EXTINGUISHING CONTROL AND INDICATOR MODULE

S2000-PT

ИСО 9001

INSTRUCTION MANUAL

This Manual describes operation principles and operating conditions for the S2000-PT Extinguishing Control and Indicator Module of **version 2.60**.

1 TECHNICAL DATA

1.1 General

1.1.1 The S2000-PT Extinguishing Control and Indicator Module (hereinafter referred to as the module) is designed to operate as part of a fixed gaseous, dry chemical, or aerosol fire-fighting system. The module can operate only within the Orion ISS under control of a network controller (S2000M console of version 3.00 or higher). The module can also operate under control of an S2000M console of versions 2.03 to 2.07 but in this case the functional capabilities of the module are limited.

1.1.2 The module provides light and sound indication for fire-fighting conditions of four discharge areas equipped with S2000-ASPT Extinguishing Control Units of versions 3.50 and higher. The module also provides remote control for the said devices:

- Enabling and disabling automatic fire-fighting mode for S2000-ASPT;
- Discharge/canceling discharge;
- Stopping/resuming/resetting a pre-discharge delay.

The module can be used in co-operation with S2000-ASPT units of versions 3.08 and below but in this case the functional capabilities of the module are limited.

If the module is used with an S2000M console of version 2.03…2.07 or S2000-ASPT units of versions 3.08 and earlier, it doesn't support:

- Displaying countdown of discharge delay on its front panel;
- Stopping/resuming/resetting discharge delays;
- Indicating disabled inputs and outputs which are indicated as Troubles.

1.1.3 Access to control buttons is limited by means of the built-in iButton reader.

1.1.4 The module can be used as a device for enabling / disabling automatic discharge mode. In this case the module is to be used immediately inside the protected premises near the entrance.

1.1.5 If necessary, two or more modules can be installed within the protected premises. In such case the module located near the work place of the operator is used as an indicator and control device for four discharge areas while the second one located near the entrance is used as a device enabling / disabling automatic discharge mode.

1.1.6 The module is intended for round-the-clock operation.

1.1.7 The module is not intended to be used in aggressive environment or dust condition, or in explosion-hazardous premises.

1.1.8 The average lifetime of the module is 10 years.

1.1.9 The module appears in Figure 1.

1.2 SPECIFICATIONS

- **Light Indicators**
  - 36 indicators in 4 columns to indicate conditions of 4 discharge areas;
  - 4 three-digit seven-segment LED displays to show countdown of discharge delay (0…999 s);
  - 8 summary indicators to display summarized conditions of the fire-fighting system in whole;
  - 6 indicators to indicate conditions of the module itself.
- **Partitions** - 4
- **Power Voltage** - 10.2 V dc to 28.4 V dc. Bolid manufactured RIP-12 or RIP-24 power supplies are recommended to be used
- **Consumed Power** - 3 W max
- **Consumed Current (max)**
  - in the alarm mode
    - 200 mA at 12 V
    - 100 mA at 24 V
  - in the quiescent mode (all LEDs are off) - 50 mA at 12 V / 24 V
- **Tamper Switch** - Yes
- **Built-in Sounder** - Yes
- **RS-485 Communication Port (to work as part of an Orion ISS)** - Yes
- **Pre-operation Time** - 2 s max
- **Programming** - UProg (ver. 4.1.0.48 or higher)
- **Built-in Reader** - 1 Touch Memory reader
- **Weight** - 0.6 kg max
- **Overall Dimensions** - 170 mm × 340 mm × 27 mm
- The content of precious materials: no need to account for the storage, disposal and recycling.

1.3 Standard Delivery

1) S2000-PT Extinguishing Control and Indicator Module – 1 pc.
2) Instruction Manual – 1 pc.
3) Woodscrew – 3 pcs.
4) Wall plug 6×30 – 3 pcs.
5) Packing – 1 pc.

