

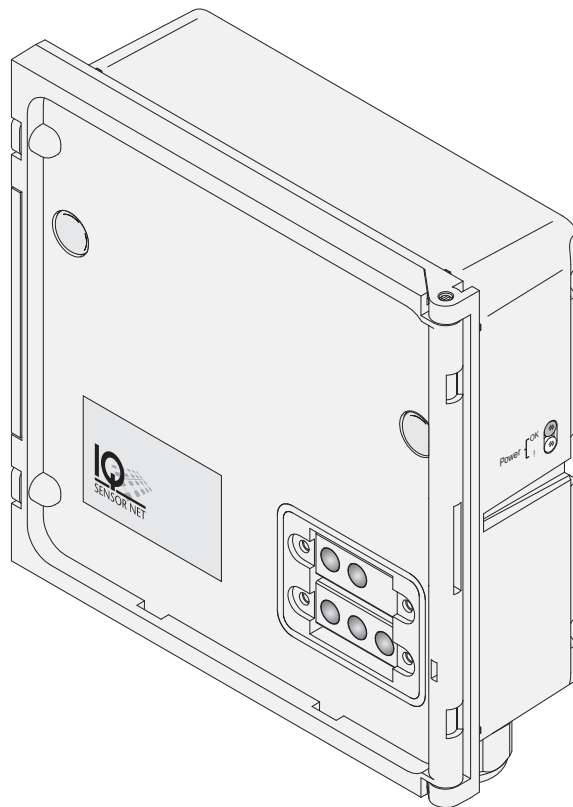


a xylem brand



Operating Manual

IQ SENSOR NET MIQ/JBR



IQ SENSOR NET signal amplifier module



Note

For the most recent version of the manual, please visit www.ysi.com.

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1 Overview

1.1 How to use this component operating manual

Structure of the IQ SENSOR NET operating manual

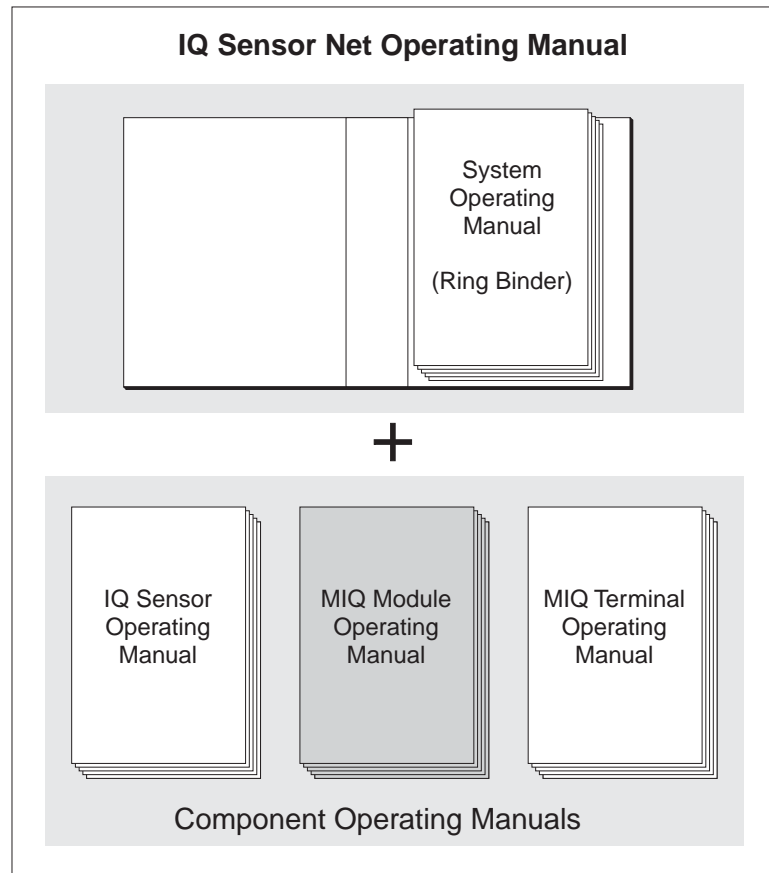


Fig. 1-1 Structure of the IQ SENSOR NET operating manual

The IQ SENSOR NET operating manual has a modular structure like the IQ SENSOR NET system itself. It consists of a system operating manual and the operating manuals of all the components used.

Please file these component operating manuals into the ring binder of the system operating manual.

1.2 Features of the MIQ/JBR

General characteristics

The overall length of the cables in the IQ SENSOR NET affects

- the operational voltage available for a component
- the quality of the data transmission.

A drop of the operational voltage is compensated for by further MIQ power supply modules (see system operating manual).

A drop of the quality of the data signals is compensated for by the signal amplifier module MIQ/JBR (Junction Box Repeater).

