the measured value, within which the filter is active
Calibration	cAL	Enables / disables calibration mode
Return	rtn	Forced return to Basic level
<b>Parameters of the control algorithm</b> (These parameters are part of Parametric level)		
+ Differential 1	Pd1	Relay switching differential over set-point for output K1
- Differential 1	nd1	Relay switching differential under set-point for output K1
Hold On 1	Hn1	Holds the output activation of output K1
Hold Off 1	Hf1	Holds the output deactivation of output K1
Direction 1	dr1	Control action direction of output K1
Time On 1	t.on	ON duration of output K1
Time Off 1	t.off	OFF duration of output K1
+ Differential 2	Pd2	Relay switching differential over set-point for output K2
- Differential 2	nd2	Relay switching differential under set-point for output K2
Direction 2	dr2	Control action direction of output K2
Return	rtn	Forced return to Basic level
<b>Parameters of Basic (operating) level</b>		
Set Point 1	SP1	Set-point value of output K1
Set Point 2	SP2	Set-point value of output K2
<b>Keyboard locking Parameter</b> (This parameter is part of Hidden level)		
Lock Keyboard	Lok	Keyboard locking mode
Return	rtn	Forced return to Basic level

◆ - Changing Point Position value reflects the real value of all parameters with ISU!  
E.g.: changing Point Position value from (x1) to (x0.1) would change a Set-point value of 100 to 10.0!!!

Input Filtration

**Low-pass filter**  
This first-order filter acts ONLY within a certain band around filter output value. This has been designed to cut periodic noises outside the communication signal spectrum.

- ◆ Filter operation is defined by two parameters:  
**Filter Time** (defines filter time constant) and **Filter Band** (defines filter active band around filter output value).
- ◆ If the newly measured value differs from the filter output by more than **Filter Band**, the filter resets with a new initial output value (newly measured value).

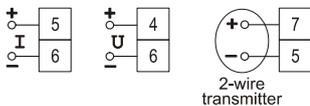
Error Messaging

- ◆  $\overline{\text{---}}$  (over range) - display value over **Input High** + 10 or sensor damaged.
- ◆  $\underline{\text{---}}$  (under range) - display value below **Input Low** - 10 or sensor damaged.

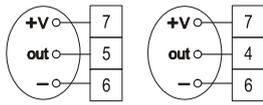
Under-range messages are not displayed in case of a voltage input!

TI08-R is a process indicator / trip alarm unit, enclosed in a standard 11-pin box. Its universal input accepts both linear current and voltage signals. Equipped with a 3-digit programmable display, the device is suitable for measuring various technological values from -199 to 999 display points. TI08-R can be ordered with up to 2 relay outputs and for 230 VAC or low-voltage AC/DC supply.

Mounting and Wiring

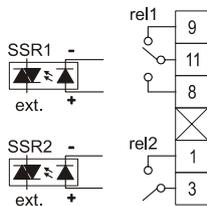


2-wire transmitter



3-wire current transmitter

3-wire voltage transmitter



Mounting

TI08-R can be easily mounted on every 35 mm rail conforming to EN50022 by the means of a standard UNDECAL socket base.

Input signal wiring

Connect the input with regard to its type (see 'Specifications') through the respective socket-base terminals.

Output wiring

Connect the outputs with regard to their types (see 'Specifications') via the respective terminals.

Power supply wiring

Connect the right power supply voltage for your device (see 'Specifications') via terminals 2 and 10.



Important notes:

- ◆ Power supply must be turned off during the wiring!
- ◆ Power supply polarity does not matter!



The undersigned hereby declares, on behalf of COMECO Inc., that this device has been manufactured in compliance with standards EN 61000 and EN 61010, and meets the requirements of Directives 73/23/EEC and 89/336/EEC.

Vladimir Sakaliyski  
CEO  
COMECO Inc.

Waste Disposal



Do not dispose of electronic devices together with household waste material!

If disposed of within European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive 2002/96 on the Waste Electrical and Electronic Equipment.

Electro-Magnetic Interference (EMI) Issues



Important note:

A built-in RC noise suppression circuit is connected in parallel with relay contacts. Full AC voltage isolation is NOT provided when relay contacts are open. Small AC current ( $\approx 1.5 \text{ mA}$  at 230 VAC) still flows through the RC circuit!

- ◆ All signal wires must be shielded. They must not be packaged together with power cables!
- ◆ Never lay the signal wires close to inductive or capacitive noise sources, such as relays, contactors, motors, etc.!
- ◆ All shields have to be grounded ONLY at one end, as closer as possible to the indicator terminals!
- ◆ Avoid sharing supply lines with powerful consumers, especially with inductive loads, switched on and off.
- ◆ To stop unwelcome interference signals entering through the power supply lines, use shielded 1:1 isolation transformer!
- ◆ Shunt all switched (not only those switched by the indicator) inductive consumers with special suppression networks: RC group and varistor - for AC loads, or diode - for DC loads.
- ◆ If the indicator operates in a very powerful EMI area, it has to be mounted inside a grounded metal shielding box!

Parameter Programming

Indicator parameters

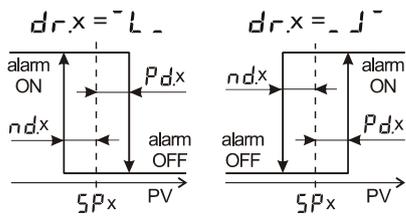
TI08-R is a programmable device whose service behavior is determined by a set of parameters. All the parameters, along with their names, symbols, and value ranges, are given in Table 1.

