IQ Sensor Net

Digital. Modular. Flexible. Secure

IQ SENSOR NET

Content

see also https://www.xylemanalytics.com/en/landingpages/iq-sensor-net

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Fields of Application and Product Overview

IQ Sensor Net – the system for wastewater treatment plants and more applications

The digital and modular IQ Sensor Net provides many unique advantages. Since 2001 our customers have enjoyed making the most out of the IQ Sensor Net modular design. It enables you to easily expand the network with new members. This provides great flexibility and peace of mind that you are completely safe for all wastewater monitoring requirements in the future.

- Integrated overvoltage protection of all components (sensors, modules, cables)
- Reduce cost of installation with universal sensor connection and 2 wired cables rather than multiple power and output cables
- Intuitive design to operate and expand

At the beginning of your planning, make your decision between 3 systems:

✓ ● yes	Network **System 2020**		Measuring Location **System 282/284**		Single Parameter Measuring Point **System 281**
	MIQ/TC 2020 3G	MIQ/MC3	DIQ/S 284	DIQ/S 282	DIQ/S 281
Connectable sensors	20	20	4	2	1
Displayable parameters	20	20	20	20	1
USB interface	✓	✓	✓	✓	✓
Ethernet interface	✓	✓	✓	✓	
System access via IQ WEB CONNECT	✓	✓	✓	✓	
Field bus connection	✓	✓	✓	✓	
Data memory	✓	✓	✓	✓	✓
IQ sensors with universal sensor connection	✓	✓	✓	✓	✓
MIQ modules	✓	✓	✓	✓	
DIQ modules			✓	✓	✓
Wireless communication	✓	✓	✓	✓	
Redundant controller	✓	✓			
Max. number of displays	3	3	1	1	1
Cable length	3 km	3 km	250 m	250 m	250 m
Oxygen *sensors see from page 11*	●	●	●	●	●
pH/ORP *probes see from page 15*	●	●	●	●	●
Conductivity *cells see from page 19*	●	●	●	●	●
Turbidity *sensors see from page 25*	●	●	●	●	●
Suspended solids *sensors see from page 24*	●	●	●	●	●
Nitrogen *probes see from page 30*	●	●	●	●	
Carbon *probes see from page 38*	●	●	●	●	
SAC/UVT *probes see from page 38*	●	●	●	●	
Phosphate *analyzer see from page 41*	●	●	●	●	
Sludge level *probes see from page 43*	●	●	●	●	●
	MIQ/TC 2020 3G	MIQ/MC3	DIQ/S 284	DIQ/S 282	DIQ/S 281
see page	*52*	*55*	*56*	*56*	*58*

Visual System overview see cover of this catalog.

All parameters (tabular design) see cover of this catalog.

System details (tabular design) see cover of this catalog.

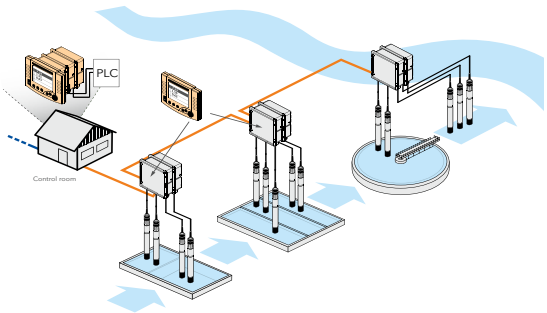
Analog systems from page 62.
ATEX from page 66.

