IQ Sensor Net

Flexible through digital technology – The IQ Sensor Net from WTW

IQ Sensor Net

- Digital modular multiparameter system
- Systems for decentralized single measuring points

NEW

- **System 182 XT-4** – the perfect system for up to 4 sensors
- **Terminal / controller T 2020 XT** with USB interface
- **IQ-LabLink** – the direct connection to the laboratory meter

... for the entire range of online instrumentation

Universal:

One system for all parameters enables flexible and praxis orientated solutions.

Safe:

Fail-save digital sensors guarantee ideal process monitoring – dual processor technology for increased system stability.

Easy:

Plug & play connection for any IQ sensor – easy replacement of existing analog measuring stations – cost-saving through plain and easy installation (2-wire connection technology)

Future-proof:

Extendable any time – also for future sensors and components.

IQ Systems

Single measuring stations or sensor network – an easy choice ...

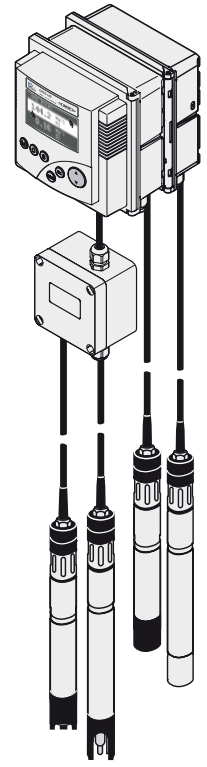
The planning begins with a basic decision between 2 systems

Single point measuring system
System 182 (1 to 4 sensors)

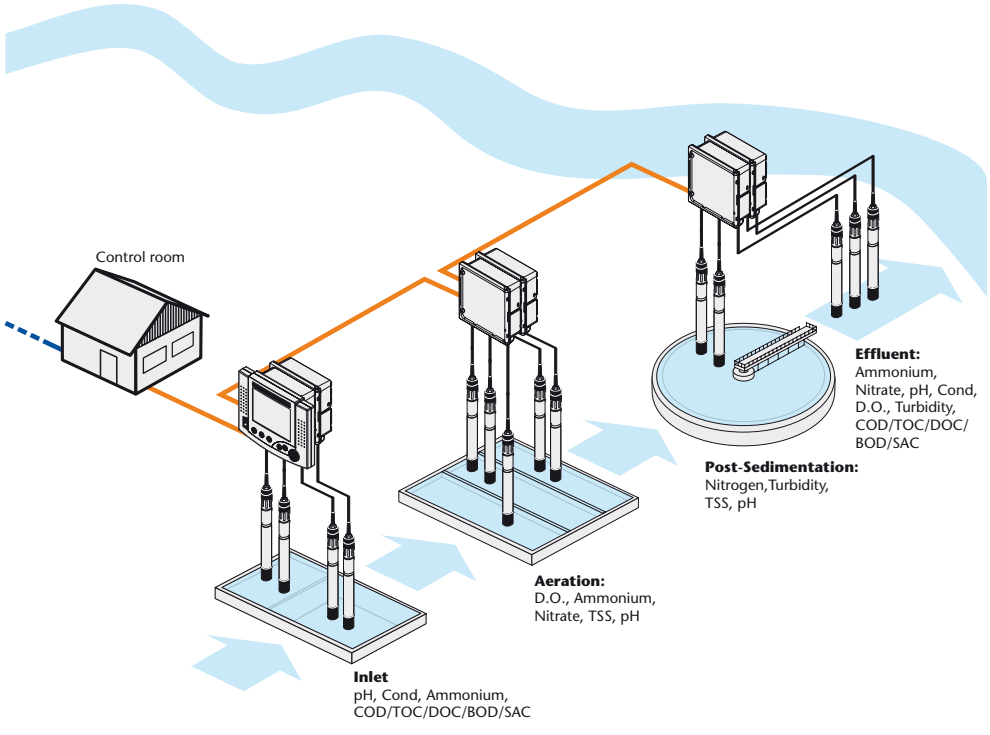
- Decentralized system for 1 to 4 sensors with integrated terminal.
- Models with integrated analog or digital outputs (i.e. RS-485/ field bus connections PROFIBUS or MODBUS) available

Sensor network
System 2020 XT (up to 20 sensors)

- Central (network) and decentralized system for up to 20 sensors possible – extendable by up to 3 terminal / controller units for flexible installation within the network.
- Digital and / or analog outputs, can be combinated and extended by modules and integrated within the network.



Example for a single point measuring system using 4 sensors



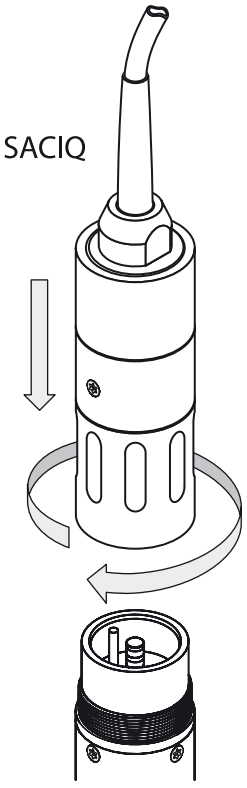
Example for a central network with system 2020 XT using 14 sensors

Digital technology

Digital IQ sensors stand for:

- Long distances from sensors to measuring system
- Fail-save transfer of signals
- Calibration data can be stored in the sensor
- Standardized plug connection directly at the sensor
- Calibration can be processed in the laboratory

IQ Sensor connection



Digital sensor (with inside view)

Laboratory pre-calibration of a digital sensor

IQ Sensors

IQ Sensors

		please also see pages
SensoLyt® 700 IQ (SW)	pH/ORP assembly	19–22
TriOxmatic® 700 IQ (SW)	D.O. sensor	8–16
TriOxmatic® 701 IQ	D.O. sensor	8–16
TriOxmatic® 702 IQ	D.O. sensor	8–16
FDO® 700 IQ (SW)	Optical D.O. sensor	8–16
TetraCon® 700 IQ (SW)	Conductivity sensor	28–31
VisoTurb® 700 IQ	Turbidity sensor	34–37
ViSolid® 700 IQ	Suspended solids sensor	34–37
VARiON®*Plus* 700 IQ	Combination sensor ammonium and nitrate (ISE)	44/45
AmmoLyt®*Plus* 700 IQ	Ammonium assembly (ISE)	46/47
NitraLyt®*Plus* 700 IQ	Nitrate assembly (ISE)	49/50
NitraVis® 700/X IQ (TS)	Optical nitrate probe with connection module MIQ/VIS	51
CarboVis® 700/X IQ (TS)	Optical COD/TOC/DOC/BOD/ SAC probe with connection module MIQ/VIS	60/61
NiCaVis® 700/5 IQ	Optical probe for measurement of nitrate and COD/TOC/DOC/BOD/ SAC, with connection module MIQ/VIS	60/61

The System 2020 XT – the modular solution for today and for the future

Do you plan a sensor network with multiple sensors or to upgrade your installation step by step?