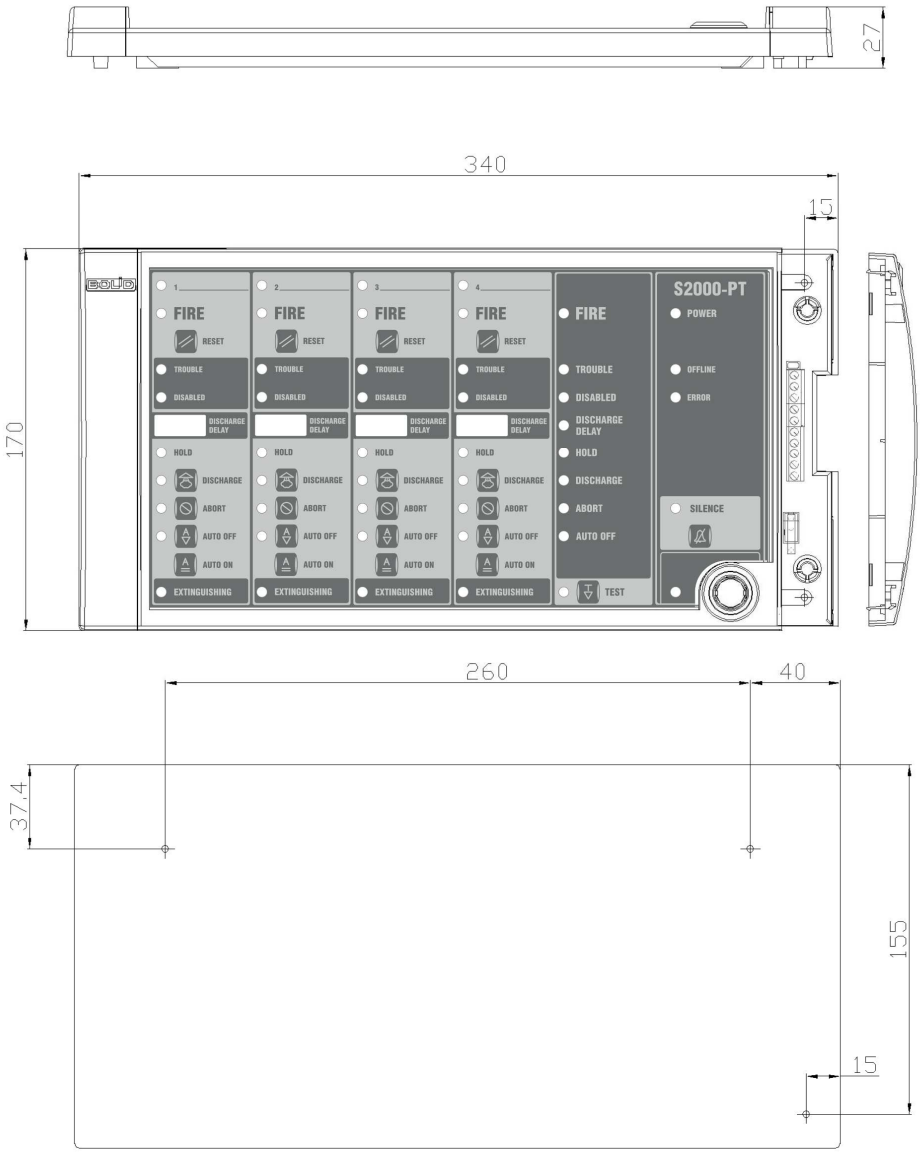

Figure 1. View, Overall and Mounting Dimensions of the S2000-PT

2 MOUNTING AND CONNECTING THE MODULE

2.1 Mounting the Module

2.1.1 Mount the module in accordance with your applicable local standards, codes, regulations, and ordinances. Mount the module at that height above the floor which is suitable to operate and maintain it.

2.1.2 The module is to be mounted on walls or other constructions of premises at places protected against atmospheric fallouts and mechanical damage.

2.1.3 Prior to attaching the module, please ensure that the wall the module is to be mounted to is solid, flat, clean, and dry.

2.1.4 Mark three mounting points on the wall in accordance with Figure 1.

2.1.5 Drill the mounting holes. Then insert wall plugs into the holes and screw two woodscrews provided in the two upper holes so that the distance between a woodscrew head and the wall is about 7 mm.

2.1.6 Remove the cover panel from the right side of the module by pulling the panel toward.

2.1.7 Hang the module on two woodscrews. Screw the remaining woodscrew into the lower mounting hole (see Figure 1) and fix the module on the wall.