Setting numerical parameter value

- ◆ Enter parameter value adjustment mode (see 'Program Levels').
- ◆ The whole part of the value together with the left zeroes appears on the display, and the rightmost digit blinks.
- ◆ To increase or decrease the blinking digit value, use respectively  $\leftarrow$  or  $\rightarrow$ .
- ◆ The 2 rightmost digits can accept values from 0 to 9, and the leftmost digit can also accept the values - and +.
- ◆ To select another digit, press  $\blacklozenge$ .
- ◆ Confirm the adjusted value by pressing simultaneously  $\blacklozenge$  +  $\leftarrow$ .
- ◆ If the new value has not been confirmed and no key has been pressed for a certain period of time, value adjustment automatically ceases, and the parameter retains its initial value.

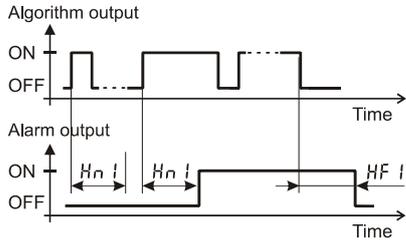
Setting symbolic parameter value

- ◆ Enter parameter value adjustment mode (see 'Program Levels').
- ◆ Read the blinking parameter value.
- ◆ To change the value, use  $\leftarrow$  and  $\rightarrow$ , and to confirm, press  $\blacklozenge$  +  $\leftarrow$ .
- ◆ If the new value has not been confirmed and no key has been pressed for a certain period of time, value adjustment automatically ceases, and the parameter retains its initial value.

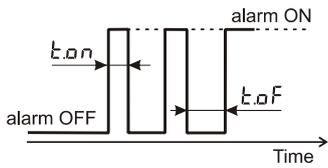


**Alarm output operation**  
The alarm outputs operate according to the control algorithm parameters.

**ON/OFF control algorithm**  
The static characteristic of an alarm relay controlled by an ON/OFF algorithm is shown on the left drawing.

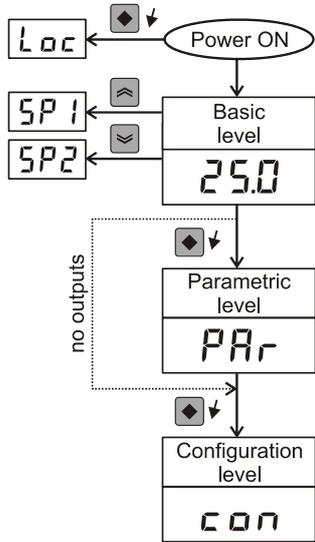


**Output hold**  
For eliminating undesirable switches of the alarm output K1, additional parameters (Hold On 1 and Hold Off 1) are assigned to hold the output reaction for certain period of time.



**Output pulse mode**  
When the alarm output K1 is forced to ON by the control algorithm, it can either stay ON or pulse depending on Time On and Time Off parameter values. Setting any of these parameters to '0' disables the Pulse mode.

Value	Unit	Notes
0, 0.0, 0.00	-	when indicating values with the input-signal measurement unit (ISU)
u 10, u 5, , 0, , 4	-	u 10 (0...10 V), u 5 (0...5 V), , 0 (0...20 mA), , 4 (4...20 mA)
-199 ... 999	ISU	
-199 ... 999	ISU	
-199 ... 999	ISU	OFFSET
0 ... 255	-	higher value for better filtration
0 ... 999	-	
no, 4E5	-	For authorized personnel ONLY!
-	-	
0 ... 999	ISU	
0 ... 999	ISU	
0 ... 999	sec.	
0 ... 999	sec.	
- L-, - J-	-	- L- (relay ON under set point), - J- (relay ON over set point)
0 ... 255	sec.	Value '0' disables Pulse mode.
0 ... 255	sec.	Value '0' disables Pulse mode.
0 ... 999	ISU	
0 ... 999	ISU	
- L-, - J-	-	- L- (relay ON under set point), - J- (relay ON over set point)
-	-	
-199 ... 999	ISU	
-199 ... 999	ISU	
dEY,	-	dEY (keyboard disabled),
ESP,	-	ESP (only set-point adjustment enabled),
EY	-	EY (keyboard enabled)
-	-	



**Programming order**

- ◆ Unlock the keyboard;
- ◆ Set the parameters from Configuration level;
- ◆ Set the parameters from Parametric level;
- ◆ Adjust alarm set points;
- ◆ Lock the keyboard (if needed).

**Hidden level**

- ◆ Hold depressed while turning the power on and until Loc appears.
- ◆ Set keyboard locking mode.
- ◆ To exit, use or to select parameter *r t n*, then press .

**Basic level**

At power-on, TI08-R enters Basic level. At this level, the device indicates the measured input value (PV) with a resolution, according to the Point Position parameter.

- ◆ To enter parameter value adjustment mode for Set Point 1, press .
- ◆ To enter parameter value adjustment mode for Set Point 2, press .

**Parametric level**

This level contains the control algorithm parameters. If no alarm output is installed, this level does not show up.

- ◆ Enter from Basic level by pressing and holding until PPr appears on the display. Release the key. If the key is not released on time, TI08-R enters Configuration level.
- ◆ Choose a parameter using and .
- ◆ To enter parameter value adjustment mode, press .
- ◆ If no key has been pressed for a while, the device automatically returns to Basic level, storing all confirmed changes.
- ◆ To exit, select parameter *r t n* and press .
- ◆ For quick exiting and saving, use key combination + .

**Configuration level**

This level contains the configuration parameters of the device.

- ◆ Enter from Basic level by pressing and holding until CON appears.
- ◆ To access and adjust the configuration parameters, follow the algorithm described in 'Parametric level'.