Z-WAVE PLUS

qubino®
Your little magic for the smartest home.

3-Phase Smart Meter

ORDERING CODE	Z-WAVE FREQUENCY
ZMNHXD1	868,4 MHz
ZMNHXD2	921,4 MHz
ZMNHXD3	908,4 MHz
ZMNHXD4	869,0 MHz
ZMNHXD5	916,0 MHz
ZMNHXD8	865,2 MHz

This 3-Phase Smart Meter is used for energy measurements in three-phase electrical power network and can be used in residential, industrial and utility applications. Meter measure energy directly in 4-wire networks according to the principle of fast sampling of voltage and current signals. A built-in microprocessor calculates energy, power and power factor from the measured signals.

The module can be controlled through Z-wave network and it acts as repeater in order to improve range and stability of Z-wave network.

It is designed to be mounted on DIN rail.

Installation

- To prevent electrical shock and/or equipment damage, disconnect electrical power: remove main fuse or put on OFF position a main disconnection switch (or circuit breaker if it is compliant to standard IEC947-2), before installation or any servicing.
- Make sure, that no voltage is present in the installation.
- Prevent the disconnecting device from being switched on accidentally.
- Connect the module according to electrical diagram.
- Locate the antenna far from metal elements (as far as possible).

Danger of electrocution!

- Module installation requires a great degree of skill and may be performed only by a qualified and licensed electrician.
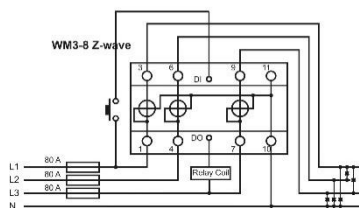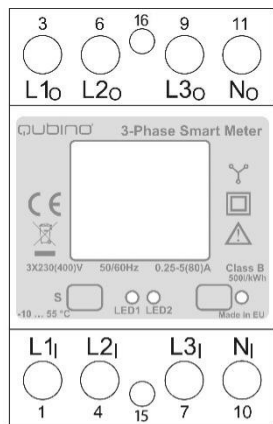- Even when the module is turned off, voltage may be present on its terminals.

Note!

Do not connect the module to loads exceeding recommended values. Connect the module only in accordance to the below diagrams. Improper connections may be dangerous.

Electrical installation must be protected by over current protection fuse with rated current up to 80A, it must be used according to wiring diagram to achieve appropriate overload protection of the module.

Package contents
- 3-Phase Smart Meter

Electrical diagram 230VAC

Notes for the diagram:

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L1$_I$, L2$_I$, L3$_I$	Live input
Ni	Neutral input
L1$_O$, L2$_O$, L3$_O$	Live output
No	Neutral output
16	Input for IR external relay/Ext. relay
15	Output for External relay (max. 3W)
S	Service button (used to add or remove module from the Z-Wave network).
LED1	Green - Power on (solid) / no ID (blinking slow 1s) / Inc./Exc. mode (blinking fast 0,5s)
LED2	Yellow on – output on (any) / Yellow off – outputs off (both) / Blinking IR communication error
IR	Output for IR external relay (BICOM)
500imp/kWh	Red - Pulse rate (On – no load indication)

Measurements

Voltage	V
Current	I
Power – Active	W
Power – Active total Import	kWh
Power – Active total Export	kWh
Energy – Reactive	var
Energy – Reactive total	kvarh
Energy – Apparent total	kVAh
Power Factor	PF

External relays

It is possible to connect two external relay to Smart Meter module. One controlled by built-in optical (IR) communication port on the side, second controlled by output on terminal 15.
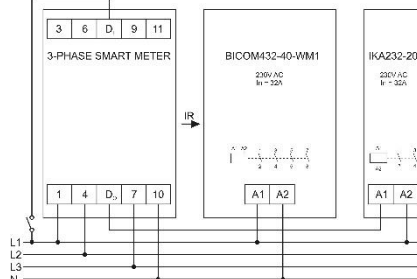
Module Inclusion (Adding to Z-wave network)

- Connect module to power supply
- enable add/remove mode on main controller
- auto-inclusion (works for about 2 minutes after connected to power supply) or
- press service button **S** between 2 and 6 seconds

NOTE: For auto-inclusion procedure, first set main controller into inclusion mode and then connect module to power supply.

