

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, <input type="checkbox"/>
Auxiliary Supply Output	24 VDC, 30 mA
Consumption	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
Protection Class: front / terminals	IP44 / IP20

PROCESS INDICATOR (TRIP ALARM UNIT)

BDTA7838

OPERATION MANUAL



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

Warranty and Support

.....
serial number

.....
manufacturing date

QC check mark(passed)
(stamp)

BASI Instrument AB
p.o.box 53
SE-275 06 VOLLSJÖ, SWEDEN
tel: +46 (0)40 88009
fax: +46 (0)40 929877
e-mail: sales@basi.se

Warranty
BASI Instrument AB 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').

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

QD-8.2.4-WC

Parameter	Symbol	Description
Configuration Parameters (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
Parameters of the control algorithm (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
Parameters of Basic (operating) level		
Set Point 1	$SP1$	Set-point value of output K1
Set Point 2	$SP2$	Set-point value of output K2
Keyboard locking Parameter (This parameter is part of Hidden level)		
Lock	Loc	Level access
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.

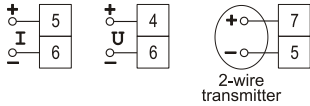
- Filter operation is defined by two parameters:
Filter Time (defines filter time constant) and **Filter Band** (defines filter active band around filter output value).
- If the newly measured value differs from the filter output by more than **Filter Band**, the filter resets with a new initial output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

Error Messaging

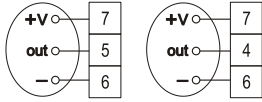
- $r - 1$ (over range) - display value over **Input High** + 10 or sensor damaged.
- $L - 1$ (under range) - display value below **Input Low** - 10 or sensor damaged.

BDTA7838 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. BDTA7838 can be ordered with up to two 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

BDTA7838 can be easily mounted on every 35 mm rail conforming to EN50022 by the means of a standard UNDECAL socket base.

Input signal wiring

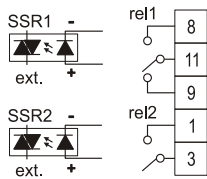
Connect the input with regard to its type (see 'Specifications') through the respective socket-base terminals.

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!



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

- ◆ 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

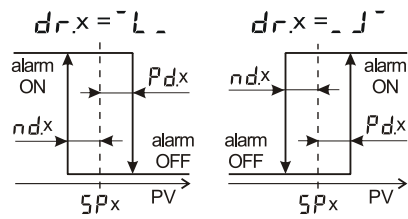
BDTA7838 is a programmable device whose service behavior is determined by a set of parameters. All the parameters, along with their names, symbols, and value ranges, are given in Table 1.

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 or .
- ◆ 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 .
- ◆ Confirm the adjusted value by pressing simultaneously + .
- ◆ 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 and , and to confirm, press + .
- ◆ 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

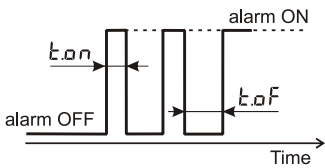
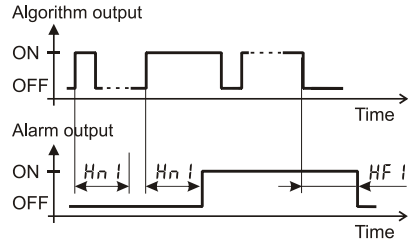
The static characteristic of an alarm relay controlled by an ON/OFF algorithm is shown on the left drawing.

Output hold

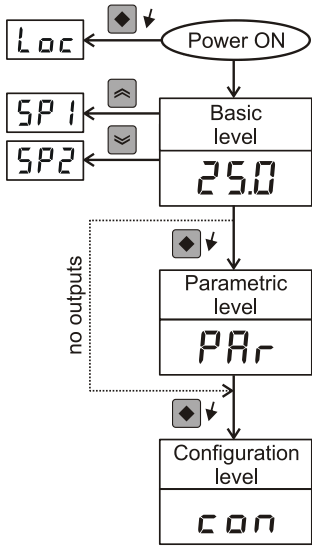
For eliminating undesirable switches of the alarm output K1, additional parameters (Hold On 1 and Hold Off 1) are assigned to hold the output reaction for certain period of time.

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	Dim.	Notes
x1, x0.1, x0.01	-	when indicating values with the input-signal measurement unit (ISU)
u10, u5, u0, u4	-	This parameter is available only in case of programmable analog input! u10 (0...10 V), u5 (0...5 V), u0 (0...20 mA), u4 (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, ESP, EY	-	dEY (access to Parametric and Configuration levels not allowed; Set Point 1 and Set Point 2 are read-only), ESP (access to Parametric and Configuration levels not allowed; Set Point 1 and Set Point 2 adjustment enabled), EY (access to all levels allowed)
-	-	



Programming Order

- ◆ Allow access to all levels;
- ◆ Set the parameters from Configuration level;
- ◆ Set the parameters from Parametric level;
- ◆ Adjust alarm set points;
- ◆ Set desired level access.

Hidden level

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

Basic level

At power-on, BDTA7838 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 PAr appears on the display. Release the key. If the key is not released on time, BDTA7838 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 rEn 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'.