SIEMENS

Meters and Energy Cost Allocation

M-bus Web Server

WTV534-0B4022

The Web Server reads M-bus meters over Ethernet or the Internet using a browser.

- Power and connection for up to 20 M-bus meters directly to the Web Server
- Can be extended up to 6 level converters, each with up to 60 M-bus meters
- System formation for up to 250 logical M-bus meters
- Local reading with PC / browser over Ethernet
- Remote reading with PC / browser over Internet
- Data logging and evaluation of connected M-bus meters
- State and alarm message logging of connected meters
- Emails sent periodically for data reports
- Periodic transmission of data reports to a FTP server
- Sends emails for events and alarms
- Three digital inputs
- Two digital outputs
- Supply voltage AC/DC 24 V

CE

Use

The Web Server reads M-bus meters connected directly to the Web Server as well as M-bus meters connected to the Web Server via level converters.

It can be used:

- Alone with up to 20 directly connected M-bus meters
- As a master on an M-bus network with up to six connected level converters and a total of 250 M-bus meters.

The Web Server records the data from the connected M-bus meters, can evaluate the data, and send an email notification for event and alarms.

The device internal storage can save data for a period of up to 10 years (where data is read once a day).

A PC/Internet browser reads the data and log files either locally over Ethernet or from anywhere over the Internet. In addition, the report files can be periodically transmitted with meter data to an email recipient or to an FTP server.

An email can be sent on events and alarms.

The Web Server has three digital inputs and 2 digital outputs. The change of state to inputs or outputs are recorded in the event log and/or per e-mail depending on the configuration. Both outputs can be manually switched via web operation.

Web Server is protected against short circuits and surges.

Functions

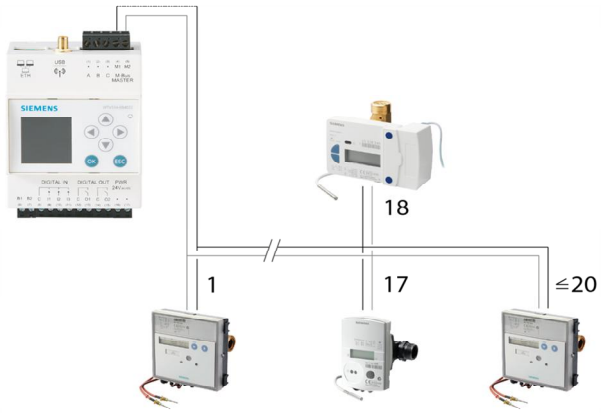
Operating modes

The Web Server can be used in various ways:

Standalone M-bus Web Server

The Web Server is used to read up to 20 directly connected devices (20 unit M-bus loads).

A PC/browser reads the data either locally over Ethernet or from anywhere over the Internet.



M-bus Web Server with level converter

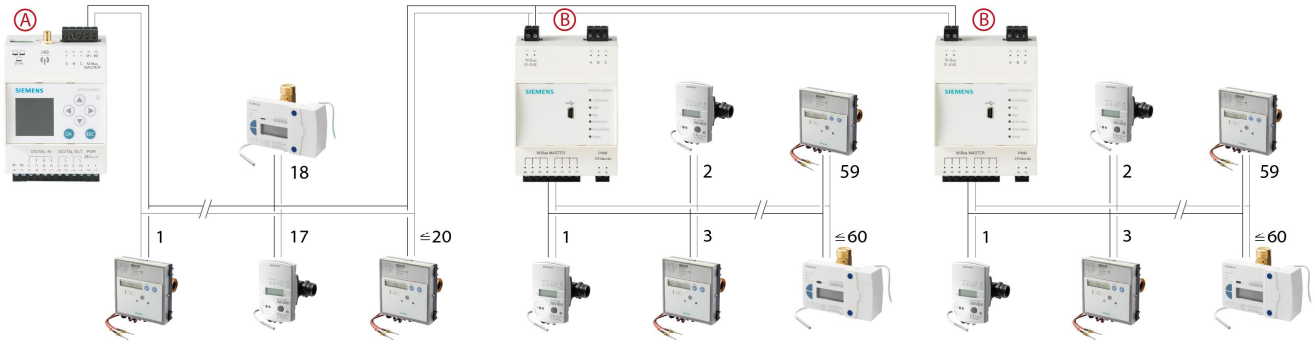
The Web Server is equipped with additional level converters to extend the system by up to 250 devices (250 M-bus loads).