IQ Systems

1) IQ Sensor Network:

System 2020 3G

- For up to 20 digital IQ sensors in any order
- Measuring network for large plants, BackUp controller function for higher operational safety
- Ethernet/LAN interface and integrated webserver for easy network connection
- Fast and easy software update and saving of logbook data, measured values and configurations for additional safety on a USB stick
- Up to 3 portable and clear displays even in direct sun light

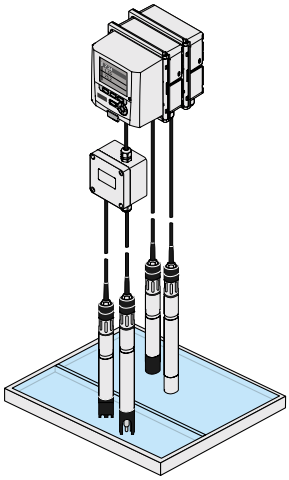


System 2020 with distributed mounting for up to 20 sensors

Product descriptions of single components see page 52

2) Outstanding among the compact: System 282/284

- Multi-channel controller for up to 4 IQ sensors provides easy and low-cost expansion
- Up to 20 parameters can be visualized at the same time
- Perfectly suited to replace or add a single measuring point
- Simple Data transfer and download with USB stick at every controller
- Optional: Ethernet and RS 485 interface for network connection and fieldbus communication

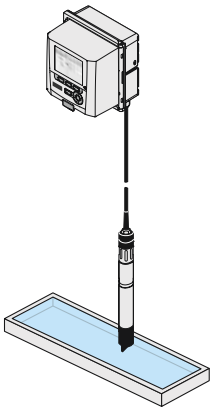


IQ System 284 with 4 connected IQ sensors (6 x mA, 6 x Relays, Ethernet interface for remote control as option)

Product descriptions of single components see page 56

3) The single parameter measuring point: System 281

- Low-cost entrance into the digital measuring technique
- For the parameters pH/ORP, Cond, D.O., Turb, TSS and sludge level
- Stable, robust and reliable measuring technique



IQ System 281 with FDO® 700 IQ F

Product descriptions of single components see page 58

Visual overview of systems see cover of this catalog.

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IQ Sensors

One connection for all IQ sensors – via the universal SACIQ sensor cable

The standard version of high grade stainless steel is suitable for process and industry. All media contacting components of the seawater versions are made of titanium and plastic and are therefore extremely resistant to corrosion.

For the following parameters WTW offers IQ sensors:

IQ Analyzer

Alyza IQ – the wet-chemistry revolution is now

The Alyza IQ convinces with extremely low reagent and waste consumption and an easy handling. It can be connected to Systems 2020 and 282/284.

WTW offers IQ analyzers for the following parameters:

Daily reagent consumption of TresCon®, P 700 IQ and Alyza IQ

IQ Sensor Net System 2020

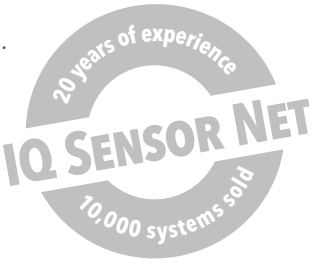
A flexible system – reliable results

The IQ Sensor Net is of modular design and grows with your demands.

Application areas and system concept

The IQ Sensor Net is a network for analytical measurements. It is in worldwide operation since 2001, constantly evolving to meet customer needs. It is used for inlet and outlet monitoring, as well as for controlling the activated sludge process.

Due to its modular design, the system can be expanded any time by adding further modules and sensors in any order.



The basic equipment

Terminal/Controller MIQ/TC 2020 3G

- Large display with user-friendly buttons in all weather conditions
- Feature enhancements by addition of specific modules
- Low installation costs by stackmounting without cable

IP 66 · CE · UKCA · 3 Year Warranty · TD D1.01

Terminal/Controller MIQ/TC 2020 3G

Terminal/Controller for the IQ Sensor Net System 2020, portable operating unit with large display, robust buttons and USB interface; connectible to every MIQ module.

