

**SERIAL RS-232 / RS-422 / RS-485 FIBER OPTIC MODEM
RS-FX-MM, RS-FX-SM40**

ICO 9001



OPERATIONS MANUAL

1 DESCRIPTION AND OPERATION

1.1 Product Purpose

1.1.1 RS-FX-MM / RS-FX-SM40 Serial RS-232 / RS-422 / RS-485 Fiber Optic Modem (hereinafter referred to as the modem) is designed to convert a standard RS232 / RS485 / RS422 signal to a fiber optic link to extend the signal up to 40 Km.

1.1.2 The modem is intended for round-the-clock operation.

1.1.3 The modem is classed as non-repairable and periodically serviced equipment.

1.1.4 The modem's design doesn't imply operating it in aggressive and dusty environments or in explosion and fire hazardous premises.

1.2 Specifications

Table 1.2.1

| Parameter | Value |
|---|--|
| 1.2.1 Power input | 1 |
| 1.2.2 Power supply voltage | 12 through 48 Vdc |
| 1.2.3 Power rate | 5 W max |
| 1.2.4 Start-up time | 10 s |
| 1.2.5 Data rates | 300 through 115200 bps |
| 1.2.6 Fiber range: - RS-FX-MM - RS-FX-SM40 | 2 km 40 km |
| 1.2.7 Fiber optic cable: - RS-FX-MM - RS-FX-SM40 | Multi-mode 50/125 μm Single-mode 9/125 μm |
| 1.2.8 Fiber connector | SC/PC |
| 1.2.9 Optic wavelength | 1,310 nm |
| 1.2.10 Serial range: - RS-232 - RS-422, RS-485 | 15 m 1,000 m |
| 1.2.11 Orion ISS devices per a single RS-485 interface bus | 127 max |
| 1.2.12 Enclosure protection degree as per GOST 14254-2015 | IP20 |
| 1.2.13 Resistance to mechanical exposure as per OST 25 1099-83 | Arrangement Category III |
| 1.2.14 Vibration exposure: - Frequency range - Max acceleration | 1-35 Hz 0.5 g |
| 1.2.15 Environmental category as per OST 25 1099-83 | O3 |
| 1.2.16 Operation Temperature | Minus 30 to + 55°C |
| 1.2.17 Weight | 0.3 kg max |
| 1.2.18 Overall dimensions | 95×70×29 mm |
| 1.2.19 Non-stop operation | 24/7 |
| 1.2.20 MTBF | 80,000 h min |
| 1.2.21 Survival probability | 0.98758 |
| 1.2.22 Expected service life | 10 years |

1.2.23 In terms of immunity to electromagnetic interference, the equipment meets the requirements of Test Severity Level III as per the relevant standards listed in Appendix 'B' to GOST R 53325-2012.

1.2.24 The equipment passes the industrial interference standards prescribed for Class ‘B’ equipment as per GOST R 30805.22.

1.2.25 The modems are to be powered from battery backed power supplies RIP-12 or RIP-24 (of series approved by Fire Certificates) that send faults occurred in the power supply line to an alarm loop of a control and indicating equipment (such as Signal-10, Signal-20M, Signal-20P) or to the network controller (S2000M control panel or Orion Pro Software Suite).

1.3 Scope of Delivery

The modem comes along with the parts shown in Table 1.3.1.

Table 1.3.1

| Item | Q-ty, pcs. |
|---------------------------------|------------|
| RS-FX-MM RS-FX-SM40 | 1 |
| Operations Manual | 1 |
| Resistor C2-33H-0.25-620 Ohm 5% | 3 |
| Wall Mount Bracket | 1 |
| Screw | 2 |
| Wall plug | 2 |

2 INTENDED USE

2.1 The design of the modem meets the requirements of fire and electrical safety including operation in emergency in accordance with GOST 12.2.007.0-75 and GOST 12.1.004-91.

2.2 Do shut off the mains power from the modem before mounting, installing, and maintaining this one.

2.3 Operating restrictions, design, mounting, connecting, settings, testing and operation procedures for the modem are defined in details in its User’s Manual (the full version), which is available online at bolid.ru in the section Products on the page of RS-FX-MM, RS-FX-SM40 and in the mobile app ‘Mobile Product Catalogue’ <https://bolid.ru/support/mobile-catalogue/>.



2.4 If a technical failure of the modem has been found, the equipment shall be taken out of operation and sent for repair in accordance with Section 4.

3 MAINTENANCE

3.1 The modem shall be maintained by persons qualified for Accident Prevention of Level II or higher.

3.2 The maintenance procedures to be performed are described in RS-FX-MM / RS-FX-SM40 User’s Manual (the full version, please see Section 2.3 of this manual).

4 REPAIR

4.1 Repair of faulty equipment is to be performed by the manufacturer or in authorized repair centers. The equipment shall be sent for repair in compliance with Company Standard QMS 8.5.3-2015, which can be found online at our website <https://bolid.ru/support/remont/>.

Attention!



The equipment shall be submitted for repair being assembled and clean and along with all the parts listed in the technical documentation.

Claims are accepted only if a reclamation report describing the problem is applied to the submitted equipment.

4.2 A product's failure resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

4.3 Claims should be submitted to the following address:

NVP BOLID, #4 Pionerskaya Str., Korolyov, Moscow Region, 141070, Russia

Phone/fax: +7 (495) 775-71-55 (PBX). E-mail: info@bolid.ru.

4.4 In case of any issue related to use of the product, please contact the technical support: +7 (495) 775-71-55 or e-mail: support@bolid.ru.

5 STORAGE

5.1 In a transport container the equipment can be stored at ambient temperatures -50°C through +50°C and relative humidity up to 95% at +35°C.

5.2 In the consumer package the equipment shall be stored only in heated premises at temperatures +5°C through +40°C and relative humidity up to 80% at +20°C.

6 TRANSPORTING

6.1 The modem can be transported in a transport package at ambient temperatures minus 50 through +50°C and relative humidity up to 95 % at +35 °C.

7 DISPOSAL

7.1 The equipment is to be disposed of considering that there are no toxic components in it.

7.2 The content of precious materials: does not require accountability for storage, retirement and disposal (Clause 1.2 of GOST 2.608-78).

7.3 The content of non-ferrous metals: does not require accountability for retirement and further disposal.

8 MANUFACTURER WARRANTY

8.1 The manufacturer guaranties the product meets with technical requirements stated in the manuals if the user follows the instructions for transportation, storage, installation, and usage.

8.2 The warranty period is 18 months since putting the product into operation but no more than 24 months from the manufacturer's date of production.

9 CERTIFICATES INFORMATION

For certificates information, please refer to RS-FX-MM / RS-FX-SM40 User's Manual (the full version, please see Section 2.3 of this manual).

10 ACCEPTANCE AND PACKAGING CERTIFICATE

| Product | Factory Number | Packed By | Date, Month, Year |
|------------|----------------|-----------|-------------------|
| RS-FX-MM | | | |
| RS-FX-SM40 | | | |

is manufactured, accepted in line with mandatory requirements of national standards and applicable technical documentation, approved as ready for use, and packaged by the Bolid Company.