

Connection module
Model: **MUSH-DLM**



**USER'S
MANUAL**

Manufacturer:
Private enterprise "ARTON"
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1 FUNCTIONS

1.1 The module is designed to connect ARTON-DL beam smoke detector to four wire intruder and fire alarm control panels as well as to FACP with AC circuits.

1.2 The module is intended to monitor current in 2 wire alarm line and, depending on the current value, to change output's status for transmission of notifications (STANDBY MODE, FIRE, FAULT) to FACP.

1.3 The module provides the LED indication of the following statuses:

- STANDBY MODE - green LED;
- FIRE - red LED;
- FAULT - yellow.

1.4 When FIRE signal has been received the module issues FIRE notification for FACP by intermittent resistance rise (by current drop) or by circuit break.

1.5 The modules issues FAULT notification by circuit break of four wire alarm line. The module issues FAULT notification when the following events are detected:

- open-circuit in two-wire alarm line;
- short-circuit in two-wire alarm line;
- receipt of FAULT signal from ARTON-DL;
- absence of 12V on the module (the LED is off).

The FAULT notification is issued by circuit break of four-wire alarm line.

1.6 The module provides restriction of current when short-circuit occurs in two-wire alarm line.

1.7 The module allows to deenergize two-wire line using the RESET button.

1.8 The module's appearance and screw contracts are shown in Fig.1.

2 TECHNICAL SPECIFICATIONS

2.1	Rated voltage	12 V
2.2	Input voltage range	10,2-13,8 V
2.3	Output voltage range (ARTON-DL voltage)	9,7-13,6 V
2.4	Short-circuit current in 2-wire line circuit	≤20 mA
2.5	2-wire circuit current recognized by the module as FAULT	≤1,8 mA and ≥18,0 mA
2.6	2-wire circuit current recognized by the module as standby mode	2,2-5,5 mA
2.7	2-wire circuit current recognized by the module as FIRE mode	7,5-16 mA
2.8	2-wire open-circuit current consumption	≤15 mA
2.9	Standby current consumption	≤20 mA
2.10	Short-circuit 2-wire circuit current consumption	≤35 mA
2.11	Max output voltage (terminals 2, 3 and 3, 4)	30 V
2.12	Max output current (terminals 2, 3 and 3, 4)	30 mA
2.13	Open output resistance (terminals 2, 3 and 3, 4)	≤50 Ohm
2.14	Closed output resistance in standby mode (terminals 2, 3 and 3, 4)	>100 Ohm
2.15	Dimensions	65x55x20 mm
2.16	Weight	50 g
2.17	Operating temperature range	from 1 to 40 ° C
2.18	Relative humidity at 35 ° C	≤95 %

3 ITEMS SUPPLIED WITH THE MODULE

Item	Quantity	Note
MUSH-DLM module	1	
Manual	1	

4 INSTALLATION

- 4.1 Consider on an installation place for the module in the same premises where a control panel is installed at not more than 10 m, and mark out mounting places.
- 4.2 Remove the plug in the center of the module.
- 4.3 Remove the module's cover after the mounting screw has been unscrewed.
- 4.4 Secure the module's base plate using two \varnothing 3×30 mm screws (not supplied).
- 4.5 Connect the ARTON-DL detector to the module according to Fig. 2 or Fig. 3.
- 4.6 Connect the ARTON-DL detector to FACP as per Fig.2 or Fig.3. EOL resistor and CLR resistor in the alarm circuit are specified by the control panel manufacturer (from 1 to 5 kOhm).

5 HOW TO COMMISSION THE MODULE

- 5.1 Switch on the control panel (apply power to the module). Statuses of LEDs and output circuits of the module depend on the current value in 2-wire circuit the ARTON-DL is wired to. Calibrate the detector then reset the detector and control panel to standby mode. A green indicator shall be lit.
- 5.2 Keep pressed the Reset button for at least 5 sec. The 2-wire alarm power shall be turned off. The yellow indicator will be lit on the module and the control panel will register this event as ALARM or FAULT (depending on the type).
- 5.3 Release the Reset button. The yellow LED will be off and the green one off and the detector will go to standby mode.
- 5.4 Reset the status of zone on the control panel (see the manual for the control panel in use).
- 5.5 Activate the detector (see the manual for Arton-DL) where the detector is giving the FIRE signal. The green indicator will extinguish and the red one will be on, the control panel will register the ALARM or FAULT signal depending on the control panel type.
- 5.6 Keep pressed the Reset button on the module for at least 5 sec. The 2-wire line power will be off. The red indicator will be off and the yellow one will be on. Release the Reset button. The yellow indicator will extinguish, the green one will be lit and the detector will go to standby mode.
- 5.7 Reset the status of the zone on the control panel.
- 5.8 Disconnect the Rn resistor from the transmitter's block. The green indicator on the module will be off and the yellow one will be on. The control panel (depending on the type) will register the FAULT or ALARM signal.
- 5.9 Install the Rn resistor back. The yellow indicator will be off on the module, the green one will be off. The detector should remain in standby mode of operation.
- 5.10 Reset the status of the zone on the control panel.
- 5.11 Set the short circuit in 2 wire line. The green indicator shall be off, the yellow will be on. The control panel will register the FAULT or ALARM signal depending on the type.
- 5.12 Clear the short-circuit. The yellow indicator shall be off on the module, the green will be on. The detector will remain in standby mode of operation.
- 5.13 Reset the status of the zone on the control panel.

