

EXTINGUISHING CONTROL AND INDICATOR MODULE

S2000-PT

ICO 9001

INSTRUCTION MANUAL



This Manual describes operation principles and operating conditions for the S2000-PT Extinguishing Control and Indicator Module of version 2.50.

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 Panels 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 discharge delay.

The module can be used in co-operation with S2000-ASPT panels 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 panels 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 Trouble.

1.1.3 Access to control buttons is limited by means of 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 medium or dust condition, or in explosion-hazardous premises.

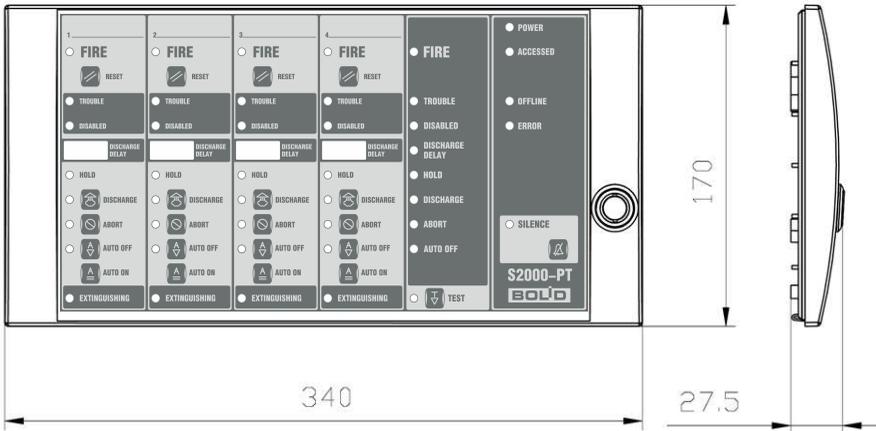
1.1.8 The module appears in Figure 1.

1.2 SPECIFICATIONS

- **Light Indicators**
 - 32 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
 - 3 W max
- **Consumed Power**
 - 200 mA at 12 V
 - 100 mA at 24 V
- **Consumed Current (max)**
 - in the alarm mode
 - 50 mA at 12 V / 24 V
 - in the quiescent mode (all LEDs are off)
 - Yes
- **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 × 25.5 mm

1.3 Standard Delivery

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



Rear View:

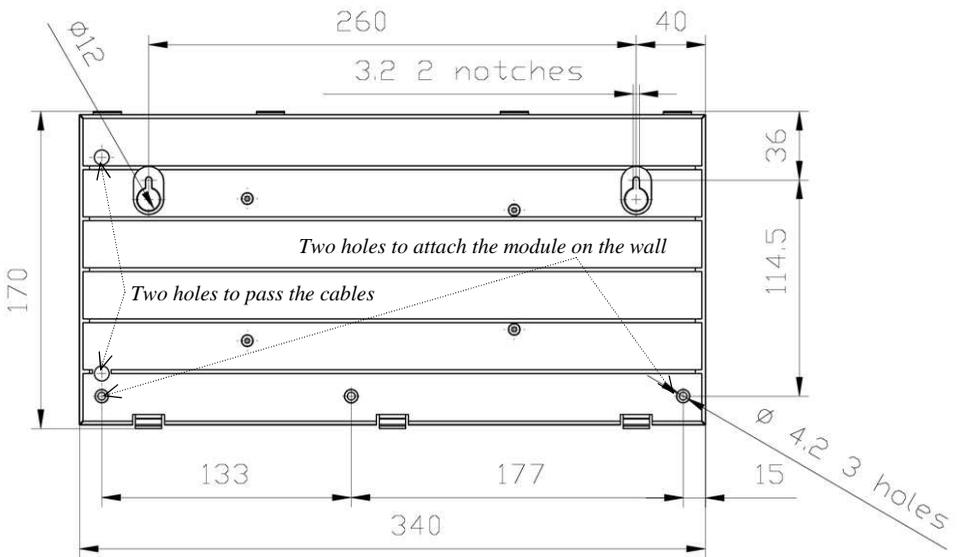


Figure 1. View, Overall and Mounting Dimensions of the S2000-PT

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 four 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 front cover of the module by bending it relative to point «0» in accordance with Figure 2. Place your thumbs over the clips as close to the point «0» as you can.

2.1.7 Hang the module on two woodscrews. Screw the remaining woodscrews into the lower mounting holes and fix the module on the wall.

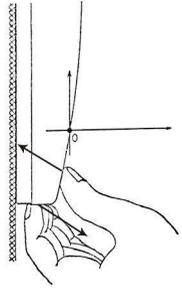


Figure 2. How to Open the Front Cover

2.2 Connecting the Module

2.2.1 Connect wires to the terminals as shown in Figure 3.

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, or the console, or other Orion system device connected to the RS-485 interface bus is supplied with power by a different power supply, 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 3).

2.2.6 Connect the module to an iButton reader if it is required by your design documentation.

2.2.7 Close the rare panel of the module.

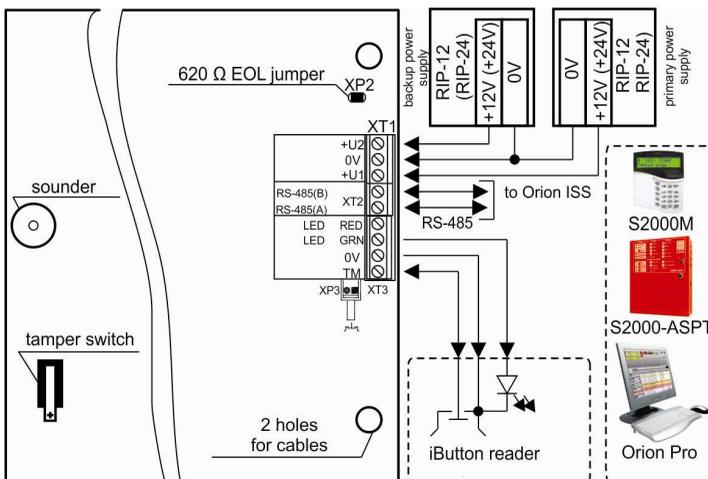


Figure 3. S2000-PT Connection Diagram

3 TESTING THE MODULE

3.1 To make sure your S2000-PT module keeps proper operability, it must be inspected by a competent specialist at least on receipt and annually.

