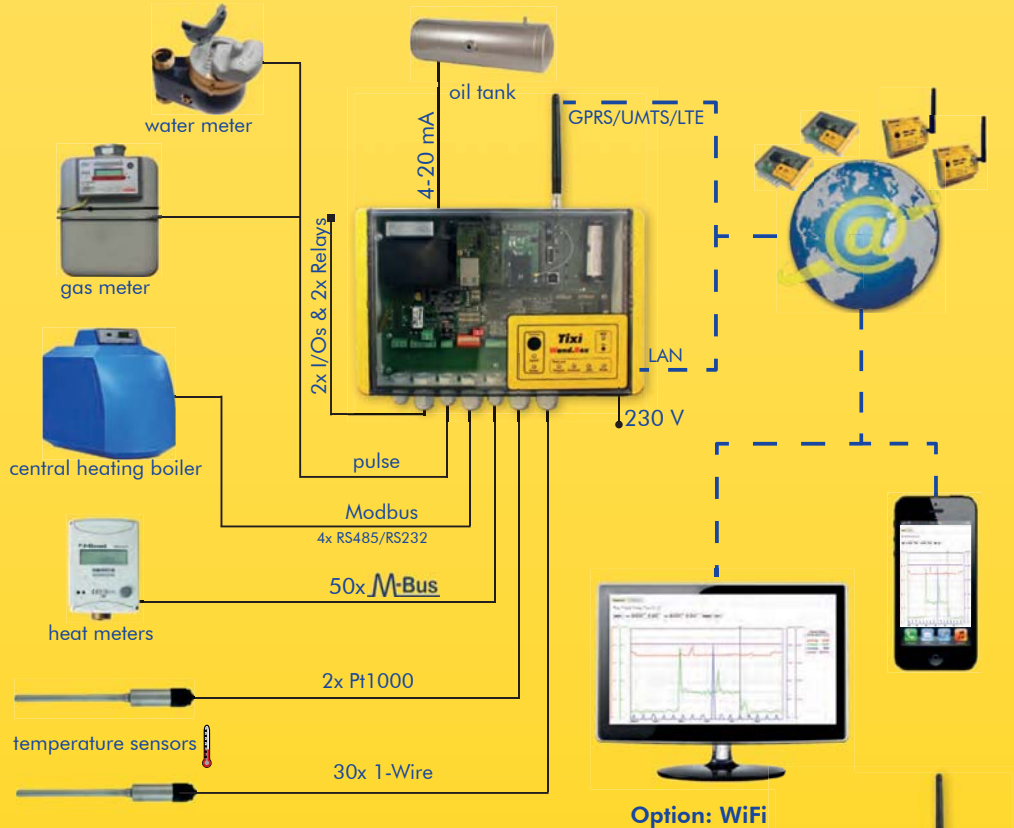# Tixi Wand.Box

Tixi Gateway
- Alarming
- Data logging
- Internal web server
- PLC protocols
- Remote maintenance

Energy Monitoring
- M-Bus and Modbus meters
- Pulse meters
- Analog / Digital I/Os
- Pt1000 / 1-Wire
- Relays

water meter

gas meter

oil tank

central heating boiler

heat meters

temperature sensors

4-20 mA

2x I/Os & 2x Relays

pulse

Modbus
4x RS485/RS232

50x M-Bus

2x Pt1000

30x 1-Wire

GPRS/UMTS/LTE

LAN

230 V

Cloud

Option: WiFi

Technical Specifications:
- GSM/GPRS/EDGE
- UMTS/HSPA/LTE
- LAN/Ethernet
- WiFi via USB

- CPU: 400 MHz
- RAM: 128 MB
- Flash: 128 MB
- USB: max. 32 GB

Option: Low power mode via internal battery

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Tixi Gateways

Smart Gateways for PLCs and Energy Meters

- Fault Indication
- Remote Maintenance
- Data Logging
- Internal Web server

- Secure Cloud Connectivity
- GSM/GPRS/UMTS/LTE
- Ethernet/WiFi/56k
- OEM Models

Tixi.Gate LAN + GSM

OEM

Tixi Gateways communicate with any PLC
e.g.:

Vipa   Siemens   EATON / Moeller   Saia

ABB   Mitsubishi

And with every meter
e.g.:

Gas Meter   Calori Meter

Electric Meter   Water Meter

Tixi
Always online. Even offline.