The Web Server is operated as the master. Up to 20 M-bus meters can be directly connected.

The level converters are connected as slaves to the Web Server. Up to 60 M-bus meters can be connected to each level converter.

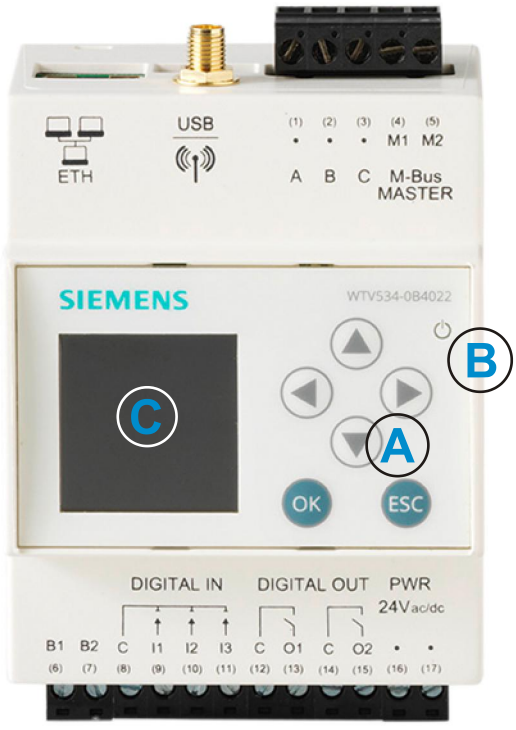
Up to six level converters can be connected to the Web Server.

A PC/Internet browser reads the data either locally over Ethernet or from anywhere over the Internet.



A	Web Server as master
B	Level converter as slave

Operating elements and display

Front view		
	**A**	Operating elements
	B	LED
	C	Display

Operating elements

The operating elements are used to navigate through the Web Server menu structure.

The device can be commissioned and present data can be viewed directly on the device without a PC.

Additional operating options are available when accessing via PC/Internet browser.

LED

The LED indicates the operating state of the Web Server.

Display

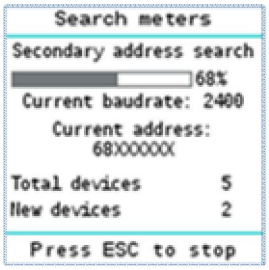
Measured data and basic settings are displayed on an LCD display.

Press a navigation button to switch on the display. Access is password protected. The display switches off automatically to save energy after 20 minutes.

Information is divided into four main menus:

- System info
- Wired meters
- Wired search
- Settings

Display example



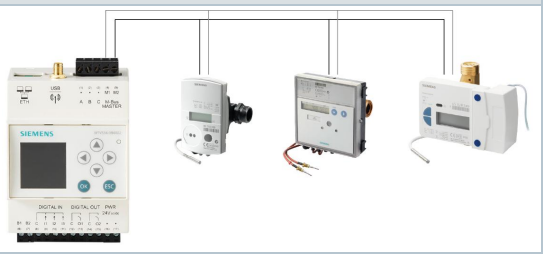
Technical design

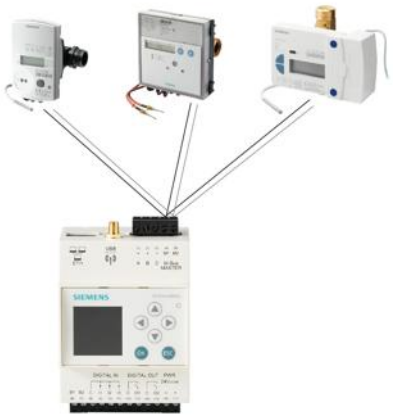
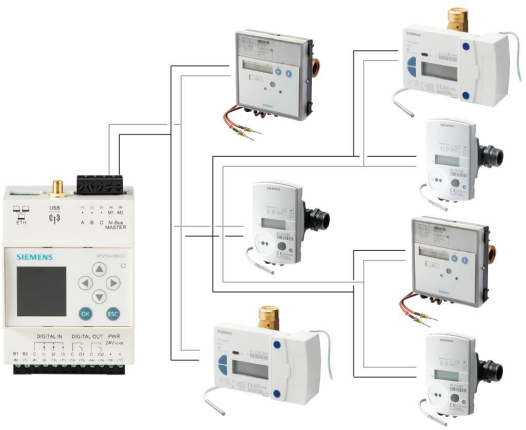
Topology

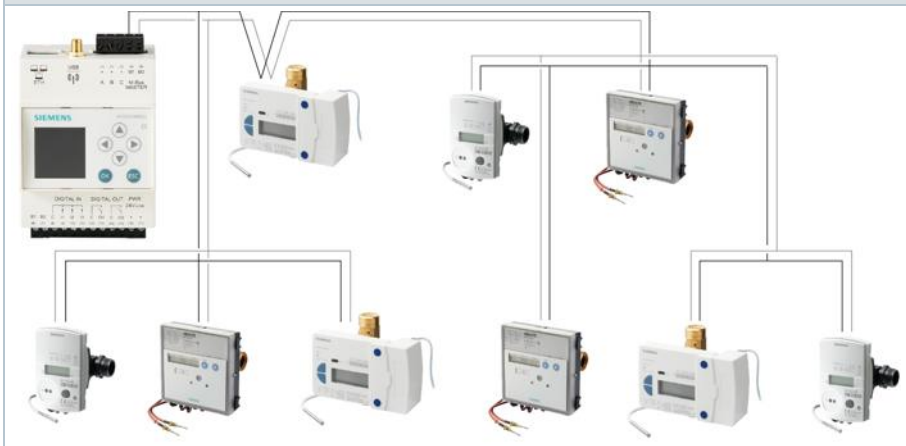
The M-bus permits various network topologies. The M-bus meter and level converters can be connected with the Web Server in a line, bus, star, or tree topology (or a combination of topologies). The same applies to connecting M-bus meters to level converters.

Ring topology is not permitted.

Bus cable polarity is not relevant, simplifying installation.

Line topology	Bus topology
	

Star topology	Tree topology
	

Combination of topologies


Ring topology


Addressing

M-bus uses two types of addresses to recognize devices:

- Primary addressing: Up to 250 primary addresses can be assigned to an M-bus system. The primary address is normally assigned during device commissioning.
- Secondary addressing: Secondary addressing consists of 8 bytes and permits the assignment of any number. In the default setting, the secondary address for a device matches the serial number issued by the device manufacturer. The assignment prevents address conflicts on the bus.

Bus expansion

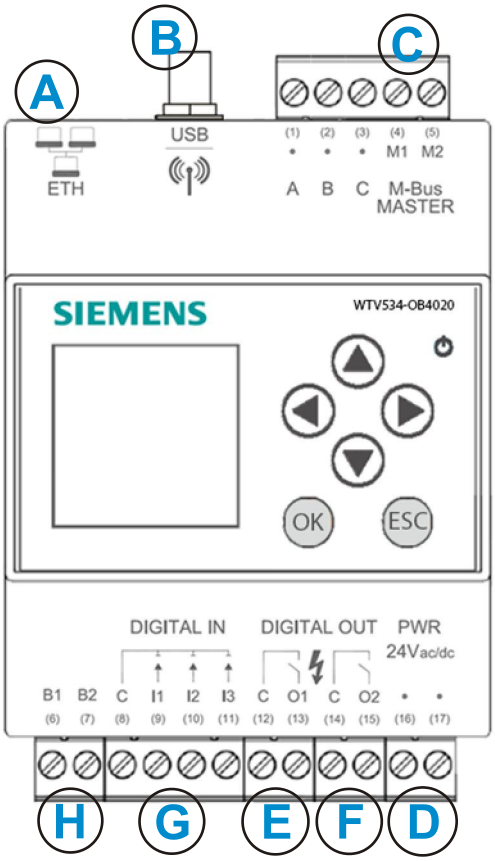
Plant type	Maximum distance	Total cable length	Cable diameter	Number of devices (slaves)	Max. transmission rate
Small residential buildings	350 m	1000 m	0.8 mm^2	250	9600 baud
Large residential buildings	350 m	4000 m	0.8 mm^2	250	2400 baud
				64	9600 baud
Small developments	1000 m	4000 m	0.8 mm^2	64	2400 baud
Large developments	3000 m*	5000 m	1.5 mm^2	64	2400 baud
Direct vicinity	5000 m*	7000 m	1.5 mm^2	16	300 baud
Point-to-point connection	10000 m*	10000 m	1.5 mm^2	1	300 baud

