

MIQ/BB1

MIQ/BB2

IQ SENSORNET BARRIER BOX FOR CLASS I DIVISION 2 APPLICATIONS



a xylem brand



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

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1 Overview

1.1 How to use this component operating manual

Structure of the IQ SENSORNET operating manual

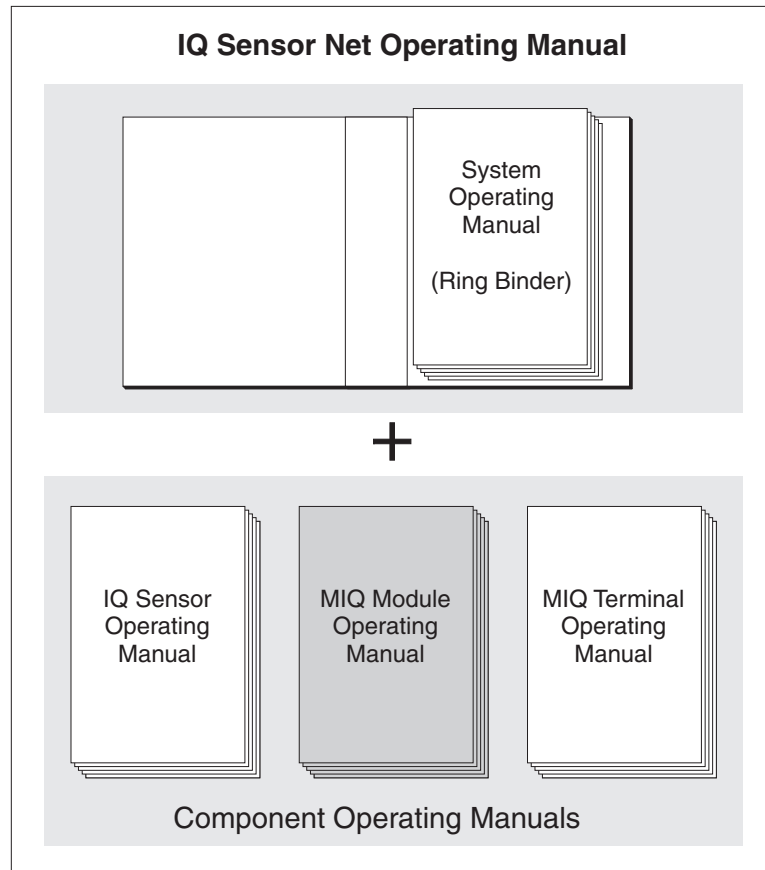


Fig. 1-1 Structure of the IQ SENSORNET operating manual.

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

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

1.2 Features of the MIQ/BBx

1.2.1 General characteristics

The MIQ/BBx ensures safe operation of hazardous location rated IQ SENSORNET sensors in a potentially explosive atmosphere (Class I Division 2).

The MIQ/BBx limits energy levels to meet the conditions for non-incendive field wiring in the hazardous area.