The System 2020 XT represents the perfect solution for these challenges:

It is designed fully modular and will "keep on growing" at the pace of your growing demand. This flexibility makes the system very appealing also for small, medium-sized, but also for larger sewage plants. Any conseivable application can be fulfilled including discharge measuring with the parameters turbidity, pH, conductivity and temperature, furthermore the control of nitrification/denitrification and also complete sewage plant analytics being supported by one single system – at considerable low investment costs and highly economical operation – all accomplished by an easy to handle system.

System 2020 XT

- USB interface
- Electronic-Key
- IQ-LabLink

Important system features

- Up to 20 digital IQ sensors at user's choice may be connected
- Easy system expansion, no previous knowledge required
- Centralized power supply using a wide range power supply (100 – 240 VAC) or 24 V variant
- A nearly unlimited number of relays and analog outputs (0/4-20 mA) may be selected
- Digital outputs PROFIBUS DPV1 or MODBUS RTU
- Optional modem connection via analog or GSM modem
- Wireless connection via radio transmission
- Easy integration of existing measuring points by mA inputs

Local identity function

The local identity function is integrated in each module with a memory element. With the configuration this memory element can carry all system relevant information i.e. location and description of measuring point as well as considering all connected sensors. When setting the terminal the complete information is displayed and enables i.e. fast identifying of sensors for calibration purposes.

Diagnosis via LEDs

Each module sideways shows 2 clearly visible LEDs (yellow/red) for diagnostic purposes. These LEDs signalize whether the according module is ready-to-operate (power supply/data communication).

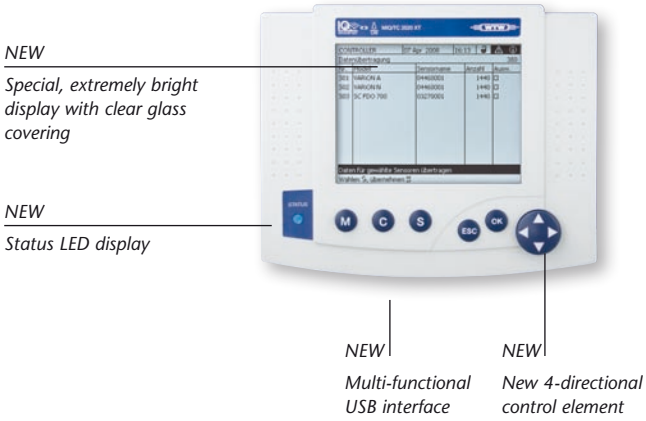
Terminal / Controller MIQ/TC 2020 XT

The terminal / controller MIQ/TC 2020 XT presents the core of each IQ Sensor Net System 2020. Its new high-performance processor coordinates all tasks within the network. Via the USB interface an extremely fast data exchange via USB memory stick to any external system directly is possible. The system-status LED gives reliable and fast information regarding function and status of system.

When integrating two MIQ/TC 2020 XT in the system, the dual-processor function increases the system stability and therefore also availability of the entire system.

Can be operated as terminal and controller all-purpose solution (constantly installed) or as mobile terminal solution.

- Multi-functional USB interface
- IQ-LabLink function for easy data exchange with laboratory instruments
- Electronic-Key function with programmable access permission
- Increased system stability through dual-processor function
- Fast status information via LED
- Improved reading precision through special graphic display



Multi-functional USB interface
- IQ-LabLink function
- Electronic-Key function
- Storage of configuration
- Storage of calibration
- Logbook recording
- Storage of recorded data (data logging function)
- Software upload

Status LED display
Each MIQ/TC 2020 XT terminal/controller shows a LED for diagnostic purposes on the front. This LED shows normal and malfunctions of the system at a glance.

New 4-directional control element
- For even easier operation

IQ-LabLink – the link to the world of laboratory

IQ-LabLink enables a save data exchange between the IQ Sensor Net and the laboratory instrument. The exchange is processed via a common USB memory stick, serving as data medium between the Online system and the laboratory instrument. The condition is that both instruments feature this function and are equipped with a USB interface. The first WTW instruments to include this function are the two new spectrophotometers **photoLab® 6100 VIS and photoLab® 6600 UV-VIS** (laboratory instruments) and the **terminal/controller MIQ/TC 2020 XT** with access to the IQ Sensor Net.

Application example: Matrix adaption with VARiON®*Plus*

The multi-parameter sensor measures ammonium and nitrate at the same time. The ammonium measuring is dynamically compensated by the separate measuring of potassium. As every wastewater has its individual matrix, a precision-adaption is processed occasionally. The values for the matrix adaption are determined using a photometer and provided to the sensor. The value entry was processed manually up to now.

Matrix adaption via IQ-LabLink

Step 1, IQ terminal:

Automatic generating of job files on a USB memory stick with actual sensor values, parameters, description of measuring site and the automatic allocation of job reference number for a unique identification.

Step 2, photometer:

After inserting the USB memory stick, the instrument identifies the job file, asks for the measurement with the according parameters, gives advice for supporting the correct operation, stores all determined data back on the job file and verifies the completeness.

Step 3, IQ terminal:

Complete reading of data related to the matrix adaption by pressing one button, without any interruption of the online measuring.