- * Shielded cabling required at a distance in excess of 1000 m (see EN13757-2 appendix E).

Signal specification

M-bus	Condition	Minimum	Typical	Maximum	Measuring unit
Number of unit M-bus loads per Web Server	WTV534-0B4022	0	-	20	-
Transfer Rate	$C_{Segment} \leq 382$ nF	300	2400	9600	Baud
Bus power	WTV534-0B4022	24	40	42	V
Bus current	WTV534-0B4022	0		30	mA

Connection terminals

The device has the following connection terminals / LED.		
	**A**	Ethernet connection
	B	USB / Wireless connection
	C	Terminals (4) and (5): Connections M1 and M2 for M-bus meters and the following level converters. Terminals (1), (2) and (3) are not used. Do not apply electricity to these terminals.
	D	Terminals (16) and (17): Power supply AC/DC 24 V
	E	Terminals (12) and (13): Relay connections for digital output 1, max. AC/DC 30 V
	F	Terminals (14) and (15): Relay connections for digital output 2, max. AC/DC 30 V
	G	Terminals (9), (10), and (11): Connections for the digital inputs. Terminal (8): Reference for digital inputs
	H	Terminals (6) and (7) are not used. Do not apply electricity to these terminals.

Type summary

Order information

Description	Stock number	Type
M-bus Web Server	S55563-F144	WTV534-0B4022

Equipment combinations

The following products can be used together with the Web Server:

Description	Stock number	Type
M-bus level converter	S55563-F145	WTV531-GA5060

Product documentation

Topic	Title	Document ID
Device mounting, wiring, connecting peripheral devices.	Mounting instructions Web Server WTV534…	A6V10844310
Engineering, commissioning, operation, and troubleshooting.	User manual level converter WTV531… and Web Server WTV534…	A6V10844341
Open Source Software	OSS Software Declaration	A6V10919216

Product inserts

The OSS Software Declaration in English as well as mounting instructions in the following languages are included with the Web Server:

German, English, French, Dutch, Italian, Finnish, Spanish, Norwegian, Polish, Czech, Slovakian, Hungarian, Greek, Croatian, Slovenia, Lithuanian, Bulgarian, Turkish.

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

http://siemens.com/bt/download

Notes

Safety

⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

Installation

⚠ WARNING

No internal line protection for supply lines to external consumers

Risk of fire and injury due to short-circuits!

- Adapt the line diameters as per local regulations to the rated value of the installed fuse.

Disposal

The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Technical data

Power supply	
Operating voltage	AC/DC 24 V +/- 10 %
AC frequency	50/60 Hz
Maximum power consumption	14.5 W, 15 VA
Internal fuse	PTC resistance and varistor
Transformer with secondary current limit of max. 10 A or external secondary current fuse	Non-renewable fuse: Slow to a max. 10 A Circuit breaker: Max. 13 A, type B, C, D per EN 60898