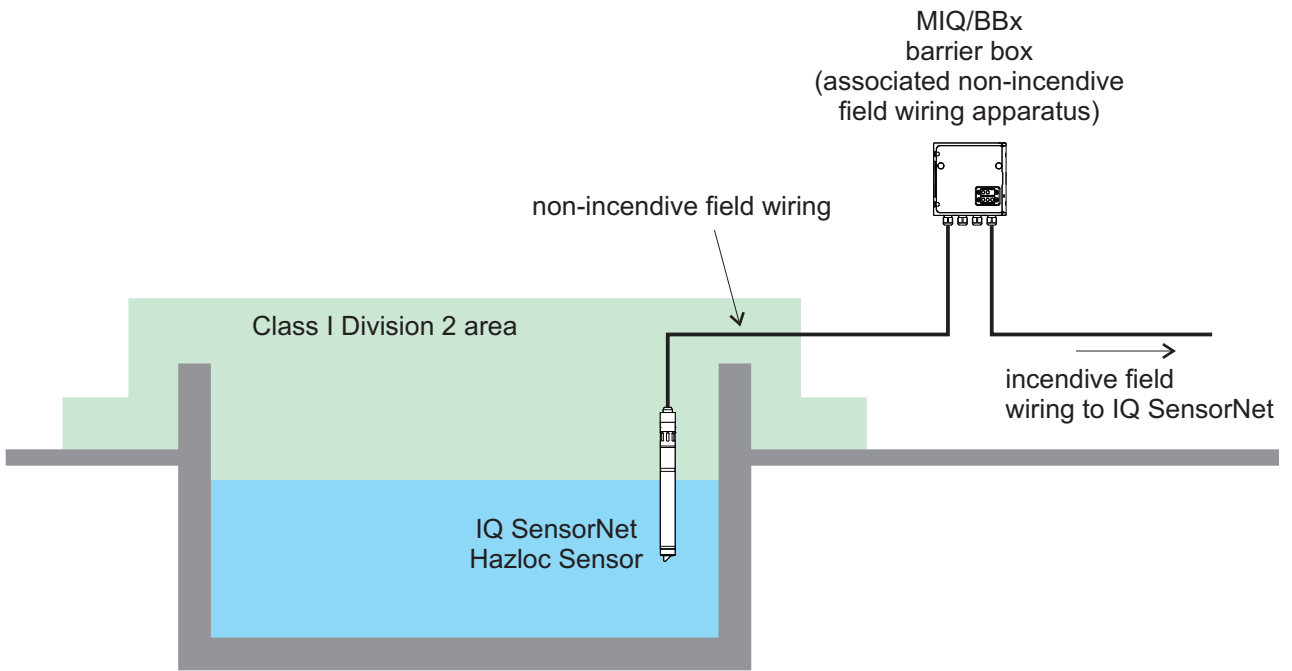


Fig. 1-2 General installation situation

The non-incendive field wiring allows safe plugging and unplugging of the sensor in the hazardous area without disconnecting the power.

1.2.2 Product identification

The following labels are attached to the side of the module enclosure (Fig. 1-3):

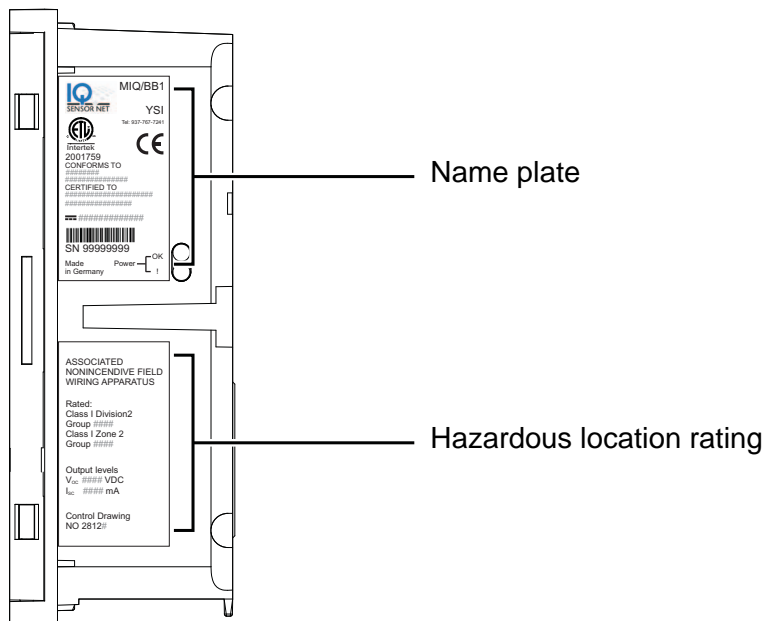






Fig. 1-3 Labels on the MIQ/BBx (example)

2 Safety

2.1 Safety information

2.1.1 Hazard warnings in this operating manual

The hazard warnings are defined for the following levels of danger:



	<p style="text-align: center;">⚠ DANGER</p> <p>DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</p>
	<p style="text-align: center;">⚠ WARNING</p> <p>WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p style="text-align: center;">⚠ CAUTION</p> <p>CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</p>
	<p style="text-align: center;">NOTICE</p> <p>NOTICE is used to address practices not related to personal injury.</p>

2.1.2 Safety information on the product

Note all labels, information signs and safety symbols on the product.

2.2 Safe operation

2.2.1 Authorized use

	 DANGER
	<p>Explosion hazard. The MIQ/BBx is an associated apparatus for YSI hazardous location rated IQ SENSORNET sensors. All tasks described in this manual should be performed only by qualified personnel. The MIQ/BBx must be installed outside the hazardous area.</p>

	 DANGER
	<p>Explosion hazard. The MIQ/BBx does not meet the requirements of the directive 94/9/EC (ATEX).</p>

The authorized use of the MIQ/BBx comprises its use as associated apparatus (barrier) for hazardous location rated sensors in the IQ SENSORNET. The technical specifications according to 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.