2.2 Connecting the Module

2.2.1 Connect wires to the terminals as shown in Figure 2.

2.2.2 Please observe polarity connecting the module to the power supply.

2.2.3 Please use wires of the cross section of no more than 1.5 sq. mm.

2.2.4 If the module and the panel (or other Orion system device connected to the RS-485 interface bus) are supplied with power by different power supplies, couple their relevant “0V” circuits.

2.2.5 Unless the module is the last or the first device in the RS-485 interface bus, remove the EOL jumper from the module’s PCB (see Figure 2).

2.2.6 Close the cover panel at the right side of the module.

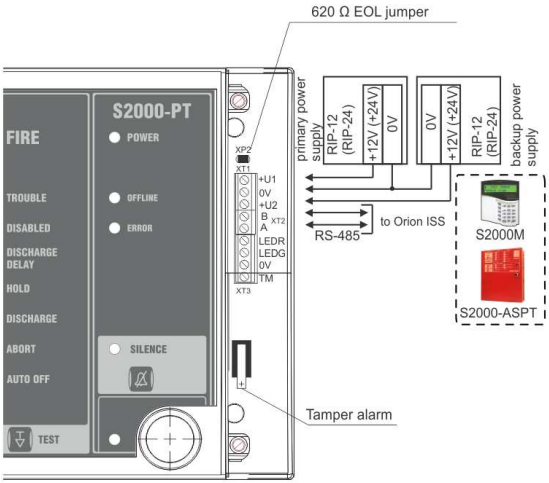

Figure 2. S2000-PT Connection Diagram

3 TESTING THE MODULE

3.1 The module should be tested by operating engineering personnel with second or higher safety qualification level.

3.2 Inspect the module at following ambient conditions:

- The relative humidity 45% through 80%;
- The ambient temperature 15°C through 35°C;
- The atmospheric pressure 630 mm Hg through 800 mm Hg.

3.3 While inspecting the module, always shut off the module's power before connecting and disconnecting its external circuits.

3.4 Full inspection of the module implies inspecting the module's operability and testing the module using the Indication Test function.

3.5 Preparing for inspection:

a) Check the packing and unpack the module;

b) Inspect the parts list in accordance with Section 1.3;

c) Ensure the module case is undamaged;

d) Shake the module to ensure there is no debris inside the module's case;

e) Ensure the terminals are tightened properly.

3.6 Inspecting Operability of the Module

3.6.1 To inspect the module, use an S2000M panel. Connect the module's RS-485 circuits and power circuits to the relevant terminals of the panel (see the S2000M manual for detailed instructions).

3.6.2 Connect a milliammeter in series with the power circuit of the module.

3.6.3 Apply power to the module and the panel.

3.6.4 POWER LED of the S2000-PT shall show green solid light within 2 s.

3.6.5 Measure the current consumed by the module. Its value shall not exceed 200 mA.

Figure 3

3.6.6 Within a minute since powering on the panel it shall display a message about detecting a device with the network address assigned to the S2000-PT (factory value of the module address is 127). Figure 3 shows the display of the S2000M panel with the relevant message.

3.6.7 If several messages accumulated by the module have been received by the panel, you can browse them by the arrow buttons «◄» and «►» on the S2000M.

3.7 Inspecting the Module in the Indication Test Mode

3.7.1 Run the Indication Test function by one of the following ways:

- Select INDICATION TEST in the menu of the S2000M panel and enter the module address (the factory address of the module is 127) – to get more information please refer to S2000M User's Manual;
- Press TEST button while being authorized to control the module (see Section 5.4);
- Press the SILENCE button by a specific way: three times for a short time and once for a longer time (***–). "A short time" means a time 0.1 s to 0.5 s. "A longer time"

means a time more than 1.5 s. A pause between presses should be no less than 0.1 s and no more than 0.5 s. This way is useful to check module's indication quickly, just on receipt the device.