IQ-LabLink

Advantages at a glance:

- Software supported routines for the safe data transfer from laboratory to online systems.
- Safe and easy allocation of online and laboratory measurement via job files and functions.
- Integrated help functions for correct processing.
- Check for completeness and plausibility.
- Complete reading of all data using one button without any interruption of the online measurement.

Electronic-Key function with programmable access permission

Electronic-Key function

- Protection against non-authorized access
- Individual access permission

Function:

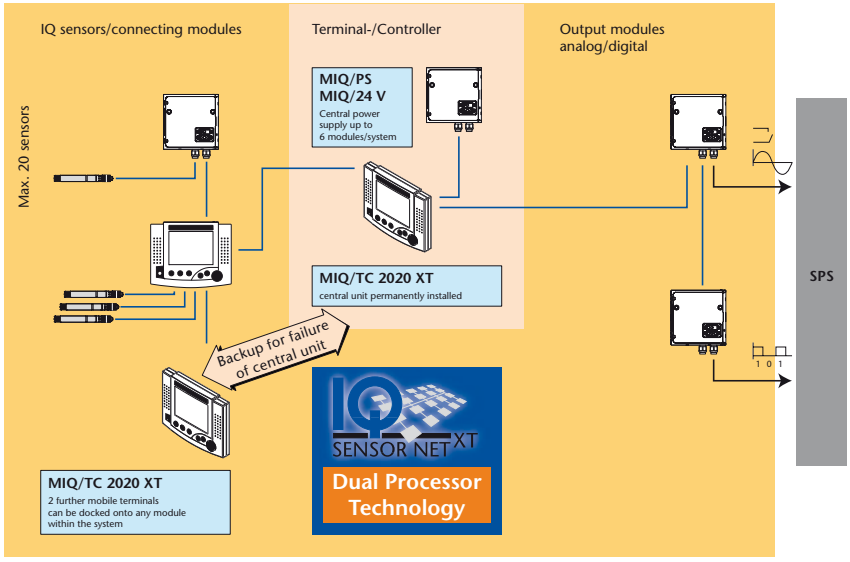
When the Electronic-Key function in the IQ SENSOR NET system is activated, the USB memory stick works like an electronic key giving access to the system.

A coded file is therefore stored on the USB memory stick. After reading the file access is activated to the system.

It is also possible, to release only certain functions in order to personalize access.

Two processors – safety guaranteed

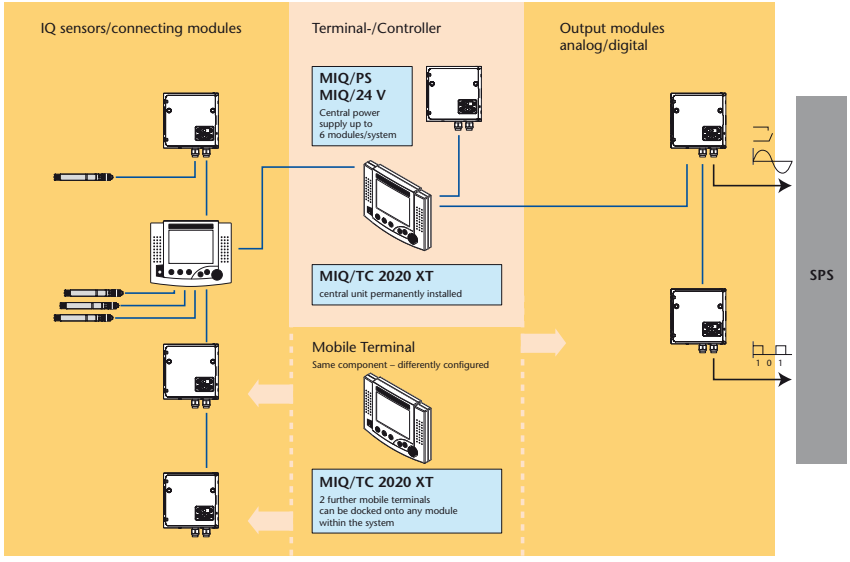
When a further terminal MIQ/TC 2020 XT is part of the constantly installed central unit (configured as mobile terminal unit) it doubles the security:



- In case of any failure regarding the central unit (terminal/controller function) the second unit fully automatically takes over both functions (goes fully automatically from the plain terminal operation to the terminal /controller operation).
- Status LED indicates any failures

System architecture MIQ/TC 2020XT

The terminal/controller MIQ/TC 2020 XT can be operated as either terminal (permanently installed with the system) as also as mobile terminal. This function can easily be configured with the software by each user. The status LED indicates the selected function and informs about any possible incidents.



Minimal system configuration 2020 XT (example):

- MIQ/TC-2020 XT configured as terminal/controller (permanently installed in the system)
- MIQ/PS power supply
- MIQ/CR 2 (analog) or MIQ/PR (digital) output module
- IQ sensor

Optional extension possibility:

- 2 additional MIQ/TC 2020 XT configured as terminal (disconnectable and operatable as mobile units)
- Various further in- and output modules
- Further power supply (max. 6)
- Further IQ sensors (up to 20 IQ sensors)

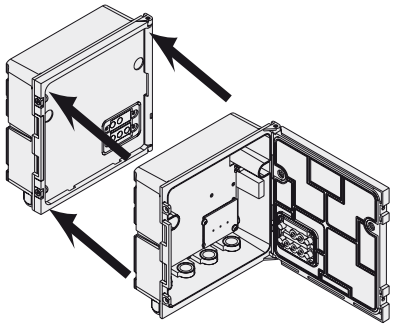
Features and functions

Mechanical docking of a terminal

A Terminal TC 2020 XT can be easily connected to each module. The electrical contact for the power supply and data communication is made simultaneously with the mechanical connection.

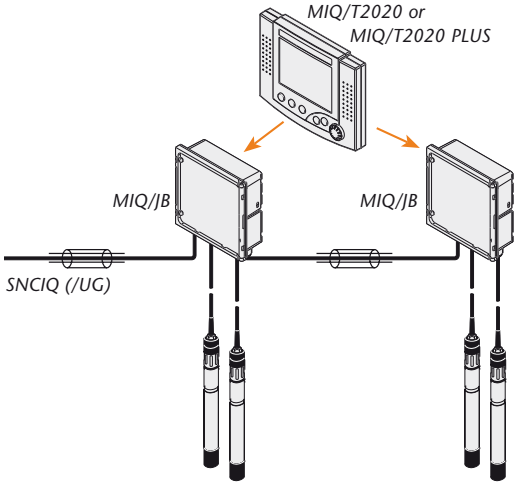
Stack mounting of modules

Up to three modules can be mechanically connected to form a stack. Simultaneous mechanical and electrical connection to data and power transmission. The individual modules of the stack can be accessed at any time without dismantling the stack by simply undoing two lateral screws.