2.2.2 Requirements for safe operation

Note the following points for safe operation:

- The product may only be operated according to the authorized use specified above.
- The product may only be supplied with power by the energy sources specified in this operating manual.
- The product may only be operated under the environmental conditions specified in this operating manual.
- The product or its components may only be opened if this is required for installation and maintenance work and described in the operating manual.

2.2.3 Unauthorized use

The product must not be put into operation if:



- it is visibly damaged (e.g. after being transported)
- it was stored under adverse conditions for a lengthy period of time (storing conditions, see IQ SENSORNET system operating manual, section Technical Data, subsection GENERAL SYSTEM DATA)

3 Installation

3.1 Scope of delivery

The scope of delivery of the MIQ/BBx is listed in the Installation chapter of the system operating manual.

3.2 Installation in the IQ SENSORNET

	 DANGER
	<p>Explosion hazard. The MIQ/BBx is an associated apparatus for YSI hazardous location rated IQ SENSORNET sensors. All tasks described in this manual should be performed only by qualified personnel. The MIQ/BBx must be installed outside the hazardous area. Always refer to the applicable electrical code regulations for proper installation.</p>

The IQ SENSORNET provides a number of options for integrating the MIQ/BBx 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.





To ensure sufficient power for the Hazloc sensor the cable length between the MIQ/BBx and the nearest IQ SENSORNET power supply must not exceed the following values:

- 100 m between MIQ/BBx and MIQ/PS, MIQ/24V
- 150 m between MIQ/BBx and DIQ/S 182 (all types)
- 150 m between MIQ/BBx and MIQ/Blue/PS (if internal power supply is used).

3.3 Connecting a hazardous location rated sensor

3.3.1 Safety guidelines

	 DANGER
	<p>Explosion hazard. Only hazardous location rated sensor models ("Hazloc Sensor") must be used in hazardous locations. Read the name plate on the sensor shaft and verify that the sensor is rated for your specific application. Refer to the control drawing (YSI document no. 28123 or 28124) for proper installation.</p>

Control drawing

The associated control drawing can be found in the appendix of this operating manual. Observe all specifications in the control drawing, for example:

- Listed sensors. If your sensor is not listed in the control drawing, please contact YSI for an updated control drawing.
- Suitable cable types
- Maximum cable length

3.3.2 Terminal strip

⚠ DANGER

Explosion hazard.
Connect the hazardous location rated sensor only to the terminal labeled "HAZLOC SENSOR".