3.7.2 In this mode the TEST indicator shows solid amber light for the duration of the test. Another indicators switch on as follows:

a) All the LEDs apart from these ones in right column and the seven-segment LED displays simultaneously switch on in green, then in amber, and finally switch off;
b) All the LEDs apart from these ones in right column switch on with red and then switch off;
c) The indicators in the right column switch on in turns downward provided that:
   – POWER LED shows green light;
   – Access LED near the built-in iButton reader switches on firstly with green then with red;
   – Other indicators show amber light.
d) All seven-segment LED displays simultaneously show digits from «1» to «9» and switch off.

3.7.3 When the module enters the Indication Test mode, it issues a double beep. When the module exits the Indication Test mode, it issues a triple beep.

3.7.4 The Indication Test mode switches off automatically in 15 seconds.

4 PROGRAMMING THE MODULE

4.1 To be adjusted for a specific application, the module supports changing its configuration parameters which are stored in its non-volatile memory. The parameters of the module can be edited with the help of UProg Configuration Tool (of version 4.1.0.48 or higher). To do this, please use a computer and an interface converter such as PI-GR, S2000-PI, S2000-USB, USB-RS485, or S2000M (of version 2.03 or higher). The last version of UProg Configuration Tool along with additional information related to using the module is available at the address **http://bolid.ru**. Table 1 shows the configuration parameters of the module.

Table 1. Configuration Parameters of the Module

Parameter	Description	Range	Factory Value
1. Network Address	The network number of the module in the line of the RS-485 interface bus	1 – 127	127
2. Response Pause	The admissible delay for the module to answer the request of the network controller	(1.5 – 500) ms	1.5 ms
3. Partition	Number of the Orion partition for the given discharge area	1 – 9999	0
4. System Indicators Mode	Disabled*	Off	Module
	Summarized for the module	Module	
	Summarized for the partition (Partition number 1 – 9999)	Partition (1 – 9999)	
5. Both Power Inputs Monitoring		On/Off	Off

* - TROUBLE LED always indicates troubles when they have been occurred at the S2000-PT

5 OPERATING MODES

5.1 Modes of Light Indication

5.1.1 Table 2 demonstrates operation modes of the Unit 1…Unit 4 group LEDs and the summary system indicator group LEDs.

Table 2. Unit 1…Unit 4 and Summary System Indicators Behavior

LED	Conditions of the Partition	LED's Behavior	
Ready (Discharge Area or Unit Name)	Indication for the unit is operative	Green	On
	This part of the module is not used or unit status is unknown	-	Off
FIRE	Fire Prealarm	Red	1s On / 1s Off
	Fire Alarm 1		0.5s On / 0.5s Off
	Fire Alarm 2		On
	No fire alarms	-	Off
TROUBLE	Open / Short Failure of the Loop / Output	Amber	1s On / 1s Off
	AC Power Failure		
	Power Supply Failure		
	Battery Failure / Discharge		
	Fire Equipment Failure		
	Tamper Alarm		
	Loop Arming Failed		
	Discharge Failed		
	Device/input/output Communication Fault		
	No troubles	-	Off
DISABLED	Disabled Input / Output	Amber	On
	Disarmed / Disabled Loop		
	Others	-	Off
HOLD	Discharge Holding	Amber	On
	Others	-	Off
DISCHARGE DELAY (summary indicator)	Discharge Delay	Red	On
	Discharge Delay Stopped	Amber	On
	Others	-	Off
DISCHARGE	Start of fire-fighting, activation of the executive device	Red	On
	Others	-	Off
ABORT	Abort fire-fighting	Amber	On
	Others	-	Off
AUTO OFF	Automatic mode is off	Amber	On
	Others	-	Off
EXTINGUISHING	Extinguishing	Red	On
	Others	-	Off

5.1.2 Three-digit seven-segment LED displays show count down of discharge delay. The delay is counted down in seconds individually for each discharge area. If the delay value is not known (for example when using earlier versions of S2000-ASPT or S2000M) then the seven-segment displays show the characters «- - -».