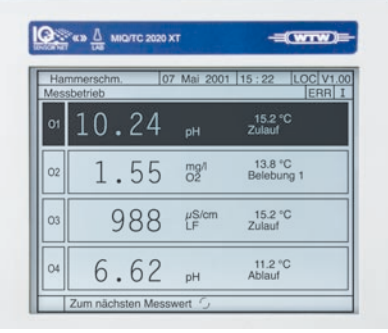
Distributed mounting of modules

All modules can be installed anywhere in the system, both individually and in stacks. When not stacked, system components are connected via the 2-wire shielded SNCIQ Sensor Net cable. Each Sensor Net connection of a system component can be used to extend the IQ Sensor Net cable. Furthermore, IQ sensors can also be connected directly to the Sensor Net terminals.

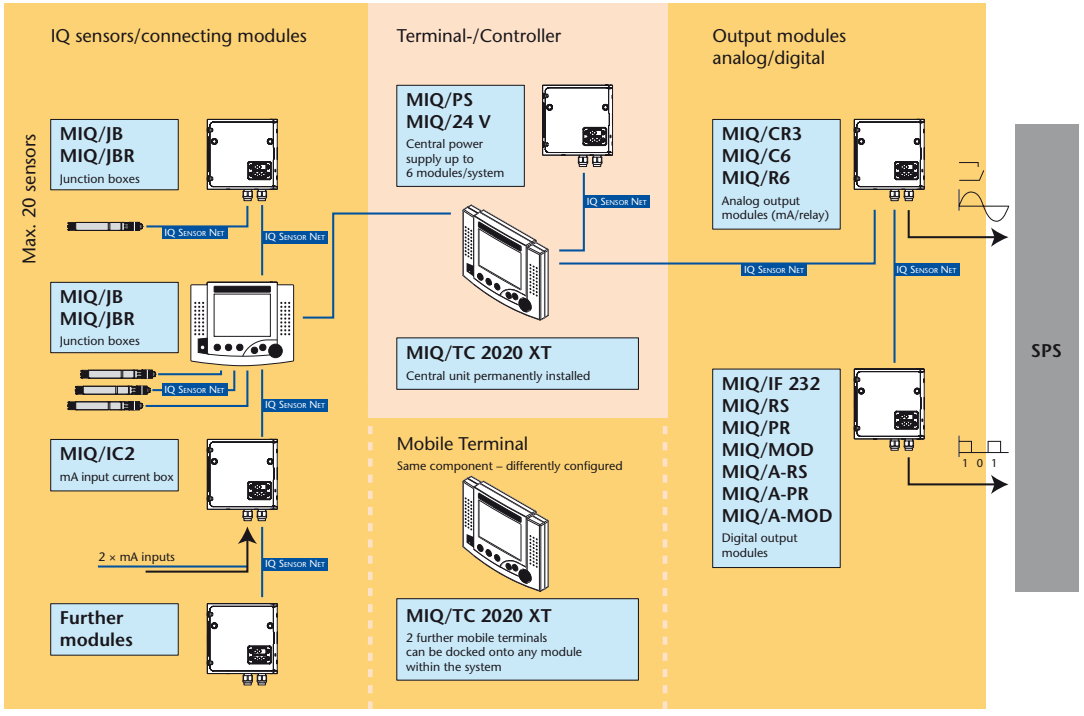


Measurement display

The user can configure the measurement display by selecting between a single, four-fold or multiple view – depending on the number of connected sensors. The freely definable designation of the measuring location is included on each view for easy identification.
Stored measured data can be optionally displayed as measuring value lists, daily, weekly or monthly graphs. The respective current measured value can be displayed by following the curve with the cursor.