USB interface of Terminal/Controller MIQ/TC 2020 3G

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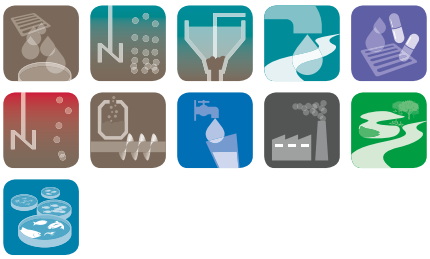


- Individually adaptable to the energy requirement
- Up to 6 modules can be installed in one system
- Simple mounting
- Mount anywhere in the system, stacked without additional mounting hardware
- Integrated overvoltage protection ensures high operational safety in any weather

IP 66 IP 67 · 3 Year Warranty · D1.03

Modules for Power Supply

MIQ/PS or **MIQ/24V** for the power supply via wide range or 24 V (AC and DC). The power supply modules that operate the IQ Sensor Net are available in two models: The wide range power supply MIQ/PS for 100–240 VAC and the low-voltage power supply MIQ/24V for 24 VAC/24 VDC.

By the ability to stack these in the IQ Sensor Net, you can quickly and easily dock these modules onto already existing ones - anywhere in the system. Therefore, additional mounting hardware is not required.

Ordering Information

Model	Description	Order No.
MIQ/TC 2020 3G	Terminal/Controller for the IQ Sensor Net System 2020	470020
MIQ/PS	Power supply module for voltage supply with wide range power supply	480004
MIQ/24V	Power supply module for voltage supply with 24 VAC or 24 VDC input voltage	480006

For technical data please see datasheets D1.01 and D1.03

Alternatives and accessories see brochure "Product Details" and website

Analog systems from page 65

ATEX from page 66

The Sensors and Parameters

All common parameters from inlet to outlet. The sensors can be connected with a universal cable to any module.

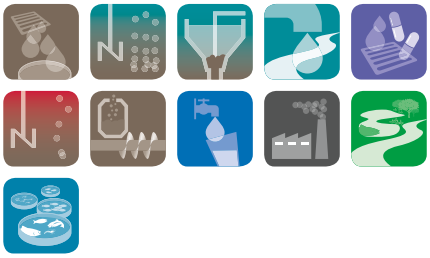
For the following parameters WTW offers

IQ sensors:

IQ analyzer:

The Modules

Expand the functions of your system by adding specific modules.



- Can be combined in any configuration thanks to the modular system - no matter where, when or how
- Simple installation – the stacking technique of the IQ Sensor Net saves additional installation materials, work effort and time
- Integrated overvoltage protection ensures high operational safety in any weather

IP 66 IP 67 · CE · UK CA · ETL · 3 Year Warranty · TD *D1.02, D1.04, D1.05, D1.06*

Modules for System Expansion

The expansion modules are required to connect the IQ sensors as well as for the branching of the system.

MIQ/JB: passive module „Junction Box" (MIQ/JB) with four identical IQ Sensor Net connections

MIQ/JBR: Module with active repeater function to prepare the signal for very long cable distances

MIQ/WL PS: Radio module for the wireless connection in your IQ Sensor Net

Connections of modules for system expansion, analog outputs, analog inputs,and power supply; with at least two IQ Sensor Net connections

Modules with Analog Outputs

The analog output modules can be combined as required, up to a max. of 48 output channels (total of current outputs and relays in the system 2020).

MIQ/R6 with 6 relays

MIQ/CR3 with 3 current outputs and 3 relays

MIQ/C6 with 6 current outputs

Antenna of radio module MIQ/WL PS

Module with Analog Inputs

With the module **MIQ/IC2** you will expand the system by two current inputs and you will also allow the connection of separate sensors and analyzers into the IQ Sensor Net.

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Modules with Digital Outputs

MIQ/3-MOD for MODBUS RTU connection

MIQ/3-PR for PROFIBUS DP connection

Connections of digital output modules MIQ/3-MOD and MIQ/3-PR incl. USB interface (left)

Other MIQ Modules

MIQ/CHV PLUS: Magnetic valve module for automatic compressed air cleaning, controlled by relays of the IQ Sensor Net.

MIQ/EKB: To avoid trip hazards, you can also route the connecting cable of the IQ Sensor Net underground. To extend these, you can use our ground cable terminal box MIQ/EKB.