5.1.3 Table 3 shows modes of operating of the indicator group of the module itself.

Table 3. Module's Indicators Performance

LED	Conditions of the Partition / Module	LED's Behavior	
POWER	Proper powering of the S2000-PT	Green	On
	Power failure of the S2000-PT	-	Off
Access Indicator near the iButton Reader	Request for access to control S2000-ASPT	Green	0.25s On / 0.25s Off
	Executing the command		
	Access Granted	Green	On
	Access Rejected	-	Off
TEST	Indication Test has been run for the S2000-PT	Amber	On
	Others	-	Off
OFFLINE	No communication with the network controller for more than 60 seconds.	Amber	1s On / 1s Off
	Communication with the network controller is established	-	Off
ERROR	An error has been detected (S2000-PT firmware must be repaired, see Section 8)	Amber	0.25s On / 0.25s Off
	Others	-	Off
SILENCE	Audible signals are disabled	Amber	On
	Others	-	Off

5.2 Modes of Sound Indication

5.2.1 Table 4 shows the modes of operation of the module's sounder.

Table 4. Sounder's Performance

Conditions of the Partition / Module	Sounds
A button is pressed (when access is granted)	Beep
A command is executed	
An iButton is presented	
Access is granted	
A button is pressed (when access is not granted)	Long sound
A command has not been executed	
Indication Test is started/ Indication Test is completed/ Control timeout is over	Three beeps
Extinguishing	Long two-tone solid sound (1)
Discharge Fault	Long two-tone solid sound (2)
Fire Alarm/Discharge Delay/Discharge Delay Holding/Discharge	Short two-tone solid sound
Fire Prealarm	Interrupted two-tone sound
Trouble	Interrupted single-tone sound

* – Sound's modes are shown in order of descending preference, that is "Beep" is of the highest priority while "Interrupted single-tone sound" is if the lowest priority.

5.2.2 A sound can be stopped by pressing the SILENCE button  . However sound signals will be enabled again when a new event requiring sound signaling has been received. To cancel silencing, please press the SILENCE button  repeatedly.

5.3 Local Access Levels

5.3.1 Two local access levels are implemented to control the module itself. The first level (without limitation) enables silencing the S2000-PT module (by means of the SILENCE button ) for any user. The second access level enables remote control of S2000-ASPT units and testing module's indication for an authorized user which has presented a relevant iButton to the S2000-PT reader (see below).

5.4 Remote Control for S2000-ASPT Units

5.4.1 To achieve access to control the assigned S2000-ASPT units by means of the module's buttons, you should present a relevant credential (iButton) to the module's iButton reader. The credential must be defined in the S2000M configuration along with a list of partitions enabled for control and the specific rights of control.

For more information about programming the S2000M panel, please refer to S2000M User's Manual available online on the Bolid website **http://bolid.ru**, the page of S2000M, the tab **Download**.

The same partitions must be assigned with the S2000-PT in the module's configuration (see Section 4). Control is enabled within 30 s since presenting the iButton. Each press on a control button prolongs the control time by 20 s. The possible actions are shown in Table 5.

Table 5. Actions of the Control Buttons

Button	Conditions of the Partition/S2000-ASPT Unit	Action
RESET		Resetting fire alarms
DISCHARGE	No discharge conditions	Discharge (starting counting of the discharge delay)
	Discharge delay is being counted	Zeroing the discharge delay (instant discharge)
	Counting discharge delay has been stopped	Continues counting of the discharge delay
ABORT	Discharge delay is being counted	Counting discharge delay has been stopped (pause in counting the discharge delay)
	Discharge delay*	Cancelling discharge
	Counting of the discharge delay has been held	
AUTO OFF		Disables the automatic discharge mode
AUTO ON		Enables the automatic discharge mode
TEST		Runs Indication Test function, see Section 3.7

* – Counting the discharge delay is not displayed while using previous versions of S2000-ASPT and S2000M.

5.4.2 If access is granted, the module issues a beep. The result and the process of granting access are indicated by access LED located near the iButton reader (see Table 3).

5.4.3 If access has been granted, pressing a control button is acknowledged by a beep, otherwise, if access is not granted the module issues a long sound when you press a control button.

5.4.4 Executing a command (receiving an acknowledgement from an S2000-ASPT unit) also is accompanied by a beep. If the command is not executed, the module issues a long solid sound.