Tixi Gateways for Meters and any PLCs

Smart Gateway Computer

Tixi devices are smart remote communication gateways with a high power CPU, large data memory and secure cloud and SCADA communication.

The ability of Tixi Gateways to be connected directly to virtually any large or small PLC and any energy meter heralds a new era of simple and affordable remote maintenance solutions for the industry and building management technology. The **128 MB** memory is power fail safe and can be extended up to **32 GB via an SD card or a USB memory stick**. It offers enough space for your data requirements.

Tixi "talks" to your PLC:

Mitsubishi	Alpha XL, FX1, FX2, FX3U, FX5
EATON / Moeller	EASY 400 - 800, MFD, PS4
Siemens	S7-200, S7-300/400, S7-1200, S7-1500
ABB	AC010, AC31, AC500, Inverter
Schneider Electric	Zelio, Twido, MODICON
Crouzet	Millenium 2 + 3
VIPA	100V, 200V, 300V
Saia Burgess	PCD, PCS
Allen Bradley	Pico

Fieldbus Systems:

- Modbus RTU, Modbus TCP
- MBus up to 100 meters
- 1-Wire
- CAN bus
- OEM bus systems

Tixi supports:

- SMS
- E-Mail (encrypted)
- FTP / SFTP
- Cloud via HTTPS
- VPN

Functions:

- Fault indication
- Remote maintenance
- Telecontrol
- Data logging
- Web server
- PLC functions
- Logical operations
- OEM functions

Interfaces:

- USB for memory + WiFi
- RS232 (1-4)
- RS422/485 (1-2)
- up to 128 I/Os
- Ethernet, WiFi
- pulse interfaces for meters
- OEM interfaces and OEM protocols

Alarming with Acknowledgement & Cascading

Report faults to any recipient via SMS, E-Mail or Web (Cloud).

Trigger faults by PLC variables, inputs on the Tixi Gateway or **Tixi calender scheduler**. Message texts may include current PLC data and can be of any length in E-Mail & Web.

Main features:
- \> 100 addresses in address book
- \> 100 predefined messages
- \> 100 alarming conditions
- \> 10.000 PLC variables readable & writeable

Alarm cascading:
You can set up freely definable alarm levels and actions (see box below).

Mass Storage

Alarming

Remote Maintenance

Tixi "understands" your PLCs

Tixi Gateways can "talk" with any PLC. The protocols of leading PLC manufacturers (see box to the left) are already installed. This enables Tixi to read and write PLC variables and ports directly, without having to load any driver or function block into the PLC, i.e. no changes to PLC programing.

Tixi "knows" many energy meters

Energy monitoring, energy management and energy efficiency are often applications of Tixi Gateways and are supported by various energy software systems as a portal, cloud or stand alone solution.