Connections of magnetic valve module MIQ/CHV PLUS with two pressured air connectors (left)

Controller MIQ/MC3

The usage of a MIQ/MC3 controller provides reliable and direct data transfer to the PLC via the fieldbuses PROFIBUS DP, Modbus RTU (RS 485), Ethernet/IP, Modbus TCP or PROFINET (RJ 45).

By the **MIQ/MC3**, the MIQ/TC 2020 3G becomes a portable Terminal, which can be connected to any module. You also benefit from Controller BackUp function and full remote access with IQ Web Connect.

Connections of Controller MIQ/MC3 with Ethernet and USB interface (left)

Terminal IQ

Additional, cost-effective display and operating unit.

Terminal IQ

Ordering Information

Model	Description	Order No.
MIQ/JB	Modul IQ/Junction Box, for system branching, for system 2020 and 282/284, 4 free IQ SENSOR NET connections	480008
MIQ/WL PS SET	2 MIQ/WL PS radio modules, preconfigured as master and slave, ready to operate	480025
MIQ/R6	Module IQ / relay 6 with 6 relay outputs (output module, analog)	480013
MIQ/CR3	Module IQ / current relay 3, with 3 power and 3 relay outputs output module (analog)	480014
MIQ/C6	Module IQ / Current 6 with 6 power outputs (output module, analog)	480015
MIQ/3-MOD	Module IQ with MODBUS RTU / RS 485 connection (output module, digital)	471026
MIQ/IC2	Module IQ / input Current 2 with 2 inputs for 0/4 - 20 mA signals (input module)	480016
MIQ/CHV PLUS	Module IQ/Cleaning Head Valve for automatic relay or IQ SENSOR NET controlled compressed air cleaning (relay and compressed air supply, external)	480018
MIQ/MC3	System 2020 controller, for up to 20 sensors, w/ automatic air pressure compensation, USB and RJ45 interface (ethernet)	471020
MIQ/MC3-MOD	Like MIQ/MC3, but including MODBUS RTU/RS 485 interface	471022
MIQ/MC3-PR	Like MIQ/MC3, but including PROFIBUS-DP/RS 485 interface	471023
Terminal IQ	Terminal without controller function for the IQ Sensor Net System 2020 (MC3 or MIQ/TC 2020 3G required)	470021

For technical data please see datasheets D1.05, D1.04, D1.06 and D1.02

Alternatives and accessories see brochure "Product Details" and website

DIQ modules for the system 282/284 from page 57

Analog systems from page 62

IQ Sensor Net System 282/284

for small and mid-sized wastewater treatment plants

Controller for small and mid-sized wastewater treatment plants including USB-interface and internal data logger – up to 4 sensors, all parameters, available anytime.

The Controllers

DIQ/S 282-CR3

- Up to 4 sensors connectable at once
- USB interface and data logger
- Available anytime via internet

IP 67 · 3 Year Warranty · *D1.07, D1.08*

DIQ/S 282

Controller **for up to two sensors**, available in five different versions: with three current outputs, with PROFIBUS interface, with MODBUS interface, with Ethernet interface for remote control or with Ethernet interface including protocols PROFINET, Modbus TCP and Ethernet/IP. Every version is also available with 24 V AC/DC supply.

DIQ/S 284

Controller **for up to four sensors**, available in five different versions: with six current outputs, with PROFIBUS interface, with MODBUS interface, with Ethernet interface for remote control or with Ethernet interface including protocols PROFINET, Modbus TCP and Ethernet/IP. Every version is also available with 24 V AC/DC supply.

Ordering Information

Model	Description	Order No.
DIQ/S 282-CR3	Controller for up to 2 IQ sensors, with 3 Relays, with 3 mA-outputs,100 … 240 VAC	472110
DIQ/S 284-CR6	Controller for up to 4 IQ sensors, with 6 Relays, with 6 mA-outputs,100 … 240 VAC	472130

Version with field bus protocols and digital interfaces see data sheets D1.07 and D1.08.

For technical data please see datasheets D1.07 and D1.08

Alternatives and accessories see brochure "Product Details" and website

IQ Sensor Net System 2020 see page 52

Analog systems from page 62

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The Sensors and Parameters

All common parameters from inlet to outlet. The sensors can be connected with a universal cable to any module.