Principal system architecture
IQ Sensor Net System 2020 XT



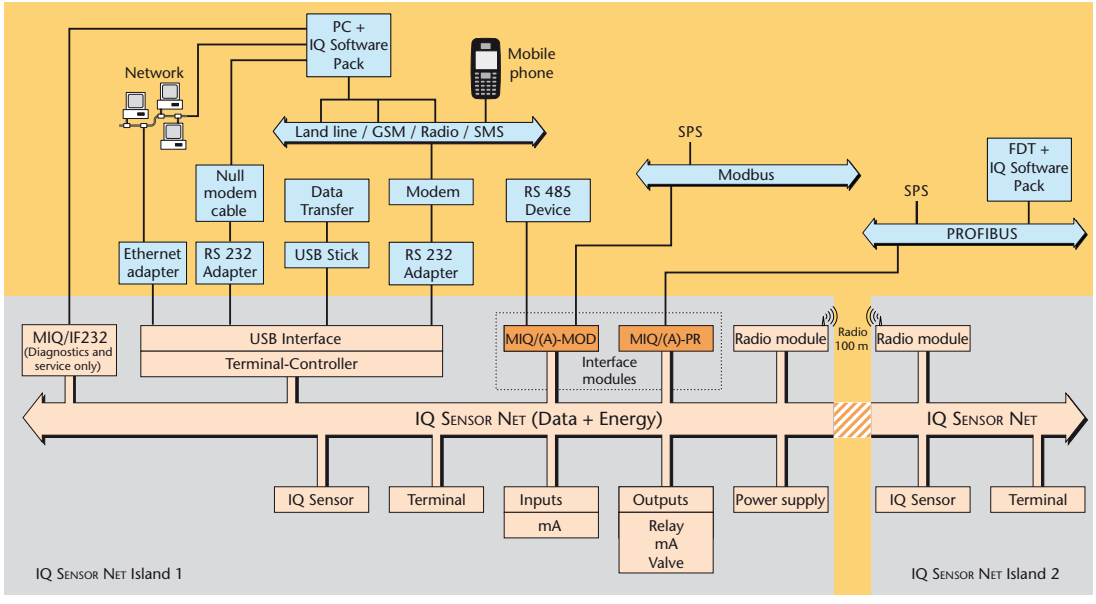
Digital communication with the IQ Net

MIQ/RS modul IQ
with modem compatible RS-232 interface

MIQ/PR modul IQ
with PROFIBUS-DP connection

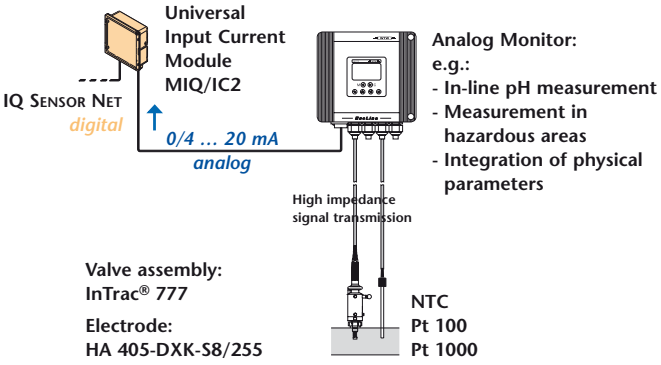
MIQ/MOD modul IQ
with MODBUS RTU/RS 485 connection

MIQ/Blue PS
for wireless connection and linking withing the IQ Sensor Net System

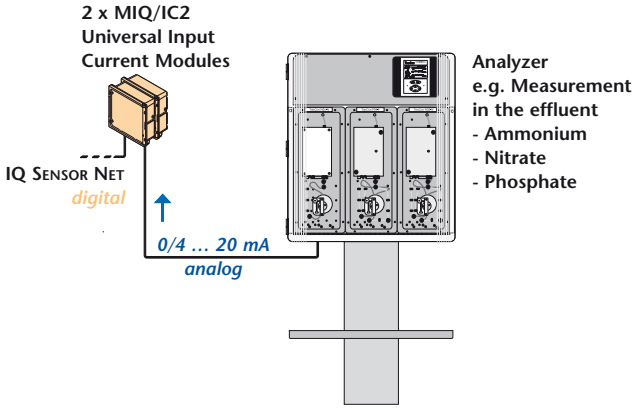


Additional IQ Sensor Net islands possible.

Example 1: Integration of an Analog Monitor

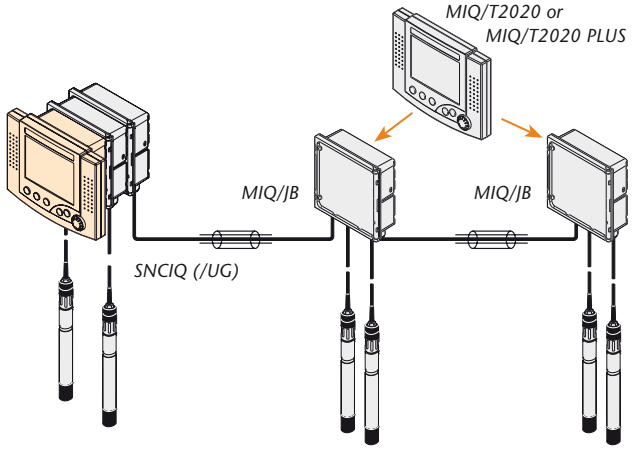


Example 2: Integration of an Analyzer

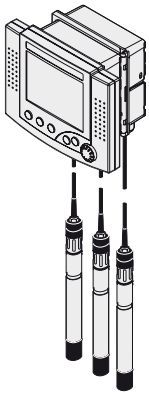


Configuration example 1:

- 6 IQ sensors (each 2 measuring points)
- Large distances between 3 measuring points
- Mobile terminal can be connected to both
- MIQ/JB modules, for i.e. obtaining an additional measurement display or for processing a calibration on site.



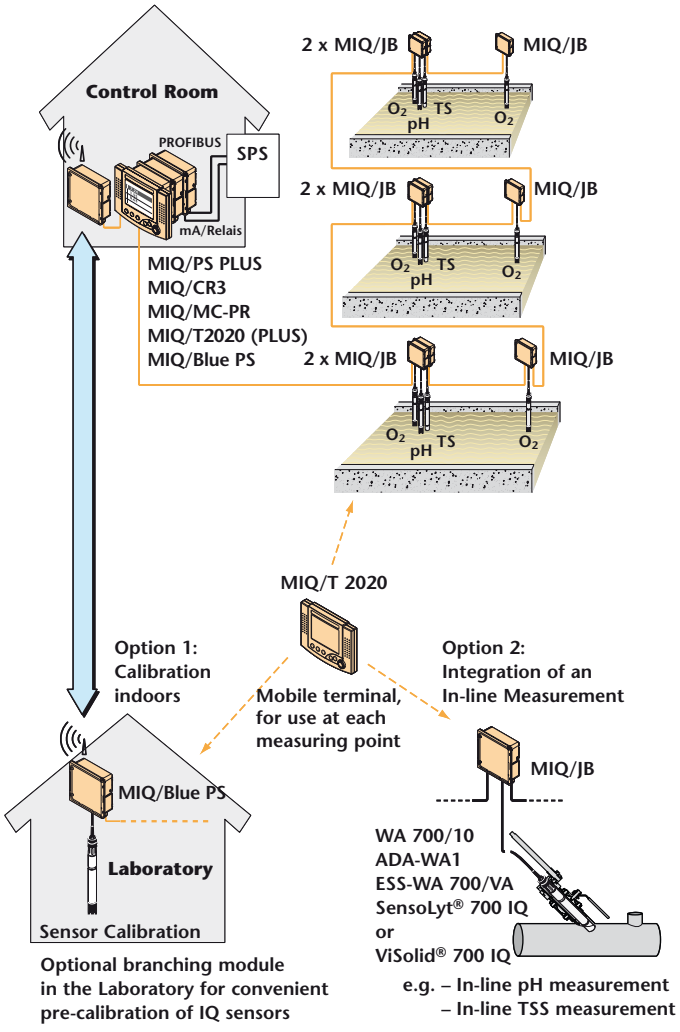
Example MIQ/ TC 2020 XT-H3 with decentralized assembly



Example MIQ/ TC 2020 XT-H3

Configuration example 2:

Monitoring of 3 aeration tanks with IQ Sensor Net
(due to extremely large variety of system variants, only a small selection can be demonstrated and represented as configuration examples).