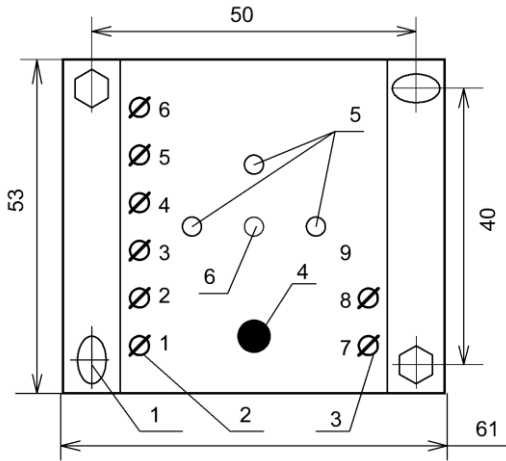
6 MAINTENANCE

- 6.1 The module's maintenance includes clearing of parts and checking for proper operation.
- 6.2 Refer to section 5 for checking for proper operation.

7 WARRANTY

- 7.1 The product is warranted for 36 months from the date of quality control approval.
- 7.2 The manufacturing company repairs or replaces the module within the warranty period on terms of keeping the rules of usage.

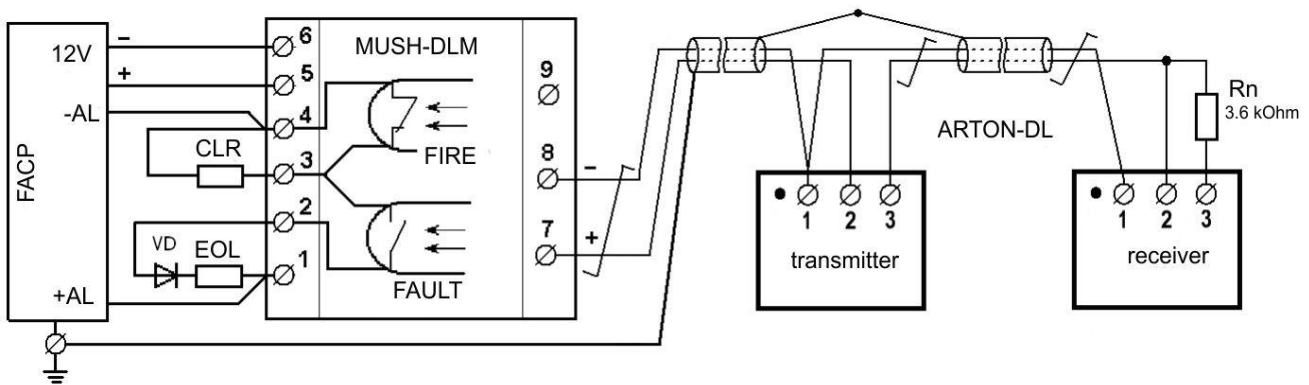
MUSH-DL appearance



- 1 – four holes for fastening of the housing
- 2 – terminals «1» -«6» for connection of 4-wire line, EOL and current limiting resistors
- 3 – terminals «7», «8» for connection of 2-wire line
- 4 – RESET button
- 5 – optical indicators
- 6 – hole for mounting screw.

Fig. 1

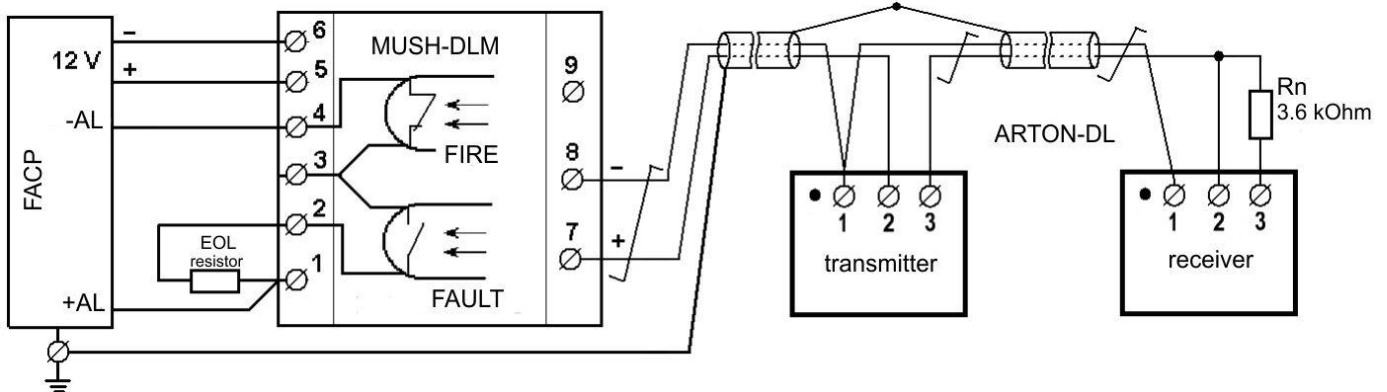
Wiring diagram for ARTON-DL to FACP with AC circuit via MUSH-DLM module



The connections are made by screened twisted pair. Resistor $R_n = 3,6 \text{ k}\Omega$.
EOL resistor and CLR are specified by control panel manufacturer.

Fig. 2

Wiring diagram for ARTON-DL to intruder and fire alarm control panels via MUSH-DLM module



The connections are made by screened twisted pair. Resistor $R_n = 3,6 \text{ k}\Omega$.
EOL resistor and CLR are specified by control panel manufacturer.

Fig. 3

QUALITY CERTIFICATE

MUSH-DLM connection module, serial numbers:

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Approved: *Proper quality*

_____ pieces

Manufacturing date _____._____.201__

Quality control representative _____