5.4.5 The control time having reached, the access indicator is off and three beeps are issued.

5.5 Messages Transmitted to the Network Controller

5.5.1 The module transfers the network controller the following messages over the RS-485 interface:

TAMPER ALARM	The module's case has been open
TAMPER RESTORED	The module's case has been closed
POWER FAILED	The power voltage has been below the normal value
POWER RESTORED	The power voltage is in norm
MANUAL TEST	The test of module's indication is run

6 OPERATION DIRECTIVES

6.1 Main Operating Factors

6.1.1 The module doesn't send false alarms under electromagnetic interference of the second severity level in accordance with Russian Standard ГОСТ Р 50009.

6.1.2 Radio disturbances from the module operation do not exceed the values specified in ГОСТ Р 50009.

6.1.3 The module design provides ingress protection rating IP20 according to Russian Standard ГОСТ 14254-96.

6.1.4 The module is designed to provide its fire safety while emergency operating and on violations of operation rules in accordance with Russian Standard ГОСТ 12.1.004-91.

6.1.5 As to resistance to mechanical stress the module corresponds to the placement category 03 in accordance with Russian Standard ОСТ 25 1099-83.

6.1.6 The module is designed to operate under ambient temperatures from minus 30°C to +50°C.

6.2 Safety Precautions

6.2.1 The design of the module meets the requirements of electrical and fire safety in accordance with Russian Standards ГОСТ 12.2.007.0-75 and ГОСТ 12.1.004-91.

6.2.2 The module has no circuits under a hazardous voltage.

7 MAINTENANCE

7.1 The maintenance works must be carried out by electricians certified with the second or higher electrical safety qualification level.

7.2 Preventive maintenance of the module should be carried out at least annually. Maintenance works are to be performed by a service company employee and include:

- Visual checking of the S2000-PT against contaminations and mechanical damage;
- Verifying the S2000-PT for secure mounting and wire connection conditions;
- Inspection of the S2000-PT operability in accordance with Section 3 of this Manual.

8 UPDATING FIRMWARE

8.1 Firmware of the module can be updated. A new firmware version can extend functionality of the module or fix problems of the current version. The list of available firmware versions, their key features and recommended updates can be found online at the site **http://bolid.ru** at the page of the S2000-PT module at the tab "Download".

8.2 Firmware can be updated by means of Orion-Prog software utility, the link to the current version of which is available at the same page. The procedure of updating firmware is discussed in the program Help.

8.3 Updating firmware can change the module configuration, so prior to updating please save the module's configuration into a file by means of UProg Configuration Tool. When updating is completed load the configuration from the file to the module.

8.4 It takes several minutes to update firmware.

8.5 It may be that the module enters to the mode of updating firmware as a result of unexpected failure. In this case updating (recovering) firmware with the help of Orion-Prog can restore module's operability without contacting a service center.

9 CERTIFICATES

9.1 Conformity Certificate № C-RU.ЧС13.В.00292 approves that S2000-PT Extinguishing Control and Indicator Module meets the requirements of Federal Law No. 123-FZ dated July 22, 2008 Technical Regulation of Fire Safety Requirements.

9.2 S2000-PT Extinguishing Control and Indicator Module is part of Orion Addressable Fire Alarm System which is approved by Conformity Certificate No. BY/112 02.01.033 00573, issued by Republican Centre for Certification and Expertise of Licensable Activities Of Ministry for Emergency Situations of the Republic of Belarus, 73a Zakharova Str., Minsk, 220088.

9.3 Conformity Certificate ТС № RU Д-RU.МЕ61.В.00354 certifies that S2000-PT Extinguishing Control and Indicator Module meets the requirements of Technical Reglament of Custom Union TR CU 020/2011.

9.4 Production of S2000-PT Extinguishing Control and Indicator Module is certified according to ГОСТ ISO 9001-2011 by Conformity Certificate № РОСС RU.ИК32.К00153.

10 ACCEPTANCE AND PACKAGING CERTIFICATE

S2000-PT Extinguishing Control and Indicator Module
Product Name Serial Number

is produced, accepted in accordance with mandatory requirements of state standards and current technical documentation, packaged by CJSC NVP "Bolid" and qualified as proper for operation.

QCD _____ _____
Full Name Date, Month, Year

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