If the sum of all cable lengths (including the SACIQ sensor connection cable) is more than 1000 m, a MIQ/JBR signal amplifier module **must** be installed in the system.

To amplify the signal, the MIQ/JBR signal amplifier module divides the IQ SENSOR NET into two signal **ranges** (section A, section B).

The MIQ/JBR signal amplifier module has:

- an integrated bi-directional signal amplifier to amplify data signals during the transition between the signal **ranges**
- SENSORNET connections for the signal **ranges** (section A, section B).

In a IQ SENSOR NET system, up to two signal amplifier modules may be installed. This facilitates the operation of an IQ SENSOR NET with up to 3000 m cable length (see section 3.2).

Besides, the MIQ/JBR signal amplifier module **can** be used for:

- branching the IQ SENSOR NET without signal amplification
- connecting further IQ SENSOR NET components
- setting up an operating site, i.e. the signal amplifier module provides a possibility for the docking of terminal components.

With the standard MIQ module housing, the MIQ/JBR has the same characteristics as all MIQ modules regarding stability, leakproofness and weather resistance. It also provides the same wide variety of installation options (stacked mounting, canopy mounting, tophat rail mounting, etc.).

2 Safety instructions

This component operating manual contains special instructions that must be followed during the installation of the signal amplifier module. Thus, it is essential to read this component operating manual before carrying out any work with the system. In addition to this manual, the SAFETY chapter of the IQ SENSOR NET system operating manual must be followed.

Always keep this component operating manual together with the system operating manual and all other component operating manuals in the vicinity of the IQ SENSOR NET system.

Directions

The following symbols indicate special features in the individual chapters of this operating manual:



Note

indicates notes that draw your attention to special features.



Note

indicates cross-references to other documents, e.g. operating manuals.

2.1 Authorized use

The authorized use of the MIQ/JBR consists of its use as a signal amplifier module in the IQ SENSOR NET.

The technical specifications given in chapter 5 TECHNICAL DATA must be observed. Only operation according to the instructions in this operating manual is authorized.

Any other use is considered to be **unauthorized**. Unauthorized use invalidates any claims with regard to the guarantee.

2.2 General safety instructions

The MIQ/JBR is constructed and inspected in accordance with the relevant guidelines and norms for electronic instruments (see chapter 5 TECHNICAL DATA).

It left the factory in a safe and secure technical condition.

Function and operating safety

The failure-free function and operational safety of the MIQ/JBR is only guaranteed if the generally applicable safety measures and the special safety instructions in this operating manual are followed during its use.

The failure-free function and operational safety of the MIQ/JBR is only guaranteed under the environmental conditions that are specified in chapter 5 TECHNICAL DATA.

Safe operation

If safe operation is no longer possible, the MIQ/JBR must be taken out of operation and secured against inadvertent operation.

Safe operation is no longer possible if the MIQ/JBR:

- has been damaged in transport
- has been stored under adverse conditions for a lengthy period of time
- is visibly damaged
- no longer operates as described in this manual.

If you are in any doubt, contact the supplier of your MIQ/JBR.

3 Installation

3.1 Scope of delivery

The scope of delivery of the MIQ/JBR is listed in the INSTALLATION chapter of the system operating manual.

3.2 Assembly in the IQ SENSOR NET

General assembly instructions

The IQ SENSOR NET provides a number of options for integrating the MIQ/JBR mechanically and electrically in the system (stacked mounting, distributed mounting, etc.). The various types of installation are described in detail in the INSTALLATION chapter of the system operating manual.

Terminal strip

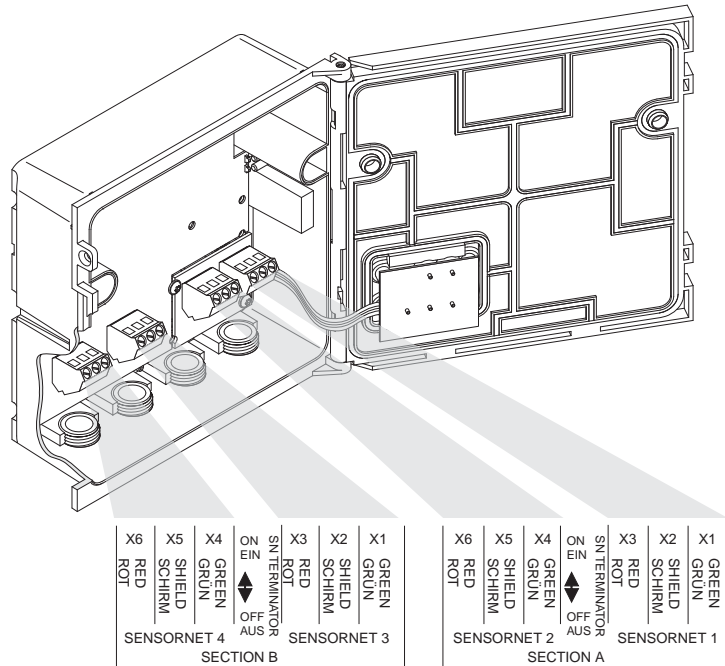


Fig. 3-1 Terminal strip of the MIQ/JBR

On the terminal strip inside the enclosure, the MIQ/JBR has four SENSORNET connections. Two of these connections are assigned to each of the signal **ranges** (section A, section B) in the IQ SENSOR NET.

