



M μ Connect

FLEXIBLE CONTROL AND MONITORING

6.06

General

M μ Connect® is an advanced combined control and monitoring unit. It controls waste water pump stations, smaller waterworks, waste water treatment plants and drinking and raw water pumps. Overflow registrations and other data is easily logged to a Scada system.

The M μ Connect® RTU is configured via the Connect Link™ software which is connected via USB, Wi-Fi module, or the 4G modem.

The external Wi-Fi allows for minor on-site adjustments and reading of data via the MJK Connect app on a smartphone. An MJK HMI display can be connected via a serial input, allowing reading of operations data and history.

M μ Connect® is modular and can, via a DIN bus, be expanded with additional I/O modules allowing a wide variety of in- and outputs.

M μ Connect® can also connect to e.g. flow, level or other meters using Modbus communication via a serial bus, and communicates with most Scada systems on the market via standard communication protocols.



4G MODEM...

Functions

- Intelligent pump monitoring
- Energy optimized pump control
- Built-in pump capacity calculation
- State machine for individual programming
- Flexible number of in/outputs via I/O modules
- Overflow calculation with time, number and amount
- Inter lock, either with pump stops or off-set of start/stop levels
- Logic functions (control word) for individual control, combination of alarms and more.

Applications

- Pump stations
- Registration of emergency overflow
- Retention basins
- Wastewater treatment plants
- Control of aerators in treatment plans
- Master device for nConnect®
- Energy optimization
- Raw water borings
- Ground water pump stations
- Pressure booster stations
- Filter rinsing.

DATASHEET

EN 6.06 M μ CONNECT DATASHEET 2005

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Mμ Connect control and monitoring

Specifications

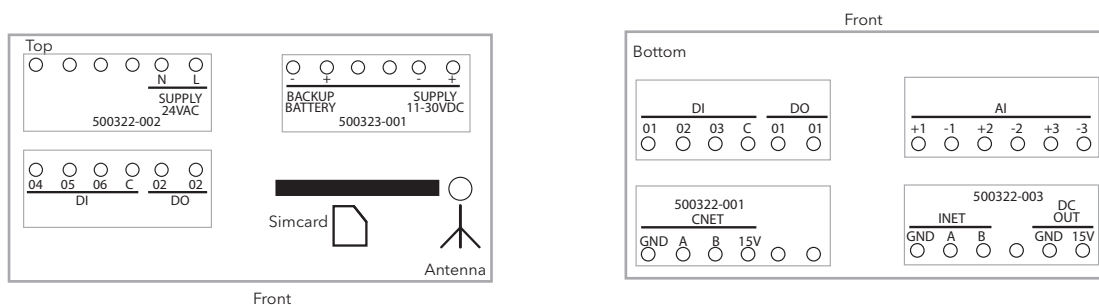
Mμ Connect®	
Power supply ①	11-30 V DC / 24 V AC ± 20%
Power consumption	8-40 VA, depends on setup
Battery backup ③	Built-in battery charger includes supervising an external lead storage battery (2-30 Ah)
Clock	Realtime clock incl. built-in lithium battery (expected life circle 10 years@20°C)
Memory	32MB flash memory, 10 X 36.000 logs depending on chosen protocol
Build-in communication	4G modem bands (MHz): B20 (800)/B8 (900)/B3 (1800)/B1 (2100)/ B7 (2600)
Interface	1 pcs. RS485 DIN bus for I/O modules 1 pcs. RS485 galvanic separated for Instrument Net 1 pcs. RS485 galvanic separated for Connect net 1 pcs. USB 1,1 type mini B, female 1 pcs. MMCX, female, for antenna
Communications protocol	Internal: Modbus® RTU-mode External: Modbus® RTU-mode, COMLI® or Aqua Com
Enclosure	IP 20
Cabinet material	PC (polycarbonate)
Temperatur range	- 20 ... 60 °C
Weight	0,55 kg
CE approvals	EN 61000-6-4 2007-02-19, EN 61000-6-2 2005-09-08 cf. 89/336/EEC, 2004/108/EC, 1999/EC
In- and output RTU unit 3AI/6DI/2DO with expansion modules max. 32 DI, 32 DO, 16 AI and 16 AO	
Digital input ①	6 pcs. 10 - 30 V DC
Digital output ①	2 pcs. electronic relays (max. 28 V AC / 28 V DC / 300 mA)
Analog input ①	3 pcs. galvanic separated, 16 bit resolution, 4-20 mA, accuracy better than ± 0,25 % of FS ^②
Analog output ①	Only Mμ Connect® I/O module, 4-20 mA, galvanic separated
Power supply for I/O	1 pcs. 15 V DC, 150 mA

①When using Mμ Connect® expansion modules, the maximum number of in- and outputs will be: 32 DI, 32 DO, 16 AI and 16 AO (32 Digital Inputs, 32 Digital Outputs, 16 Analog Inputs and 16 Analog Outputs). When expansions modules are mounted, a bus system with a DIN rail is used.