Module Exclusion/Reset (Removing from Z-Wave network)

- Connect module to power supply
- enable add/remove mode on main controller and press S button between 2 and 6 seconds

press service button **S** between 6 and 20 seconds . The reset is only possible first minute after the power on

By this function all parameters of the module are set to default values and own ID is deleted.

If service button S is pressed more than 2 and less than 6 seconds module is excluded, but configuration parameters are not set to default values.

Technical Specifications

Main terminals (L1$_I$, L2$_I$, L3$_I$, N$_O$, L1$_O$, L2$_O$, L3$_O$, N$_O$)

Contacts capacity:	2.5 ... 16 (25) mm^2
Connection screws:	M5
Max torque:	3.5 Nm (PZ2)

Optional terminals (DI, DO)

Contact capacity:	1 ... 2.5 mm^2
Screws:	M3
Max torque:	1.2 Nm

Measuring input:

Type (connection):	three phase (4u)
Basic current (Ib):	5 A
Maximum current (Imax):	80 A
Minimum current (Imin):	0.25 A
Starting current:	20 mA
Reference voltage (Un):	3X230V/400V
Power consumption at Un:	< 8 VA
Nominal frequency (fn):	50 and 60 Hz

Accuracy:

Active energy and power:	
Standard EN 62053-21:	class 1
Standard EN 50470-3:	class B
Reactive energy:	
Standard EN 62053-23:	class 2

LED:

Colour:	red
Pulse rate:	500 imp/kWh
Led on:	no load indication

Optical communication:

Type:	IR - used to control BICOM432-40-IR

Input (16):

Rated voltage:	230 V (± 20%)
Input resistance:	450 kOhm

LCD:

Display 7+1 digit (100Wh resolution)

Safety:

Indoor Meter:	yes
Degree of pollution:	2
Protection class:	II
AC voltage test:	4 kV
Installation Category:	300 Vrms cat. III
Standard:	EN 50470

Ambient conditions and EMC:

According standards for indoor active energy Meters. Temperature and climatic condition according to EN 62052-11

Ambient conditions and Safety:

According standards for indoor active energy Meters. Temperature and climatic condition according to EN 62052-11

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Dust/water protection:	IP20
Operating temperature:	-10 ... 55°C
Storage temperature:	-40 ... 70°C
Enclosure material:	self extinguish complying UL94 V
Indoor Meter:	yes
Degree of pollution:	2
AC voltage test:	4 kV
Standard:	EN 50470
Distance:	up to 30 m indoors (depending on building materials)
Weight (with packaging):	220g (240g)
Frequency range:	868.4 MHz*, Z-Wave
Installation	Din rail 35mm (EN 60715)
Dimensions (W x H x D):	53,6 x 84 x 65mm
Package dimensions (W x H x D):	56 x 86 x 70mm
Colour	RAL 7035

* Depends on ordering code

EC Directives conformity:

EC Directive on Meas. Instruments 2004/22/EC
EC Directive on EMC 2004/108/EC
EC Directive on Low Voltage 2006/95/EC
EC Directive WEEE 2002/96/EC

Dimensional drawings:
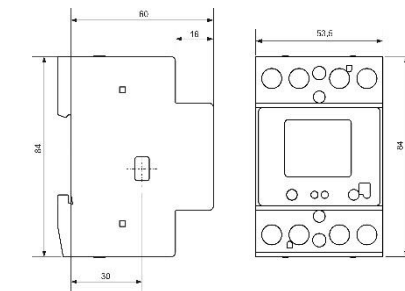
Important disclaimer

Z-Wave wireless communication is inherently not always 100% reliable, and as such, this product should not be used in situations in which life and/or valuables are solely dependent on its function.

Warning!

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

This user manual is subject to change and improvement without notice.

For more informatio please look at extended manual.