Outside contacts

The outside contacts on the back and front side of the module enclosure are connected with section A. Thus, all modules connected to the MIQ/JBR by stack mounting are connected to section A. A module can only be connected to section B via the 2 SENSORNET connections for section B on the terminal strip.

Power supply

For power supply purposes, the IQ SENSOR NET system is always regarded as one undivided system. Determine the number of MIQ power supply modules required for the system following the rules for the optimum power supply (see system operating manual).

Signal amplification

To amplify the signal, the MIQ/JBR divides the IQ SENSOR NET into signal **ranges** (section A, section B). Within a signal **range**, the overall cable length (SNCIQ IQ SENSOR NET cables + SACIQ sensor connection cables) must not be more than 1000 m. In an IQ SENSOR NET system, up to two signal amplifier modules may be installed.

Overall cable length (SNCIQ + SACIQ)	Number of MIQ/JBR modules	Number of signal ranges
< 1000 m	0	1
1000 m - 2000 m	1	2
2000 m - 3000 m	2	3

When data signals change between the signal **ranges** (section A, section B), the signal amplification becomes effective. Signals are not amplified within a signal **range**.

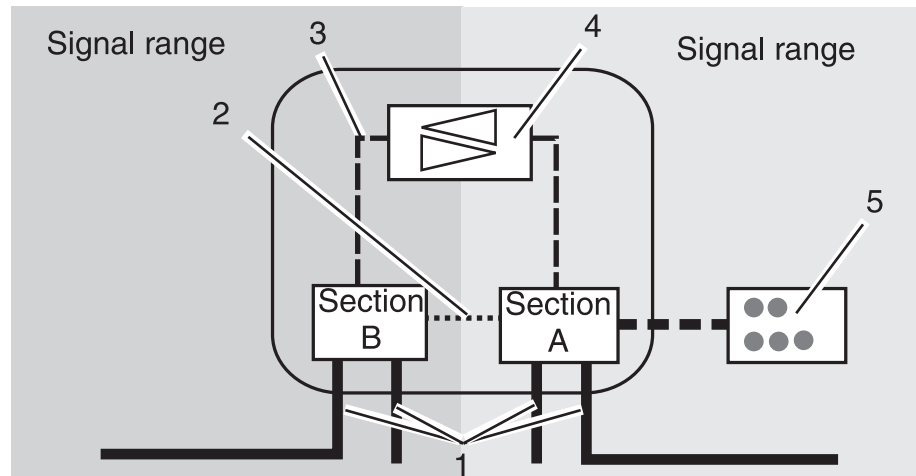


Fig. 3-2 Schematic diagram of the MIQ/JBR

1	IQ SENSOR NET cables at the terminal connections
2	Power flow
3	Data signals
4	Bi-directional signal amplifier
5	Outside contacts on the module enclosure

Terminator switch

For the setting of the terminator switches within a signal **range**, the same rules apply as for systems without MIQ/JBR (see chapter INSTALLATION of the IQ SENSOR NET system operating manual).

The longest cable section of each signal **range** is determined. On both ends of the longest cable section of a signal **range** the terminator switch must be set to **On**. All other terminator switches must be set to **Off**.