General Technical Data System 2020 XT

System

Certifications	ETL, cETL (conforms with relevant UL and Canadian standards), CE
Electromagnetic Compatibility	EN 61326, Class B; FCC Class A, EMC for indispensable operation
Integrated Lightning Protection	According to EN 61326 enhanced overvoltage protection for the entire system, implemented in each component
Connection Medium Cable	IQ Sensor Net cable SNCIQ or SNCIQ/UG (underground cable with additional PVC coating): 2-wire with shield; 2 x 0.75 mm²; Filler cord for easy connection of shield: 0.75 mm²; pressure resistant to 10 bar
Connection Characteristics	Power supply and data transmission on these wires; resistant to polarity reversal with respect to switched shield and inner conductor (no damage); comprehensive EMC shield control; cable topology within IQ Sensor Net system as required, e.g. in the form of a line, tree, star, multiple star Total cable length: max. 1.000 m/1094 yds (without signal amplifying), with signal amplifying module MIQ/JBR additional 1.000 m/1094 yds
Connection Medium Radio	Radio transmission Class 1 with a range of 100 m/109 yds (max. 300 m/328 yds)
Connection Characteristics	Data transmission, separate power supply necessary for each island

Controller/Terminal

MIQ Module Coupling at Rear	Combined mechanical and electrical connection, for rapid coupling to MIQ modules
USB interface	USB-A (host)
Display	Graphic display; resolution: 320 x 240 pixel; visible area: 4.49 x 3.39 in. (114 x 86 mm), black/white, backlit
Control Functions/Function Keys	5 operating keys: 3 master keys for functions: Measurement (M), calibration (C), set/system settings (S), 2 keys for: confirmation/switching menu O.K. (OK), Escape (ESC) 4-directional button for rapid selection of software functions and input of alphanumeric values
Datalogger	MIQ/TC 2020 XT: Data memory for up to 525,600 data sets
Electric Supply	Directly via the IQ Sensor Net when coupled to MIQ module
Ambient Conditions	Operating temperature: -4 °F … 131 °F (-20 °C … +55 °C) Storage temperature: -13 °F … 149 °F (-25 °C … +65 °C)
Housing Material	ASA (Acrylonitrile-Styrene-Acryloesterpolymer)
Protection Rating	IP 66 / equivalent to NEMA 4X (not suitable for conduit connection)
Dimensions (W x H x D)	8.27 x 6.69 x 1.57 in. (210 x 170 x 40 mm)
Weight	Approx. 1.54 pounds (0.7 kg)
Guaranty	3 years for defects of quality

Modules

MIQ Module Coupling at Front	Combined mechanical and electrical connection for rapid docking and removal of the MIQ/T2020 (PLUS) terminal and the MIQ/C184 XT controller, and for docking additional modules
MIQ Module Coupling at Rear	Combined mechanical and electrical connection for docking additional modules, a total of 3 modules as a stack mounted unit
Cable Feeds	4 screw cable glands M 16 x 1.5
Terminal Connections	Screw terminal strips Terminal area for solid conductors: 0.2 ... 4.0 mm² Terminal area for flexible conductors: 0.2 ... 2.5 mm² accessible by opening cover
IQ Sensor Net Terminal Connections	Terminal connections for the IQ Sensor Net are available on each module and can be used as required: - for connecting sensors - as an input/output or for looping through/branching of the IQ Sensor Net cable
Other Functions	Two LEDs, yellow and red, for monitoring the operating voltage of the IQ Sensor Net; IQ Sensor Net connection, resistant to reversed polarity; Integrated local identity function; Integrated switchable terminal resistor (SN terminator)
Electric Supply	Directly via the IQ Sensor Net
Ambient Conditions	Operating temperature: -4 … 131 °F (-20 … +55 °C); Storage temperature: -13 … 149 °F (-25 … +65 °C)
Housing Material	PC – 20 % GF (polycarbonate with 20 % fiberglass)
Protection Rating	IP 66 / equivalent to NEMA 4X (not suitable for conduit connection)
Dimensions (W x H x D)	5.67 x 5.67 x 2.05 in. (144 x 144 x 52 mm)
Weight	Approx. 1.1 pounds (0.5 kg)
Guaranty	3 years for defects of quality

Sensors

Mechanical Connections for Accessories	Connection slot; Connection screw thread G 1"
IQ Sensor Connection Cable	Combined mechanical and electrical connection for rapid attachment and exchange of sensors. Consists of jack plug and pressure-resistant screw connection. Cable lengths: 1.64 – 7.66 – 16.40 yds (1.5 – 7.0 – 15.0 m)/ 21.87 – 54.68 – 109.36 yds (20 – 50 – 100 m) in sea water design available. Storage temperature: -13 °F … 149 °F (-25 °C … +65 °C) Operating temperature: -4 °F … +131 °F (-20 °C … +55 °C)

System components and functions

Terminal/Controller

	Model	Function	Order No.
Central Control Unit	TC 2020 XT (Operation in MODBUS: terminal/ controller)*	Central terminal/controller unit: is required to be installed once at any point, remains in the system, cannot be removed. Operation mode is shown through LED.	470 000
	MIQ/TC 2020 XT-H3	Multi-parameter measuring converter, consisting of the components MIQ/TC 2020 XT + MIQ/CR3 + MIQ/PS, 100 – 240 VAC main voltage, 3 analog outputs (0/4-20 mA) and 3 relay outputs, up to 20 free selectable IQ sensors can be connected	470 016
	MIQ/TC 2020 XT-H3 C6	Multi-parameter measuring converter, consisting of the components MIQ/TC 2020 XT + MIQ/C6 + MIQ/PS, 100 – 240 VAC main voltage, 6 analog outputs (0/4-20 mA) up to 20 free selectable IQ sensors can be connected	470 017

