

Wireless M-Bus centralization System overview

Datasheet
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GE552Y061



GE552Y053



GE552Y060

The new modular Wireless M-Bus centralization system includes a GE552Y061 datalogger (with integrated web server) and GE552Y053 radio signal repeater antennae.

The system enables to connect the various wireless and wired devices extending the network to a maximum of 3000 devices (2500 wireless + 500 wired) and save the daily values.

The number of wired devices can be extended to 500 by connecting multiple GE552Y050 and GE552Y059 local concentrators to the GE552Y061 datalogger while controlling up to 2500 wireless devices.

Advantages

- The integrated web server allows the set-up, the search and the consultation of data from all the devices that make up the M-Bus network directly on the display of the device.
- Through a dial-up router all data can be managed and viewed on a PC or smartphone.
- Management of alarms due to failure, tampering or the exceeding of configurable thresholds with the sending of email notifications.
- Scheduling for the generation and forwarding of reports on the data gathered.

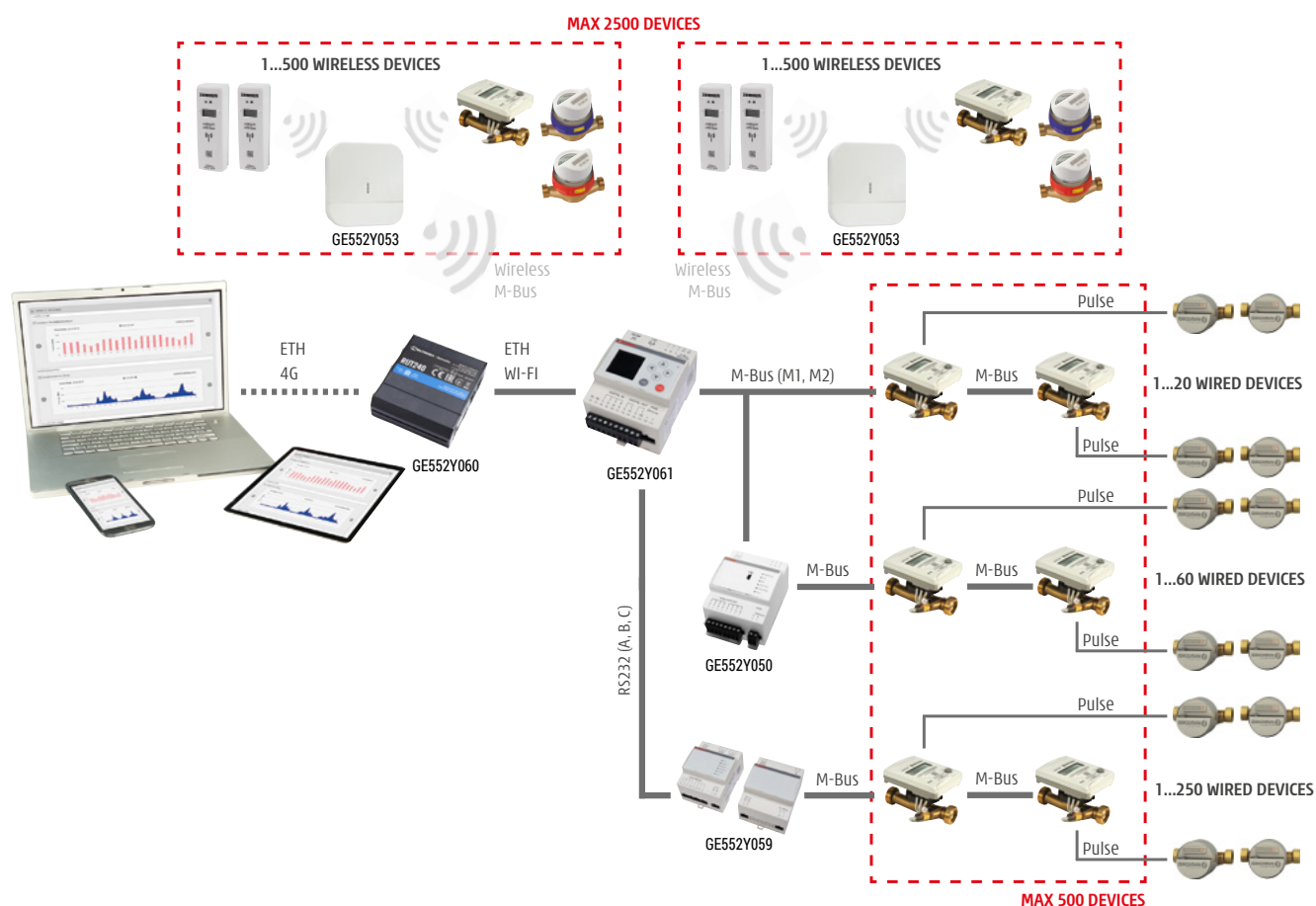
➤ Versions and product codes

PRODUCT CODE	DESCRIPTION
GE552Y061	Wireless M-Bus / M-Bus datalogger for acquisition, processing, recording of data originated by M-Bus wired or wireless devices. Directly controls up to 3000 devices (2500 wireless + 500 wired)
GE552Y053	Wireless repeater and concentrator to extend the device radio range and transmit data to the GE552Y061 datalogger
GE552Y060	4G/LTE – wireless modem router for remote connection of the GE552Y061 datalogger

Optional accessories

- GE552Y050: local concentrator for acquisition, processing and recording of data originated by the M-Bus network wired devices. Provides for control of up to 60 devices

➤ Example diagram



GE552Y061 wireless datalogger

Description

The GE552Y061 datalogger is an acquisition, processing and registration system for data originated by devices that use the M-Bus standard protocol (for example, energy meters...).

It can be connected to a maximum of 500 wired meters through an integrated M-Bus port and up to 2500 through wireless M-Bus.