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 Lamp Test function.

3.5 Preparing for inspection:

- a) Check the packing and unpack the module;
- b) Inspect the parts list in accordance with Clause 1.3;
- b) Ensure the module case is undamaged;
- r) Shake the module to ensure there is no debris inside the module's case;
- d) Ensure the terminals are tightened properly.

3.6 Inspecting Operability of the Module

3.6.1 To inspect the module, use an S2000M console. Connect the module's RS-485 circuits and power circuits to the relevant terminals of the console (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 console.

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.

3.6.6 Within a minute since powering on the console 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 4 shows the display of the S2000M console with the relevant message.

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

3.7 Inspecting the Module in the Lamp Test Mode

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

- Select LAMP TEST in the menu of the S2000M console and enter the module address (the factory address of the module is 127) – to get more information please see S2000M User's Manual;
- Press TEST button  while being accessed to control the module (see Clause 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"



Figure 4

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 yellow 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 yellow, 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 at firsts switches with green then with red;
 - Other indicators show yellow 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 Lamp Test mode, it issues a double beep. When the module exits the Lamp Test mode, it issues a triple beep.

3.7.4 The Lamp 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://bold.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	(3 – 500) ms	3 ms
3. Partition	Number of the 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	
FIRE	Fire Prealarm	Red	1s On / 1s Off
	Fire Alarm 1		0.25s On / 0.25s Off
	Fire Alarm 2		On
	No fire alarms	-	Off
TROUBLE	Open / Short Failure of the Loop / Output	Yellow	1s On / 1s Off
	AC Power Failure		
	Power Supply Failure		
	Battery Failure / Discharge		
	Fire Equipment Failure		
	Tamper Alarm		
	Loop Arming Failed		
	Discharge Failed		
No troubles	-	Off	
DISABLED	Disabled Input / Output	Yellow	On
	Disarmed / Disabled Loop		
	Others	-	Off
HOLD	Discharge Holding	Yellow	On
	Others	-	Off
DISCHARGE DELAY (a system indicator)	Discharge Delay, Discharge Delay Stopped	Red	On
	Others	-	Off
DISCHARGE	Start fire-fighting, activation of the executive device	Red	On
	Others	-	Off
ABORT	Abort fire-fighting	Yellow	On
	Others	-	Off
AUTO OFF	Automatic mode is off	Yellow	On
	Others	-	Off
EXTINGUISHING	Extinguishing	Red	On
	Others	-	Off

5.1.2 Three-digit seven-segment LED displays shows 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 shows the characters «- - -».

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

Table 2. Module’s Indicators Behavior

LED	Conditions of the Partition / Module	LED’s Behavior	
POWER	Proper powering the S2000-PT	Green	On
	Power failure of the S2000-PT	-	Off
ACCESSED (external ACCESSED indicator)	Request for Access to Control Partitions	Green	0.25s On / 0.25s Off
	Access Granted	Green	On
	Access Rejected	-	Off
TEST	Lamp Test function has been run	Yellow	On
	Others	-	Off
OFFLINE	No communication with the network controller for more than 60 seconds.	Yellow	1s On / 1s Off
	Communication with the network controller is established	-	Off
ERROR	An error has been detected (S2000-PT firmware must be repaired)	Yellow	0.25s On / 0.25s Off
	Others	-	Off
SILENCE	The audible signal of the panel sounder is switched off	Yellow	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 Behavior

Conditions of the Partition / Module	Sounds
A button has been pressed (access to control is granted)	Beep
A command has been executed	
An iButton has been presented	
Access has been granted	
A button has been pressed (access to control is not granted)	Long sound
A command has not been executed	
Lamp Test has been started/ Lamp Test has been completed/ Control timeout has been over	Three beeps
Extinguishing	Long two-tone solid sound (1)
Fault Discharge	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 reset by pressing the SILENCE button . However sound signaling switches on 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. 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 panels 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 Panels

5.4.1 To gain access to control the assigned S2000-ASPT panels by means of the module's buttons, you should present a relevant credential (iButton) to the module's reader (either built-in or external). The credential must be defined in the S2000M configuration along with a list of partitions enabled for control and the specific rights of control. The same partitions must be assigned with the S2000-PT in the module's configuration. 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/Module	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	Restart 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		Disable the automatic discharge mode
AUTO ON		Enable the automatic discharge mode
TEST		Run Lamp Test function, see Clause 3.6

* – 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 ACCESSED LED.

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

5.4.4 Executing a command (receiving an acknowledgement from the S2000-ASPT panel) 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 indicator ACCESSED 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

6 OPERATION DIRECTIVES

6.1 Main Operating Factors

6.1.1 The module design provides IP20 ingress protection rating.

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

6.2 Safety Precautions

6.2.1 The module has no circuits under a hazardous voltage.

7 MAINTENANCE

7.1 To make sure your S2000-PT module keeps proper operability, it must be inspected by a competent specialist at least on receipt and annually. The inspection algorithm shall include:

- Visual checking 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.



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