MIQ Modules

	Model		Function	Order No.
Power Supply	MIQ/PS for 100 – 240 VAC		Depending on the power consumption up to 6 modules can be installed in the system.	480 004
	MIQ/24V for 24 VAC/24 VDC			480 006
Output Modules (analog)	MIQ/CR3 with 3 analog (0/4-20 mA) and 3 relay outputs		With any combination	480 014
	MIQ/C6 with 6 analog outputs (0/4-20 mA)			480 015
	MIQ/R6 with 6 relay outputs			480 013
Output Modules (digital)	MIQ/IF 232		Software terminal MIQ/IF 232 provides full functionality of the hardware terminal MIQ/T 2020, additional functions: • Actual measuring data transferred to PC for further processing • Stored data can be read offline • View/safe/load/print the system configuration	480 020
	with controller function:	without		
	MIQ/MC		Module IQ/Micro Controller	471 000
		MIQ/A	Module IQ with fully automatic air-pressure compensation	470 008
	MIQ/MC-A		Module IQ/Micro Controller with fully automatic air-pressure compensation	471 010
	MIQ/MC-RS		Module IQ/Micro Controller with modem adaptable RS 232 interface	470 002
		MIQ/PR	Module IQ with PROFIBUS-DP connection	470 004
	MIQ/MC-PR		Module IQ/Micro Controller with PROFIBUS-DP connection	471 002
		MIQ/MOD	Module IQ with MODBUS RTU / RS 485 connection	470 006
	MIQ/MC-MOD		Module IQ/Micro Controller with MODBUS RTU / RS 485 connection	471 003
	MIQ/MC-A-RS		Module IQ/Micro Controller with fully automatic air-pressure compensation and modem adaptable RS 232 interface	471 011
		MIQ/A-PR	Module IQ with fully automatic air-pressure compensation for O_2 sensors and PROFIBUS-DP connection	470 011
	MIQ/MC-A-PR		Module IQ/Micro Controller with fully automatic air-pressure compensation and PROFIBUS-DP connection	471 012
		MIQ/A-MOD	Module IQ with fully automatic air-pressure compensation for O_2 sensors and MODBUS RTU / RS 485 connection	470 012
	MIQ/MC-A-MOD		Module IQ/Micro Controller with fully automatic air-pressure compensation for O_2 sensors and MODBUS RTU / RS 485 connection	471 013
Magnetic valve module	MIQ/CHV PLUS		Magnetic valve module for automatic controlled cleaning via compressed air	480 018
Linking modules	MIQ/JB		MIQ/JB with 4 connections (for IQ Net or IQ sensors)	480 008
	MIQ/JBR		MIQ/JBR, same as MIQ/JB additionally with amplifier signal for long cable distances (>1 km total length)	480 010
Connecting module Power input	MIQ/IC2		MIQ/IC2 with 2 inputs for 0/4-20 mA signals Enables the connection of separate measuring transmitters and analyzers to the IQ Net	480 016
Connecting module for spectral sensors	MIQ/VIS		For connecting CarboVis, NitraVis and NiCaVis sensors	481 029
Radio communication module	MIQ/Blue PS		For wireless connection and linking within the IQ Sensor Net system	480 021

IP 66 CE cETLus 3 Year Warranty

All IQ sensors are connectable; for ordering information see each parameter chapter. An overview of all connectable sensors can be found in our brochure "Product Details".

**Via the software adjustable by user.*

IQ Sensor Net performance data

All components within the system require a specific electric power supply. Due to the enormous flexibility of the system, an infinite number of variations is conceivable. Therefore, a balance sheet must be drawn up after selecting the components. This is easily done by totaling the power consumption of the individual components and checking whether the sum exceeds the power provided by a particular power supply unit. If so, the available power can be increased by installing additional or more powerful power supply units.

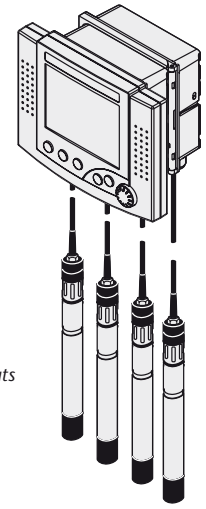
Power consumption in Watts	Number of power supply units
MIQ/PS	
≤ 18 Watt	1 power supply unit
18 - 36 Watt	2 power supply units
36 - 54 Watt	3 power supply units
55 - 72 Watt	4 power supply units
73 - 90 Watt	5 power supply units
91 - 108 Watt	6 power supply units

Additional cable losses generally do not need to be taken into account for installations where the main consumers are near (<164 yds/150 m) the next power supply and the overall cable length does not exceed 437 yds (400 m). In systems with greater cable lengths, approx. 1 watt of power loss per additional 109 yds (100 m) of cable have to be considered. These standard values apply when using specified IQ Sensor Net cable SNCIQ.

Example

	Components:	Power consumption or power supply	
Outlet measurement with the following parameters: turbidity, pH, dissolved oxygen, conductivity and temperature	MIQ/PS	+18,0 Watt	**One power supply unit MIQ/PS is sufficient for the complete system consisting of four connected sensors.** **The system comprises a buffer/reserve of approx. 9 watt. The system can be accordingly extended sensors and components.**
	MIQ/TC 2020 XT	-3,0 Watt	
	MIQ/C6	-3,0 Watt	
	VisoTurb® 700 IQ	-1,5 Watt	
	SensoLyt® 700 IQ	-0,2 Watt	
	TriOxmatic® 700 IQ	-0,2 Watt	
	TetraCon® 700 IQ	-0,2 Watt	
	Total Σ:	**+9,4 Watt**	