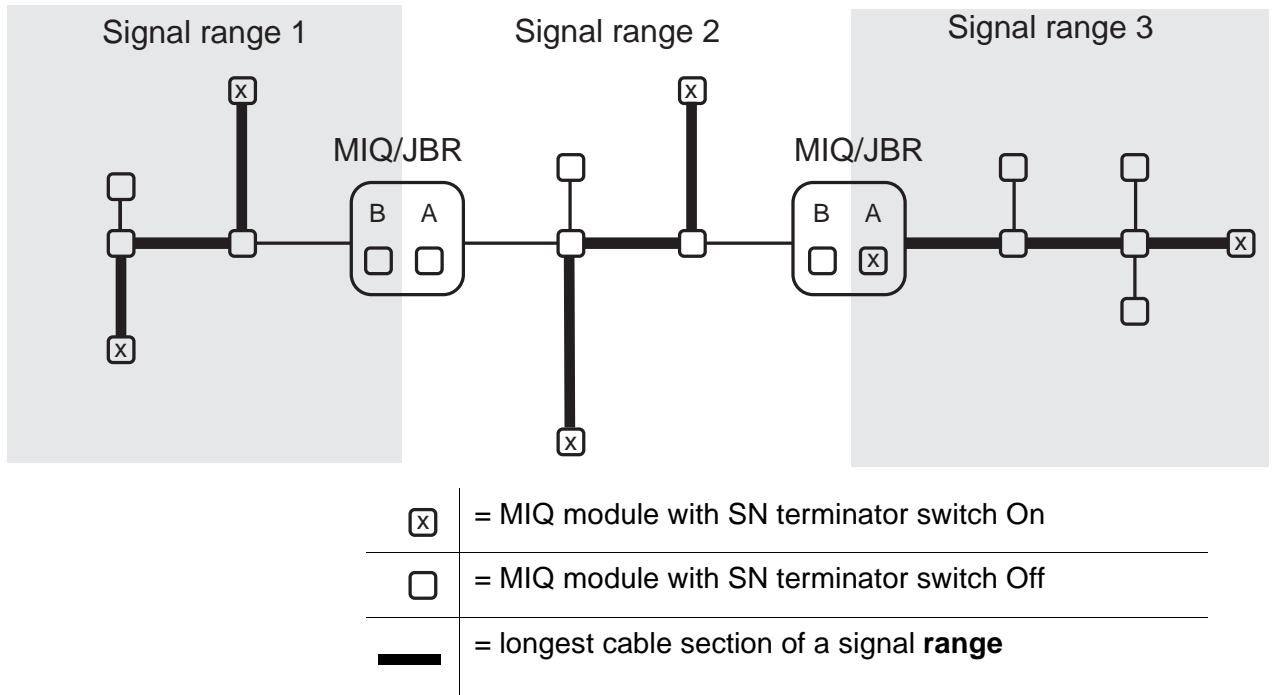


Fig. 3-3 Settings of the SN terminator switch for an IQ SENSOR NET system with 2 MIQ/JBR modules



Note

The proceeding to determine the longest cable section can be found in chapter INSTALLATION of the IQ SENSOR NET system operating manual.

The proceeding to set the terminator switches can also be found in chapter INSTALLATION of the IQ SENSOR NET system operating manual.

4 Maintenance and cleaning

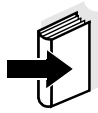
4.1 Maintenance

The MIQ/JBR requires no special maintenance. The general maintenance of IQ SENSOR NET components is described in the IQ SENSOR NET system operating manual.

4.2 Cleaning

The cleaning of IQ SENSOR NET components is described in the IQ SENSOR NET system operating manual.

5 Technical data



Note

General technical data on MIQ modules are given in the TECHNICAL DATA chapter of the IQ SENSOR NET system operating manual.

Electrical data	Nominal voltage	Max. 24 VDC via the IQ SENSOR NET (for details, see chapter TECHNICAL DATA of the IQ SENSOR NET system operating manual).
	Power consumption	approx. 0.2 W
	Protective class	III
	Number of MIQ/JBR modules in an IQ SENSOR NET system	2
Instrument safety	Applicable norms	<ul style="list-style-type: none"> – EN 61010-1 – UL 3111-1 – CAN/CSA C22.2 No. 1010.1
Terminal connections	IQ SENSOR NET connections	4 2 additional switchable SENSORNET terminators (terminating resistors)
	Terminal type	Screw-type terminal strip, accessible by raising the lid
	Terminal ranges	Solid wires: 0.2 ... 4.0 mm ² AWG 24 ... 12 Flexible wires: 0.2 ... 2.5 mm ²
	Cable feeds	4 cable glands M16 x 1.5 on the underside of the module

6 Contact Information

6.1 Ordering & Technical Support

Telephone: (800) 897-4151
(937) 767-7241
Monday through Friday, 8:00 AM to 5:00 PM ET

Fax: (937) 767-1058

Email: environmental@ysi.com

Mail: YSI Incorporated
1725 Brannum Lane
Yellow Springs, OH 45387
USA

Internet: www.ysi.com

When placing an order please have the following information available:

YSI account number (if available)	Name and Phone Number
Model number or brief description	Billing and shipping address
Quantity	Purchase Order or Credit Card

6.2 Service Information

YSI has authorized service centers throughout the United States and Internationally. For the nearest service center information, please visit www.ysi.com and click 'Support' or contact YSI Technical Support directly at 800-897-4151.

When returning a product for service, include the Product Return form with cleaning certification. The form must be completely filled out for an YSI Service Center to accept the instrument for service. The Product Return form may be downloaded at www.ysi.com and clicking on the 'Support' tab.



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