The datalogger can be connected to a maximum of 20 M-Bus devices; when used as master in a M-Bus Wireless network, it can be connected to 23 GE552Y053 repeaters, each of which can be connected to 500 wireless devices.

The M-Bus network can be extended to 6 GE552Y050/59 concentrators and save the daily values read.

Through a web interface, it enables to read the meters, generate reports, setup the system and access historical data. It is provided with a graphic display to setup the system and read the values and status of the I/O without a desktop. It also includes three digital inlets and two relays.

Characteristics

- User-friendly: the graphic display enables to commission the metering system in a few steps guided by the configuration wizard. The main settings are performed locally on the display or through the web interface.
- It includes two ethernet ports with switch functions, provides for connection of multiple cascade-configured devices without network systems and the device can be powered also via Power over Ethernet (PoE).
- Constantly updated: the device verifies possible updates through internet and notifies the user who may install them by clicking on the web interface.
- Smart: the user can scan the M-Bus network to acquire the wired devices using just one button. The device automatic identification enables to promptly acquire the data and automatically create reports with preset data groups which can be edited by the user and equipped with metering unit, type of dimension and description (translated), with corresponding deletion of additional required activities by the user.

M-Bus communication

- Standards of reference: EN13757-2 (Physical Layer), EN13757-3 (Application Layer)
- Baudrate: min. 300 bps – max. 9600 bps
- Number of M-Bus meters supported:
 - without M-Bus level converter: 20 (M1, M2)
 - with level converter: max 500 by using at least one level converter for each Bus (A, B, C and M1, M2)
- Reading interval: 15 min / 60 min / 6 hrs / 12 hrs / 1 day / 7 days / 1 month
- Identification of collisions on M-Bus network: yes
- Device search/acquisition: through Primary and Secondary address

Electric characteristics

- Power supply: 24 Vac/dc $\pm 10\%$ (SEV)
- Installation category: class III
- Max. consumption: 7,5W
- Ethernet: N:1
- Digital inlets: N*3 for free contacts
- Digital outlets: N:2 relay