MIQ/TC2020 XT
+ MIQ/PS
+ MIQ/C6 (6 x mA)
+ 4 IQ sensors



Multi-parameter monitor for any 4 parameters, with 6 analog outputs

Configuration and Performance Data

IQ Sensors

Type	Description	Power Consumption/ W
SensoLyt® 700 IQ (SW)	pH/ORP assembly	➠ 0.2
TriOxmatic® 700 IQ (SW)	D.O. sensor	➠ 0.2
TriOxmatic® 701 IQ	D.O. sensor	➠ 0.2
TriOxmatic® 702 IQ	D.O. sensor	➠ 0.2
FDO® 700 IQ (SW)	Optical D.O. sensor	➠ 0.7
TetraCon® 700 IQ (SW)	Conductivity sensor	➠ 0.2
VisoTurb® 700 IQ	Turbidity sensor	➠ 1.5 (without ultrasonic ➠ 0.3)
ViSolid® 700 IQ	Suspended solids sensor	➠ 1.5
VARiON®*Plus* 700 IQ	Double sensor ammonium and nitrate (ISE)	➠ 0.2
AmmoLyt®*Plus* 700 IQ	Ammonium assembly (ISE)	➠ 0.2
NitraLyt®*Plus* 700 IQ	Nitrate assembly (ISE)	➠ 0.2
NitraVis® 700/X IQ (TS)	Optical nitrate probe with connection module MIQ/VIS	➠ 7.0
CarboVis® 700/5 IQ (TS)	Optical COD/TOC/DOC/BOD/SAC probe with connection module MIQ/VIS	➠ 7.0
NiCaVis® 700/5 IQ	Optical probe for measurement of nitrate and COD/ TOC/DOC/BOD/SAC with connection module MIQ/VIS	➠ 7.0

Output modules analog

Type	Description	In total there are 48 output channels/ system available	Power Consumption/ W
	Each mA-output, each relais with one module is considered as 1 channel.	**Number of occupied output channels**	
MIQ/CR3	IQ / current relay 3 module. with 3 analog outputs and 3 relay outputs each	6	➠ 3.0
MIQ/C6	IQ / current 6 module with 6 analog outputs	6	➠ 3.0
MIQ/R6	Module IQ/ Relais 6 with 6 analog outputs	6	➠ 1.5
MIQ/CHV PLUS	Module IQ/ Cleaning Head Valve for automatically controlled cleaning	1	➠ 1.0

Output modules digital

Type	Description	Power Consumption/ W
MIQ/MC(-A)(-RS)	Module IQ with modem adaptable RS 232 interface	➠ 1.5
MIQ/(MC)(-A)-PR	Module IQ with PROFIBUS-DP connection	➠ 3.0
MIQ/(MC)(-A)-MOD	Module IQ with MODUB RTU / RS 485 connection	➠ 3.0
MIQ/Blue PS	Module IQ for wireless connection within the IQ Sensor Net system	➠ 0.6
MIQ/IF232	IQ / software terminal module	➠ 0.2

Power input connection module mA

Type	Description	Power Consumption/ W
MIQ/IC2**	IQ / input current 2, module with 2 inputs for 0 / 4 - 20 mA signals **each occupied current input is counted as IQ sensor	➠ 0.2*
MIQ/JB	IQ / junction box module	➠ 0.0 (non-active module)
MIQ/JBR	IQ / junction box repeater module	➠ 0.2

Terminal-Controller

Type	Description		Power Consumption/ W
MIQ/TC 2020 XT	Terminal / controller for system 2020 XT	In total 3 units per system possible, whereby 1 is installed constantly to the station (terminal / controller function) and 2 are removable or replaceable (terminal function)	➠ 3.0

Power supply modules

Type	Description	Power Output/ W
MIQ/PS	IQ / power supply module for input power with wide range power supply unit for 100 - 240 VAC input voltage	18 ➠
MIQ/24V	IQ / 24 V module for input power with 24 VAC or 24 VDC input voltage	18 ➠

Attention: Please consider power consumption of SNCIQ cable: 1 W per 100 m/109 yds (for cable lengths above 400 m/437 yds)

**(+2.2 W per connected power supply/isolator)*

System 182

Up to 4 digital sensors can be connected to this system – insofar the system 182 is perfectly designated for the operation or completion of single measuring points at wastewater plants:

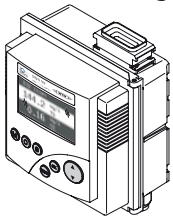
System 182

- 1 to 4 sensors
- Digital outputs
- All IQ sensors can be connected

- Up to 4 senors can be connected out of a variety of 19 available digital sensors
- pH, ORP, D.O., conductivity, temperature and turbidity/ suspended solids, nutrient parameters ammonium, nitrate and COD can therefore be measured directly, in-situ
- Power supply through wide range mains converter (100-240 VAC) or 24 V alternative.
- Digital outputs PROFIBUS DP or MODBUS RTU
- Analog model with up to 5 analog outputs and 6 relays

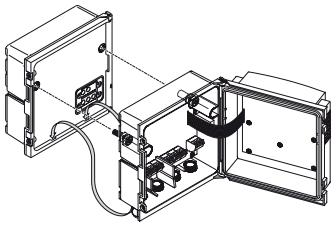
Module	DIQ/S 182	DIQ/S 182 XT	DIQ/S 182 XT-4
			NEW 
Max. number of sensors	2	2	4
Plug connection for Bus	Plug connection for Bus 2 x mA (0) 4 - 20 mA 3 x relay	DIQ/S 182 XT 4 x mA (0) 4 - 20 mA 5 x relay	DIQ/S 182 XT-4 5 x mA (0) 4 – 20 mA 6 x relay
Models with digital output PROFIBUS	DIQ/S 182 PR Plug connection for Bus 3 x relay	—	DIQ/S 182 XT-4/ PR Plug connection for Bus 3 x relay
Models with digital output MODBUS	DIQ/S 182 PR Plug connection for Bus 3 x relay	—	DIQ/S 182 XT-4/ PR Plug connection for Bus 3 x relay

Display of measurement value and navigation



- Single or double display with or without additional measuring parameter (i.e. temperature)
- Simultaneous display of status for all relays and power outputs in one overview

Sensor connection and system extensions



- Any IQ sensor will be automatically recognized by the system and displayed after connection.
- On demand, an additional main power supply can be connected to extend power for sensors with an increased power consumption.
- With stack-mounting, both the mechanical and electrical connect is established.
- Cable lengths of up to 250 m within the system.

Linking module for sensors and magnetic valve modules for compressed-air cleaning

- (DIQ/JB): Connection of a second or further distant IQ sensor
- (DIQ/CHV): Integrated magnetic valve is directly controlled by a relay of the transmitter