Connections	
M-bus master (terminals 4 and 5):	Connections for M-bus meter and Connection for the following level converters
3 digital inputs:	Contact sensing: Voltage: DC 2.2 V Current at closed contact: 0.4 mA OFF = Resistance between terminal 8 and 9,10,11 > 6 kΩ ON = Resistance between terminal 8 and 9,10,11 < 3kΩ
2 digital outputs:	Relay with max. contact rating: • 5 A @ AC/DC 30 V (resistive load) • 2 A @ AC/DC 30 V (inductive load cosφ = 0.4)
	Insulating strength between relay and electronics: • 1kV AC (SELV-SELV circuits)
	External supply line fusing • Non-renewable fuse: Slow to a max. 5 A • Circuit breaker: Max. 6 A, type B, C, D per EN 60898

Interface	
Ethernet	Interface type: 10/1000Base-TX, IEEE 802.3 compatible Bitrate: Max. 100 Mbps Recognition: Auto MDI-X

M-bus	
Reference standard	EN13757-2 (physical layer)
	EN13757-3 (Application layer)
Baud rate	300 bps…9600 bps
Max. number of M-bus devices connected directly to the Web Server	20 (unit M-bus loads)
Max. number of level converters on the Web Server	6
Max. number of readable devices	380 M-bus loads or 250 logical M-bus devices
Bus power	Min. 24 V
	Max. 42 V
Bus supply current	Min. 0 mA
	Max. 30 mA
Protection against short circuits	Yes

Ambient conditions	
Operation	as per EN 60721-3-3
Climatic conditions	Class 3K5
Temperature	-10…+55° C
Air humidity	5...95 % r.h.
Mechanical conditions	Class 3M2 as per EN 60721-3-3
Transport	as per EN 60721-3-2
Climatic conditions	Class 2K3
Temperature	-25..+65 °C
Air humidity	5...95 %
Mechanical conditions	Class 2M2
Storage	To EN 60721-3-1
Climatic conditions	1K3
Temperature	-25 … 65 °C
Air humidity	5...95 % r.h.
Mechanical conditions	Class 1M2

Degree of protection	
Degree of protection	IP20 as per EN 60529
Protection class	III as per EN 62368-1

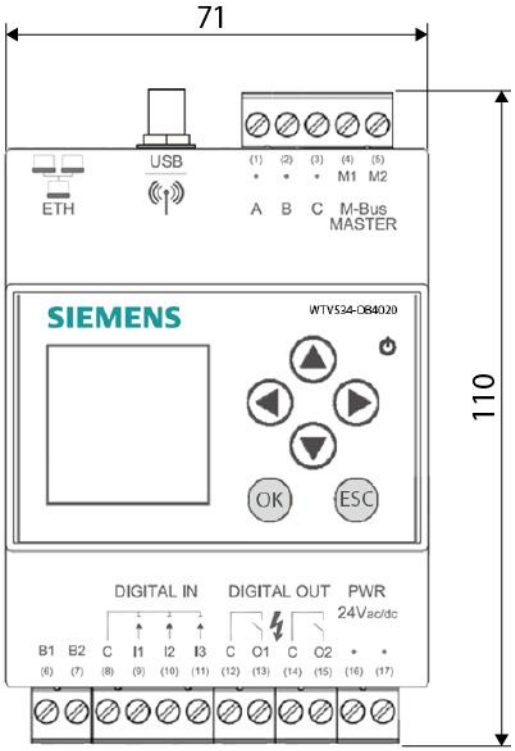
Mounting	
Mounting type	On 35mm DIN rails (EN60715)

Standards, guidelines	
Product standard	EN 62368-1 Information Technology Equipment Safety
Electromagnetic compatibility	For residential and industrial environments
EU conformity (CE)	A5W00022154 *)
Environmental compatibility	The product environmental declaration A6V10922886 *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

*) Documents can be downloaded at http://siemens.com/bt/download.

External features	
Housing materials and colors	PC + ASA, RAL 9010 (white)
Dimensions (L x W x H)	110 x 71 x 62 mm
Weight of Web Server with mounting instructions	0.207 kg

Dimensions



- H = 62 mm
- All dimensions in mm

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Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Gubelstrasse 22
CH-6301 Zug
Tel. +41 41-724 24 24
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