For the following parameters WTW offers

IQ sensors:

IQ analyzer:

The Modules

Modules for the flexible expansion of the systems 281 and 282/284 by additional measuring points or functions – compact design

DIQ/JB

- Simple installation – electrical connection and mounting can be done with terminal strips and simple screws
- The flexible system expansion allows you to upgrade at a later date
- Its compact design saves space and cost

IP 66 IP 67 · CE · UK CA · ETL · 3 Year Warranty · TD *D1.10*

DIQ/JB

to connect a second or remote IQ sensor

DIQ/CHV

for the automatic relay-controlled compressed air cleaning

MIQ/...

All MIQ modules can be used with the system 282/284 (except: MIQ/MC3(-...) and MIQ/3-...) *(see from page 54)*:

MIQ/PS
MIQ/24V
MIQ/JB
MIQ/JBR
MIQ/WL PS SET
MIQ/R6
MIQ/CR3
MIQ/C6
MIQ/IC2
MIQ/CHV PLUS
MIQ/EKB

Ordering Information

Model	Description	Order No.
DIQ/JB	Dual IQ/Junction Box	472005
DIQ/CHV	Dual IQ/Cleaning Head Valve	472007

For technical data please see datasheet D1.10

Alternatives and accessories see brochure "Product Details" and website

IQ Sensor Net System 281 page 58

Analog systems from page 62

IQ Sensor Net System 281

Digital and easy

For pH, dissolved oxygen, conductivity, turbidity, TSS and sludge level

Great technology at low price

Get decades of experience from WTW and use the established technology. With the excellent cost-performance ratio you can save time, work and money!

1 Controller. 1 Sensor.

Get started into the digital world and stay sustainable with the state-of-the-art technique. No preamplifier, reliable data transfer, automatic sensor recognition!

The Controller

DIQ/S 281

- Cost adavantage – one controller, one sensor
- Digital – for reliable data transfer
- WTW quality – proven, robust, durable
- HART and Modbus RTU versions available

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DIQ/S 281

The digital controller DIQ/S 281 for pH/ORP, D.O., Turbidity, TSS, conductivity or sludge level enables a sensor change at any time; cable lenght of up to 250 m.

Ordering Information

Model	Description	Order No.
DIQ/S 281-CR2	Dual IQ/System 281, Universal monitor for the connection of 1 digital IQ sensor (pH/ORP, D.O., conductivity or turbidity), with 2 analog outputs (0/4-20 mA) and 2 relays, 100 ... 240 VAC	472103
DIQ/S 281-CR2/24V	Like the DIQ/S 281, but for 24 V AC/ DC voltage supply	472104
DIQ/S 281-MOD	Dual IQ/System 281, Universal monitor for the connection of 1 digital IQ sensor with MODBUS connection, 2 x Relays	472105
DIQ/S 281-HART	Universal monitor for the connection of 1 digital IQ sensor with HART connection	472106

For technical data please see datasheet D1.09

Alternatives and accessories see brochure "Product Details" and website

Analog systems from page 62

Controllers and sensors for explosive areas see page 66

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The Sensors and Parameters

for pH/ORP measurement

SensoLyt® 700 IQ *see page 15*

SensoLyt® electrodes *see page 15*

for Dissolved Oxygen measurement

TriOxmatic® 700 IQ *see page 12*

FDO® 700 IQ *see page 11*

FDO® 701 IQ *see page 10*

for Conductivity measurement

TetraCon® 700 IQ *see page 20*

for Turbidity measurement

VisoTurb® 700 IQ *see page 24*

for Suspended Solids measurement

ViSolid® 700 IQ *see page 25*

for Sludge Level measurement

IFL 700 IQ *see page 43*

The Modules

The modules most frequently used in practical applications are the DIQ/CHV

see page 57

and, in the case of sludge level measurement, the MIQ/WL PS (see page 56).

see page 54