Mobile Network GSM / GPRS UMTS / LTE

Ethernet + WiFi

Telephone Network

Internet

Telecontrol

Web server

Electric Meter

Heating System

Data Logging
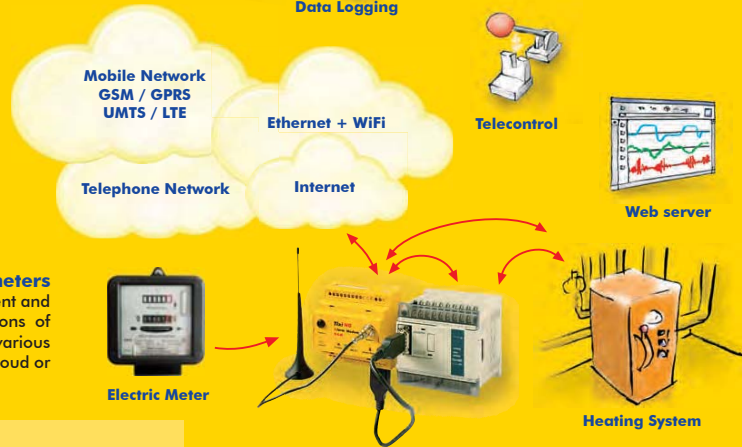
Remote Maintenance of PLCs

A Tixi Gateway can be used to handle the remote maintenance of several controllers via a mobile connection, a telephone line or via the Internet. The variables and I/O ports of PLCs can also be read or written remotely with the TILA Tixi Alarm Editor.
The entire configuration of the Tixi Alarm Gateway can be carried out by remote dial-in and the logged data can be read out via the same connection.

SECURITY is given top priority. Different security levels are supported: Tunneled, encrypted connections (VPN = virtual private network), TLS, HTTPS, encrypted e-mail.

Shift schedule example:

100 devices have to be maintained by three technicians with different service schedules. The destination addresses of the alarms must therefore be switched depending on the service plan. No problem for the Tixi Gateway – thanks to the Tixi Schedulers – no central control system is requiered but possible.

Data Logging for PLCs

Logging of any PLC data (variables, ports, registers) and system data with time and date stamp in power fail safe Flash memory (128 MB) and an optional SD card (32 GB). The scan cycle (1 second up to 1 year) can be configured freely.

Sending of the logged data happens by e-mail, FTP / SFTP or cloud connector, cyclic, scheduled or event triggered. Up to 100 different log files with a freely definable size (ring buffer) and time stamp can be set up.

Telecontrol
by SMS + E-Mail + Cloud

A short command via SMS, e-mail or cloud connection can switch the optional outputs of the Tixi Gateway or a connected PLC or write PLC variables. The execution of the command can be acknowledged.

100 switch commands with up to 10 parameters each can be defined. PLC variables can be queried simply and quickly by SMS command or smart phone via a cloud service.

Web Portal or Cloud
Data backup in a data center

Data of millions of PLCs, meters, sensors and Tixi Gateways can be managed in a modern database. The logged data of the Tixi Gateway can be stored, analysed and visualized. Only authenticated users gain access to the data. Tixi devices support various cloud systems over encrypted connections.

Web server

The web server inside the Tixi Alarm Gateways allows system states and logged data to be visualized and modified using a browser from any computer or smartphone worldwide.

OEM models
with logo in alternative colours

Tixi Gateways have open interfaces in terms of hardware, firmware and software so that custom adaptations to Tixi Gateways are possible at little expense. The entire functionality of Tixi can thus be made available for closed-loop controller within a short period of time.

Alarm Cascading – the multi-level alarm schedule

Normal operation	Tixi Gateways monitor variables and ports in one or more PLCs via different interfaces.
Alarm level 1	
1. Fault indication SMS to technician A	In the event of a fault being detected, the Tixi Gateway sends an SMS to service technician "A". If this person acknowledges the reception within a defined time, the Tixi Gateway resets the alarm.
Alarm level 2	
1. SMS to technician B 2. E-mail to owner 3. E-mail to service center 4. Web info to a cloud	If the Tixi Gateway does not receive the acknowledgement within the defined time, it will start alarm level 2 and send several messages: An SMS to service technician B, an email to the service center, and to the owner of the building and a web info message to a SCADA or cloud system.
Alarm level 3	
1. Web info to a SCADA or cloud system 2. Email to control room 3. Email to owner 4. Activation of the warning beacon	If technician B does not acknowledge receipt within the defined time, the Tixi Gateway initiates alarm level 3.

TILA – Tixi Alarm Editor for easy set up

How does Tixi create the address books of up to 100 SMS- and E-Mail addresses? How are the PLC variables defined for Tixi to communicate with? How are the message texts created and linked with PLC variables and destination addresses in order to generate alarms? Very simply with TILA, the Tixi Alarm Editor. All entries are stored in a project file (XML). Such configuration files can be stored per location: In a control center, cloud or customer portal.