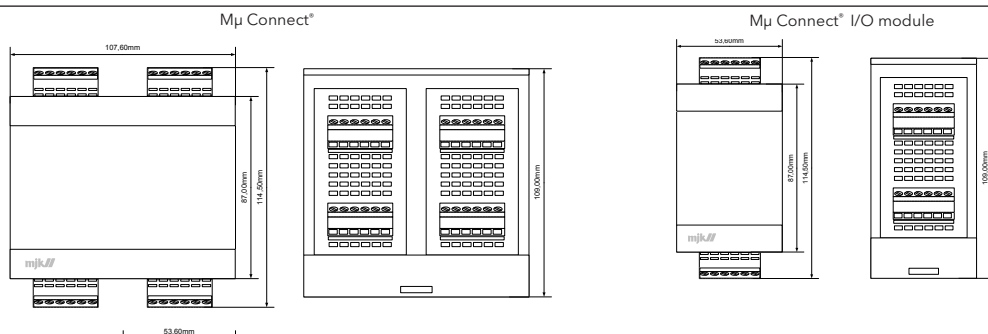
②At operating conditions of 0-50°C.

③Min 15-30 VDC to charge backup battery; battery is charged with either AC or DC supply.

Electrical connections



Dimensions



Mμ Connect control and monitoring

Accessories



Backup battery:
Depending on battery capacity, an additional battery ensures operation of Mμ Connect® for several hours in case of power failure.

I/O expansion modules

Mμ Connect® can be configured from a simple control unit to a fully-expanded, multi-variable process control unit with a wide range of I/O modules.

The maximum number of I/O modules is eight. Together with the CPU device, this offers a total of 16AI/16AO/32DI/32DO.

See more details in data sheet 6.07.

Mμ Connect® is easily expanded via a DIN-bus rail system.



Flexible in- and output, modular build.

Communication

Mμ Connect® offers various connectivity options and can easily act as a control unit as well as RTU in a Scada system.

Mμ Connect® consists of a CPU device with three analogue inputs, six digital inputs and two digital outputs. This number can be expanded as needed with I/O expansion modules with digital and analogue in- and outputs.

In addition, Mμ Connect® communicates via, e.g. Comli or Modbus protocols to Scada data systems for data output - or Instrument Net for connection of meters for flow, level, etc.

As a standard, Mμ Connect® is delivered with built-in 4G communications modem for transmission on the mobile data network.

Mμ Connect® can be connected to an external Wi-Fi for operation from a smartphone with MJK Connect App® installed. This allows you to monitor or change start/stop levels, force start and stop, block pumps, and read alarm lists and status.

Operating



Android



iPhone



Mμ Connect® can be operated from different devices:

Smartphone - connected via external Wi-Fi module. The iPhone and Android apps are free and downloadable from the App Store or Android Market. Scan the QR code and download the MJK Connect app.

Connect Link™ - for full setup, configuration and communication between Mμ Connect® and a PC via a USB cable, 4G modem or Wi-Fi. See data sheet 6.28.

HMI Display - provides graphical access to pump controls, data reading and real-time operation overview via touchscreen. See data sheet 6.31.

Mμ Connect control and monitoring

Order numbers

Mμ Connect®	
205241	Mμ Connect® RS485/RS232 6DI/2DO/3AI
205253	Mμ Connect®, 4G modem 6DI/2DO/3AI

I/O expansion modules (max. 16AI/16AO/32DI/32DO)	
205260	Mμ Connect® I/O module 12DI
205261	Mμ Connect® I/O module 12DO
205262	Mμ Connect® I/O module 6DI/6DO
205270	Mμ Connect® I/O module 6AI
205271	Mμ Connect® I/O module 6AO
205272	Mμ Connect® I/O module 3AI/3AO
205280	Mμ Connect® I/O module 6DI/3AI
205281	Mμ Connect® I/O module 6DI/3AO
205282	Mμ Connect® I/O module 6DO/3AI
205283	Mμ Connect® I/O module 6DO/3AO

Accessories	
205204	Power supply, DIN rail, 100-240VAC 24VDC/1.25A
205205	Power supply, DIN rail, 100-240VAC 24VDC/1.75A
205410	HMI display
205507	Cable set for Mμ Connect® for HMI display, RS485, 2,7m
205509	Mounting set for display on panel front for Mμ Connect®
205590	Wi-Fi, External Communication module, RS 485
500311	Mμ Connect® bus rail, narrow for I/O module
500312	Mμ Connect® bus rail, wide for CPU module
550240	Accumulator 12V/2Ah
550241	Accumulator 12V/7,0Ah
550242	Accumulator 12V/12Ah
550244	Accumulator 12V/1,2Ah
691075	Communications cable 2x2x0,5mm ² twisted pair + screen per m.
691095	PC cable mini USB/USB
840150	Connect Link configuration software
901072	Mμ Connect® Signal Simulator

For nConnect®, see datasheet 6.08
For antennas, see datasheet 6.26
For HMI Display, see datasheet 6.31.