



WatchTalk NTA 2.1 Module

Xemex is specialized in the design and development of telemetry communication modules for multi-grid applications. Modules capture meter readings, stores them and performs, daily or customizable, bi-directional data transfer using GSM/GPRS. These data are sent to backend application servers for use in e.g. billing, pre-paid and marketing tools.

Solutions are built around the following strategic concepts:

1. Modular communication modules hooked-in or added next to the metering devices.
2. M-bus wireless to exchange local data between meters
3. GSM/GPRS to exchange data stored in the module with central servers.

The specifications of Xemex WatchTalk NTA 2.0 communication modules are compliant with the Dutch legislation around NTA 8130 and DSMR+.



Functional specification

1. General

Compliant with

- NTA 8130 and DSMR 2.2+

Easy Installation

- Start-up message on power-on
- Local configuration of other wireless M-bus modules (e.g. gas, water, heath)

Real-time clock with full calendar

- Clock synchronization in communication session
- Local Time with Daylight Saving settings

(Dis)connect E and M-bus devices

- (Dis)connect E and M-bus devices (wired & wireless)
- Logging of connection status

Power quality

- Power swells and sags
- Current and average voltage of different phases
- Logging of power failures

Tamper detection

- Detection of cover removal
- Illegal power consumption
- Logging of fraud history

Logging of events, errors and alarms

- Standard event log
- Power failure log
- Fraud detection log

Remote upgradable

- Firmware upgradable using the GPRS connection

Self Diagnostics

- Power outage info: logging of fail/restore timestamp
- Power quality: logging of voltage sags and swells
- Meter failure detection

2. AMR Functionalities

Actual meter reads: E-meter + up to 4 M-bus devices

- E-meter: 4 rate indices in kWh
- Index M-bus devices in m³

Periodic meter reads for E and M-bus devices

- Storage of 10 daily reads
- Storage of 13 monthly reads

Storage of 10 days of interval readings

- for E-meter: 15 minutes interval in Wh
- for M-bus devices: 60 minutes interval in 0.001 m³

Load limitation

- configurable current threshold

3. Tariff control settings (day/night switching)

- Calendar based with local time (daylight saving settings are taken into account)
- 4 season rate profiles
- 4 Week rate profiles (day rate profile to use every day of the week)
- 4 day rate profiles (up to 8 switch times can be defined per day)
- Exception days with alternative day rate profile (30)

4. NTA8130 defined Interfaces

Port P0:

- Port accessible through optical interface of L&G meter

Port P1: User information every 10 seconds

- meter indexes for E and connected M-bus devices
- delivery status for E and connected M-bus devices
- Current limitation or E

Port P2: Wired & Wireless M-bus based local communication

- Factory mounted, RF Wireless on ISM band (868 MHz)
- EN13757-4 Wireless protocol (T1 & T2 support)
- Wired M-bus mini-master

Port P3: GSM/GPRS interface for WAN connectivity

- GPRS communication using DLMS protocol
- Internal antenna
- External antenna connector MMCX

Meter Interface L&G

- E-meter 6-pin header interface with L&G
- Internal relay interface: wired or logical connection to the internal relay of the meter
- Relay reset button: relay reset button in cover of meter is interfaced to the module board

Technical specifications

1. Compatible meters

Compatible with Landis & Gyr ZMF and ZCF electricity meters (Flex I and Flex II)

2. General

Operating behavior

- Operating voltage range: 85V – 265V
- Power failure: 50ms after voltage drop (for saving important data)
- Frequency: 47Hz - 63Hz

Power consumption

- Average: 600 mW
- GSM active: 2.75 W maximum (+33dbm gsm power, GPRS)

RTC accuracy

20 ppm

Temperature range

Operating: -40°C to +70°C
Storage: -40°C to +70°C

Electromagnetic Compatibility

| | |
|---|---|
| Flicker (line) | According to IEC 61000-3-3 |
| Electrostatic discharges | According to IEC 61000-4-2 |
| Contact discharge | 8kV |
| Electromagnetic RF fields | According to IEC 61000-4-3 |
| 80 MHz to 2 GHz | 10V/m (normal operation) |
| 80 MHz to 2 GHz | 30V/m (no stored data loss) IEC62052-11 |
| Radio interference suppression | According to IEC/CISPR 22 |
| | Class B |
| Fast transient burst test | According to IEC 61000-4-4 |
| Current and voltage circuits not under load | 4kV |
| Current and voltage circuits under load according to IEC 62053-21 | 2kV |
| Fast transient surge test | According to IEC 61000-4-5 |
| Current and voltage circuits | 4kV |
| M-Bus (24 Volt) | 1kV (Severity class 2) |
| Conducted immunity on mains | According to IEC 61000-4-6 |
| Dips & Voltage fluctuations | According to IEC 61000-4-11 |

Safety

| | |
|--------------------------------|---------------------------|
| General requirements safety | According to IEC 60950-1 |
| Insulation strength | 4kV at 50 Hz during 1 min |
| Impulse voltage 1.2/50 μ s | According to IEC 62052-11 |
| Current and voltage circuits | 8kV |
| Protection class II | According to IEC 62052-11 |

3. GSM / GPRS

GSM bands 900/1800

- EGSM900 Class 4 (+33dBm)
- GSM1800 Class 1 (+30dBm)

GPRS

- Multi slot class 2, 8 or 10
- Mobile class B
- Coding Scheme CS1 to CS4

Conforming to the following European Union Directives:

- R&TTE Directive 1999/5/EC (Radio Equipment & Telecommunications Terminal equipments)
- RoHS (Restriction of Hazardous Substances) directive of the European Union (EU Directive 2002/95/EG)

4. M-bus interface

Wireless M-bus

| | |
|-------------------------------------|------------------------------------|
| RF Short range device | ISM band 868MHz |
| | According to EN 300-220-1 (V2.1.1) |
| | According to EN 300-220-2 (V2.1.2) |
| Electro Magnetic Compatibility | For radio equipment and services |
| Technical requirements | According to EN 301-489-1 (V1.6.1) |
| Short range devices (9kHz to 40GHz) | According to EN 301-489-3 (V1.4.1) |
| Wireless M-bus | EN 13757-4 |
| | T1 & T2 operating mode |

Wired M-bus

| | |
|-------------|-----------------|
| Wired M-bus | EN 13757-2 |
| | Mini master 16U |

5. Mechanical data

Dimensions: 32 x 124 x 92 mm

Connections: P1 – RJ11 in meter cover
P2 – wired M-bus: connector 2 screws under meter cover