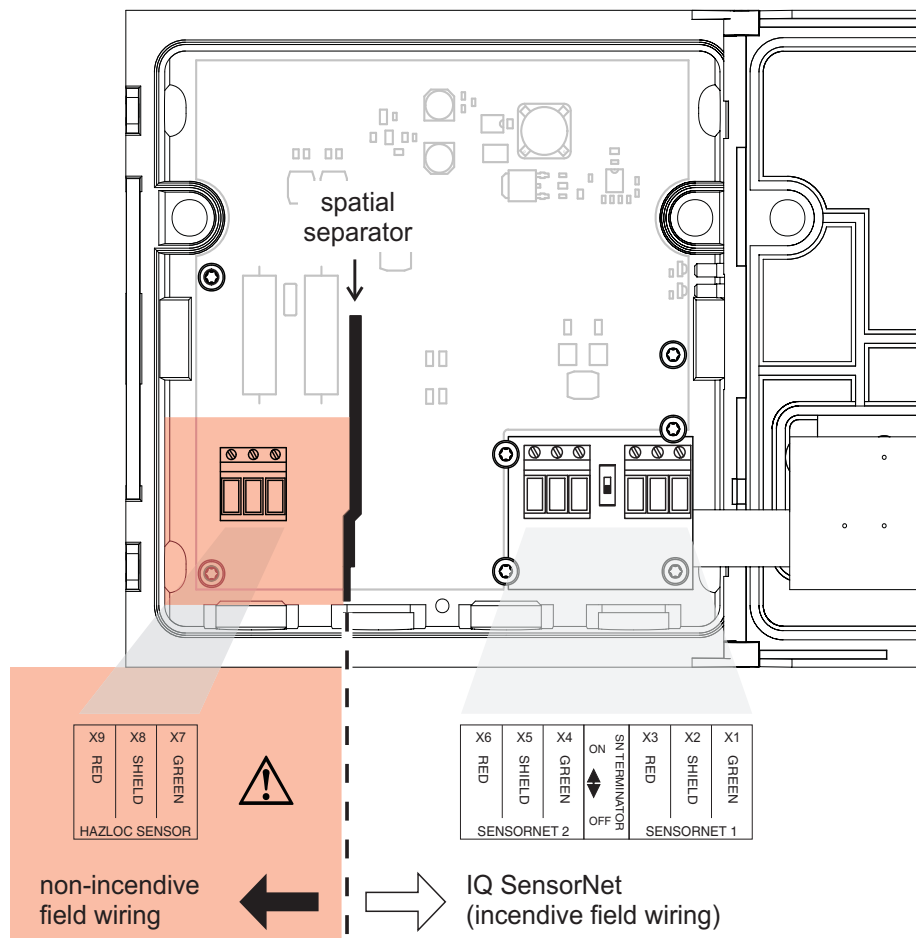


Fig. 3-1 Terminal strip of the MIQ/BBx

A spatial separator divides the terminal strips into two sections. The terminal on the lefthand side has to be used for the connection of the hazardous location rated sensor.



How to connect the SACIQ sensor connection cable to the terminal strip is described in chapter 3 INSTALLATION of the IQ SENSORNET system operating manual.

4 Maintenance and cleaning

4.1 Maintenance

The MIQ/BBx requires no special maintenance. The general maintenance of IQ SENSORNET components is described in the IQ SENSORNET system operating manual.

4.2 Cleaning

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

5 Technical data



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

5.1 Electrical data

Rated voltage

24 V DC via the IQ SENSORNET (for details, see chapter TECHNICAL DATA of the IQ SENSORNET system operating manual).

Power consumption MIQ/BB1

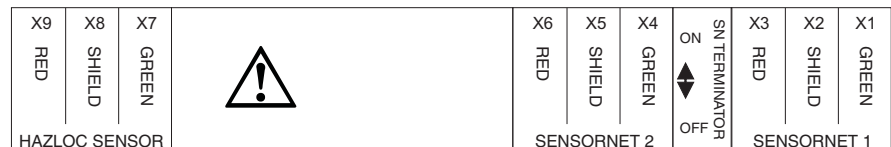
With Hazloc sensor	Power consumption
FDO 700 IQ H	1.4 W
FDO 701 IQ H	1.4 W

Power consumption MIQ/BB2

With Hazloc sensor	Power consumption
ViSolid 700 IQ H	2.3 W

5.1.1 Electrical connections

Terminal strip inside the enclosure



Terminal type

Screw-type terminals

5.2 Instrument safety

Applicable directives and standards

In addition to the standards listed in the IQ SENSORNET system operating manual, the MIQ/BBx conforms to the following directives and standards:

- ANSI/ISA-12.12.01
- CAN/CSA C22.2 # 213

The MIQ/BBx is an associated non-incendive field wiring apparatus for YSI hazardous location rated IQ SENSORNET sensors.

Hazardous location ratings

MIQ/BB1	Class I Division 2 Groups A, B, C, D T6 Class I Zone 2 Group IIC T6 Output levels $V_{OC}=19.9$ VDC $I_{SC}= 260$ mA
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MIQ/BB2	Class I Division 2 Group D T6 Class I Zone 2 Group IIA T6 Output levels $V_{OC}=19.9$ VDC $I_{SC}= 909$ mA
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Control Drawings (see appendix):

MIQ/BB1	YSI document no. 28123
MIQ/BB2	YSI document no. 28124

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.

7 Appendix: Control Drawings



The control drawings on the following pages are continuously updated with each new hazardous location rated sensor developed by YSI. If your sensor is not listed on the control drawing, please contact YSI for an updated control drawing

HAZARDOUS LOCATION

Class I Division 2, Groups A,B,C,D
Class I Zone 2 Group IIC

NON-HAZARDOUS LOCATION

GENERAL "CLASS I DIVISION 2"

INSTALLATION PRINCIPLE FOR IQ SENSORNET HAZLOC SENSORS

**IQ SENSORNET
HAZLOC SENSOR**

Any model of Table 1

IQ SENSORNET Cable

Non-incendive field wiring
Ref. Table 2

**IQ SENSORNET
BARRIER BOX
MIQ/BB1 Part No. 207001Y**

Associated Apparatus

IQ SENSORNET Cable

Incendive field wiring!