Mechanic characteristics

- Operational temperature range: $-10\div55\text{ }^{\circ}\text{C}$
- Storage temperature range: $-25\div65\text{ }^{\circ}\text{C}$
- Dimensions: 90x71x62 mm (HxLxP) – DIN
- Installation: 35 mm DIN rail (EN60715)
- Protection degree: IP20 (EN60529)

Datalogging

- Data storage: 1 year for intra-day data originated by wired metering units
- Reports: XLS, CSV, TXT format
- Transmission: Mail SMTP, FTP (Client), Webserver (report generation and download)
- Report generation planning: Daily / Monthly / Bimonthly / Quarterly / Four-monthly / Six-monthly / Yearly

User interface

- Display: graphic display, 128 x 128 px; 262k colors
- Keypad: 6-buttons tactile membrane
- Led Power: operational status
- HTTPS: multi-language webserver (SSL) for data reading and configuration

Alarm signals

- Alarm notification by device network: metering unit anomalies/alarms, communication anomaly, limit exceeding
- On-board I/O: email notifications for digital inlet status

➤ GE552Y053 wireless repeater and concentrator

Description

Wireless repeater able to acquire the signal of one or multiple metering units communicating according to the M-Bus Wireless (868 and 169) standard and to retransmit the received data to a network of other repeaters to extend the metering unit wireless range.

The data can also be acquired by the GE552Y061 datalogger. Every repeater can control up to 500 metering units and cover a 500 m distance in free air and 40 m inside a building.

The plastic housing with its linear and refined design, the totally concealed electric connections, the antennae integrated in the device itself, make this repeater the perfect solution for wall-mount installation, also for exposed assembly.

Commissioning of GE552Y053 repeaters is made easier by the on-board led indicators which show the signal intensity; the device can be powered via USB for an easier research of the best installation point as the best signal/distance ratio can be identified in motion.

An IP65 protection extension kit is available as optional for outdoor installation.

Characteristics

- Multi-hop and open: GE552Y053 repeaters feature the Multi-hop function which provides for extension of the network coverage when used with other repeaters; it can also control metering units with Wireless M-Bus (868 and 169) and OMS protocols. The received signals are immediately retransmitted with no time-shifting so as to obtain real time consumption data.
- Smart: The repeater supports the stand-alone mode as it saves the last data received by each metering unit, enabling the user to download the acquired data via USB port by means of the GE552Y056 software.

Wireless interface

- Rule of ref.: EN13757-4 (Physical Layer), EN13757-3 (Application Layer)
- Supported application layers (combined to GE552Y061 or GE552Y056): Wireless M-Bus, OMS
- Frequency: 868 MHz
- N. of supported wireless M-Bus metering units: 500
- Wireless M-Bus Mode: C1+T1+T2, S1+T1, T1+T2, T1
- Metering unit identification mode:
 - based on data reception
 - based on SND_IR message reception
 - import of metering unit list from file

Advantages

- Multi-hop control with identification of system ID network.
- Opening to Wireless M-Bus multi-brand transmitters.
- Control of various operational modes (S-T-C).
- Extremely easy configuration by use of: on-board indicators, GE552Y061 web interface.
- On-board USB port for reading of last received data, updated firmware and power (specifically suitable for commissioning).
- Network power (no need to replace the batteries).
- Constant data filing.
- Management of data transmitted by devices communicating with a frequency up to 10 seconds (Wireless M-Bus channel reception always available).
- Extended coverage compared to any other wireless M-Bus available on the market.
- Non-bidirectional control of up to 500 wireless M-Bus transmitters.