**IQ SENSORNET
MEASURING SYSTEM**
in any configuration
(non-Hazloc qualified
equipment)

Table 1

- Certified Hazloc sensor types to combine with MIQ/BB1 Part No. 207001Y
- Temperature class of Hazloc Sensors: T6

Models	Part No.
FDO 700 IQ.H	207065Y
FDO 701 IQ.H	207066Y

Table 2

**Suitable IQ SENSORNET
cable types**

All „Sensor Adapter Cable - SACIQ“ up to an overall cable length of 100 meters.

Model examples:
480042Y, 480044Y, 480060Y

TERMINAL DEFINITIONS

MIQ/BB1
Part No. 207001Y

Terminals X7, X8, X9 are non-incendive field wiring connections.
Terminal X7:
 $V_{oc} = +19.9 \text{ V DC}$
 $I_{sc} = 130 \text{ mA}$
Terminal X8:
 $V_{oc} = 0\text{V}$
Common GND of X7 and X9
Terminal X9:
 $V_{oc} = +19.9 \text{ V DC}$
 $I_{sc} = 130 \text{ mA}$

HAZLOC
SENSOR
TERMINALS

X7 GREEN
X8 SHIELD
X9 RED

SENSORNET 1
TERMINALS

X1 GREEN
X2 SHIELD
X3 RED

SENSORNET 2
TERMINALS

X4 GREEN
X5 SHIELD
X6 RED

Terminals X1 to X6 are incendive field wiring connections !

Installation according to the relevant IQ SENSORNET system manuals

DATE	NAME	TITLE
20-Nov-2013	RET	Control Drawing for IQ SENSORNET with MIQ/BB1
21-Nov-2013	FRI	
YSI Incorporated 1700/1725 Brannum Lane Yellow Springs, Ohio 45387-1107 USA		NO.
Revision No. / REV:./		28123 SHEET 1 / 1

HAZARDOUS LOCATION

Class I Division 2, Group D
Class I Zone 2 Group IIA

NON- HAZARDOUS LOCATION

GENERAL "CLASS I DIVISION 2"

IQ SENSORNET HAZLOC SENSOR

Any model of Table 1

IQ SENSORNET Cable

Non-incendive field wiring
Ref. Table 2

IQ SENSORNET BARRIER BOX

MIQ/BB2 Part No. 207002Y

Associated Apparatus

IQ SENSORNET Cable

Incendive field wiring!

IQ SENSORNET MEASURING SYSTEM

in any configuration
(non-Hazloc qualified
equipment)

INSTALLATION PRINCIPLE FOR IQ SENSORNET HAZLOC SENSORS

Table 1

- Certified Hazloc sensor types to combine with MIQ/BB2 Part No. 207002Y
- Temperature class of Hazloc Sensors: T6

Models	Part No.
VISolid 700 IQ H	207012Y

Table 2

Suitable IQ SENSORNET cable types

All „Sensor Adapter Cable - SACIQ“ up to an overall cable length of 100 meters.
Model examples:
480042Y, 480044Y, 480060Y

TERMINAL DEFINITIONS

MIQ/BB2

Part No. 207002Y

Terminals X7, X8, X9 are non-incendive field wiring connections
Terminal X7:
 $V_{oc} = +19.9 \text{ V DC}$
 $I_{sc} = 454 \text{ mA}$
Terminal X8:
 $V_{oc} = 0 \text{ V}$
Common GND of X7 and X9
Terminal X9:
 $V_{oc} = +19.9 \text{ V DC}$
 $I_{sc} = 454 \text{ mA}$

HAZLOC
SENSOR
TERMINALS

X7 GREEN

X8 SHIELD

X9 RED

SENSORNET 1
TERMINALS

X1 GREEN

X2 SHIELD

X3 RED

SENSORNET 2
TERMINALS

X4 GREEN

X5 SHIELD

X6 RED

Terminals X1 to X6 are incendive field wiring connections !

Installation according to the relevant IQ SENSORNET system manuals

TITLE	
DATE	NAME
20-Nov-2013	RET
21-Nov-2013	FRI
Control Drawing for IQ SENSORNET with MIQ/BB2	
NO.	28124
YSI Incorporated 1700/1725 Brannum Lane Yellow Springs, Ohio 45387-1107 USA	
REV: /	Revision No. /

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,500 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to www.xylem.com



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