Electric characteristics

- Power: 100÷240 Vac @ 50÷60 Hz
During commissioning/data reading: 5 Vdc via USB port (500 mA)
- Installation category: class II
- Max. consumption: 4,5 W

Mechanic characteristics

- Operational temperature range: -20÷85 °C
- Storage temperature range: -10÷85 °C
- Dimensions: 160x160x35 mm (HxLxP) – DIN
- Installation: wall-mount with screws / rail with special optional kit
- Protection degree: IP40 (EN60529)

User interface

- Led Power: operational status
- Signal strength led indicators: N.4 leds to display signal strength of the wireless network
- TX/RX status led: N.4 leds to display the reception/transmission status of the wireless network and metering units

Mesh network interface

- Frequency: 868MHz – max. transmission 27 dBm
- Max. distance between two GE552Y053: 500 m in free area – 40 m inside building

GE552Yo6o modem router

Description

LTE CAT4 cellular-industrial router. Compact, sturdy and powerful device for M2M/IoT industrial applications. RUT240 includes 2 Ethernet and Wireless interfaces with Hotspot functionality. The device offers safe and stable Internet connectivity for industrial applications that use the RutOS software and security functions such as OpenVPN, IPsec, Firewall, Hotspot, SMS control and RMS support.

- LTE Cat 4 up to 150Mbps
- Compact dimensions, easy integration
- Automatic switching to available | Backup connection
- Digital inlet/outlet for remote monitoring and control
- Wireless Access Point with Hotspot and station functionality
- APM TIM pre-configuration

Hardware

- Mobile: 4G (LTE) – Cat 4 DL up to 150 Mbps, UL up to 50Mbps; DC-HSPA+; UMTS; TD-SCDMA; EDGE; GPRS
- CPU: Atheros Hornet, MIPS 24Kc, 400 MHz
- Memory: 16 MBytes Flash, 128 MBytes DDR2 RAM
- Ethernet: 2 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 1 x LAN
- Power supply: 9÷30 Vdc, 4 pin dc connector
- Inputs/Outputs: 1 x Digital Input, 1 x Digital Open Collector Output on power connector
- Connectors: 1 x 4 pin DC, 2 x Ethernet,
 - 2 x GSM/WCDMA/LTE antenna 703-960/1710-1990/2110-2170/2500-2690 MHz, 50 Ω, VSWR ≤ 2, gain 1 dBi, omnidirectional, SMA male connector
 - 1 x WiFi antenna 2401-2462 MHz, 50 Ω, gain 3dBi, VSWR ≤ 1.5, omnidirectional, RP-SMA connector
- SIM: 1 x external SIM holder
- Status LEDs: 2 x connection type status, 5 x connection strength, 2 x LAN status, 1 x Power
- Working temperature: -40÷75 °C
- Housing: aluminum housing, plastic panels
- Dimensions: 83 x 74 x 25 mm
- Weight: 125 g
- Operating system: RutOS (OpenWrt based Linux OS)

Software

- Multiple PDN: possibility to use different PDNs for multiple network accesses and services
- Network protocols: TCP, UDP, IPv4, IPv6, ICMP, NTP, DHCP, DNS, HTTP, HTTPS, SSL v3, TLS, ARP, PPPoE, UPNP, SSH, Telnet, SNMP
- Network features: NAT, Static/Dynamic routing, Firewall, OpenVPN, IPsec, H.323 and SIP-alg protocol NAT helpers, allowing proper routing of VoIP packets
- Unique network features: VLAN, Load balancing, Mobile quota control, WEB Filter, Network Backup, Auto Failover
- Connection monitoring: Ping Reboot, Periodic Reboot, Wget Reboot, LCP and ICMP for link inspection
- Authentication: pre-shared key, digital certificates, X.509 certificates
- Keep settings: FW update without loss of the current configuration
- Monitoring & Management: WEB UI, SSH, SMS, SNMP, JSON-RPC, FOTA, RMS
- Supported languages: Busybox shell, Lua, C, C++
- Development tools: SDK package with the provided build environment

⚠ Safety Warning. Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

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