Smart Dupline®
Wireless relay module
Type SHJWRE10AExxx

- **Wireless relay output module for building automation application**
- **Designed to fit into the eurobox**
- **Power supply 230 VAC and 115 VAC**
- **Wireless transmission based on IEE802.15.4 @ 2.4 GHz**
- **Programmable routing function**
- **Load: 10 A / 250 VAC**
- **Spring terminals**
- **Energy measurement: kWh**
- **Instantaneous variables readout: A, V, W, Wdmd, VA, var, PF**

Product Description

The SHJWRE10AExxx is a wireless module with a single relay output and energy measurement. Single phase variables read: A, V, W, Wdmd, VA, var, PF. Energy measurements: total kWh. The measured values are then logged into the Sx2WEB24. It is part of the Smart Dupline® system and can be used with all the functions supported by the Sx2WEB24 master unit.
When an activation radio command is received, the output turns On and remains On until a deactivation radio command is received. It must always be coupled to an SH2WBU230x module.
The SHJWRE10AExLS230 version integrates two programmable capacitive push-buttons (K1, K2) and can be mounted into the BTicino frames Luna, Light, Living to substitutes traditional switches.

Ordering Key

SH J W RE 10A E W LS 230

- **Smart-house**
- **Decentral module**
- **Wireless**
- **Relay**
- **Resistive load**
- **Energy measurement**
- **Color**
- **Light switch**
- **Power supply**

Type Selection

Relay output	Push buttons	Colour	Supply: 220...240 V ±10%	Supply: 110...120 V ±10%
One, SPST		Grey	**SHJWRE10AE230**	**SHJWRE10AE115**
One, SPST	2, programmable (K1, K2)	White	**SHJWRE10AEWLS230**	
One, SPST	2, programmable (K1, K2)	Black	**SHJWRE10AEBLS230**	

Supply Specifications

Power supply	Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2)
Rated operational voltage	
SH...230	220...240 VAC ±10%
SH...115	110...120 VAC ±10%
Rated impulse voltage	2.5 kV
Rated operational power	1 W, 2.5 VA
Power on delay	Typ. 2 s

Input Specifications

Keypad	
2 touch buttons	SHJWRE10AEWLS230 SHJWRE10AEBLS230

Output Specifications

Relay Output		1 SPST-NO
Resistive load	AC1	10 A
Mechanical life		30 x 10^6
Operating frequency		18 x 10^3 operations/hr
Electrical life		1 x 10^5 operations min.
Contacts		
Resistive load		10 A at 250/115 VAC
Inductive load cosφ = 0.4		3 A at 250 VAC 5 A at 115 VAC

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WiDup Specifications

Bus	Wireless dupline
Frequency	IEE 802.15.4, @ 2.4 Ghz
Diagnostic	1. Field strength 2. network activites 3. Devices' presence
Network Topology	Star with max two wireless repeaters
Antenna	Internal
Transmission power	According to IEEE 802.15.4
Sensitivity	According to IEEE 802.15.4
Number of slave nodes	Up to 250
Transmission range	< 700 m in the open air

Electrical Values Readout

Rated values		
A (direct)		0 to 10000 mA
V		
	SHJWRE10AE115	103 to 126.0 V
	SHJWRE10AE230	216 to 264.0 V
W		0.1 to 3000.0 W
kWh		0.1 to 99999999.9 kWh with roll over
Wdmd		0.1 to 3000.0 W
VA		0.1 to 3000.0 VA
var		0.1 to 3000.0 var
PF		-1.000 to 1.000 PF
Accuracy		
A		1% read value ± 2 mA
V		1% read value
W		2% read value ± 0.5 W
kWh		2% read value
Wdmd		1% read value
VA		1% read value
var		1% read value
PF		1% read value

General Specifications

Address assignment	Automatic: the controller recognises the module through the SIN (Specific Identification Number) that has to be fitted in the Sx Tool
Fail-safe mode	In case of interruption of the smart-house connection, the channel will be forced into a specific optional status as described below
Environment	
Degree of protection	IP 20
Pollution degree	3 (IEC 60664)
Operating temperature	-20° to +50°C (-4° to 122°F)
Storage temperature	-50° to +85°C (-58° to 158°F)
Humidity (non-condensing)	20 to 90% RH
LED's indication	
Power / Output LED	1 green
WiDup LED	1 blue
Housing dimensions	
E230, E115	40.8 x 45.5 x 21.5 mm
LS230	43.7 x 47.4 x 21.5 mm

Weight	65 g
Approvals	cULus, according to UL60950; R&TTE
CE Marking	Yes
EMC	
Immunity	EN 61000-6-2
- Electrostatic discharge	EN 61000-4-2
- Radiated radiofrequency	EN 61000-4-3
- Burst immunity	EN 61000-4-4
- Surge	EN 61000-4-5
- Conducted radio frequency	EN 61000-4-6
- Power frequency magnetic fields	EN 61000-4-8
- Voltage dips, variations, interruptions	EN 61000-4-11
Emission	EN 61000-6-3
- Conducted and radiated emissions	CISPR 22 (EN55022), cl. B
- Conducted emissions	CISPR 16-2-1 (EN55016-2-1)
- Radiated emissions	CISPR 16-2-3 (EN55016-2-3)

LEDs Indication

Green LED:
Power and Output status
ON: Supply ON and output OFF
Blinking: Supply ON and output ON
OFF: Supply OFF

Blue LED: WiDup Bus
Short blink: Sending data when associated to a SH2WBU230x
Long blink: Sending data when not associated to any SH2WBU230x or when receiving a network configuration
On: During network configuration when configured as a router

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Mode of Operation

The SHJWRE10AExxx is fully programmable via the Sx tool: the output can be individually associated to one of the functions supported by the smart-dupline system.

Fail/safe condition
The output status of the relay, when the wireless bus is not working, is programmed via the Sx tool and the user can choose between the following options:
1. Output always OFF
2. Output always ON
3. The output maintains the status it had before the disconnection
4. The output runs in a cycle with programmable on and off periods: the user can set both the off and on period from 1 to 255 minutes. The factory setting is output always OFF.

Faulty lamps recognition
If the measured current is lower than 20mA, the module gives a message of faulty load. This information can be read by the Sx2WEB24, via smart-dupline and then shown on the Sx Tool if connected to the Sx2WEB24.

Energy measurement
The electrical values measured by the SHJWRE10AExxx are: A, V, W, Wdmd, VA, var, PF, kWh. These readouts are sent to the Sx2WEB24 and logged there, the instant values and the logged ones are accessible to the user by connecting to the webserver resident in the Sx2WEB24.

Coding/Addressing
No addressing is needed since the module is provided with a specific identification number (SIN): the user has only to insert the SIN number in the Sx tool when creating the system configuration.

Transmission range

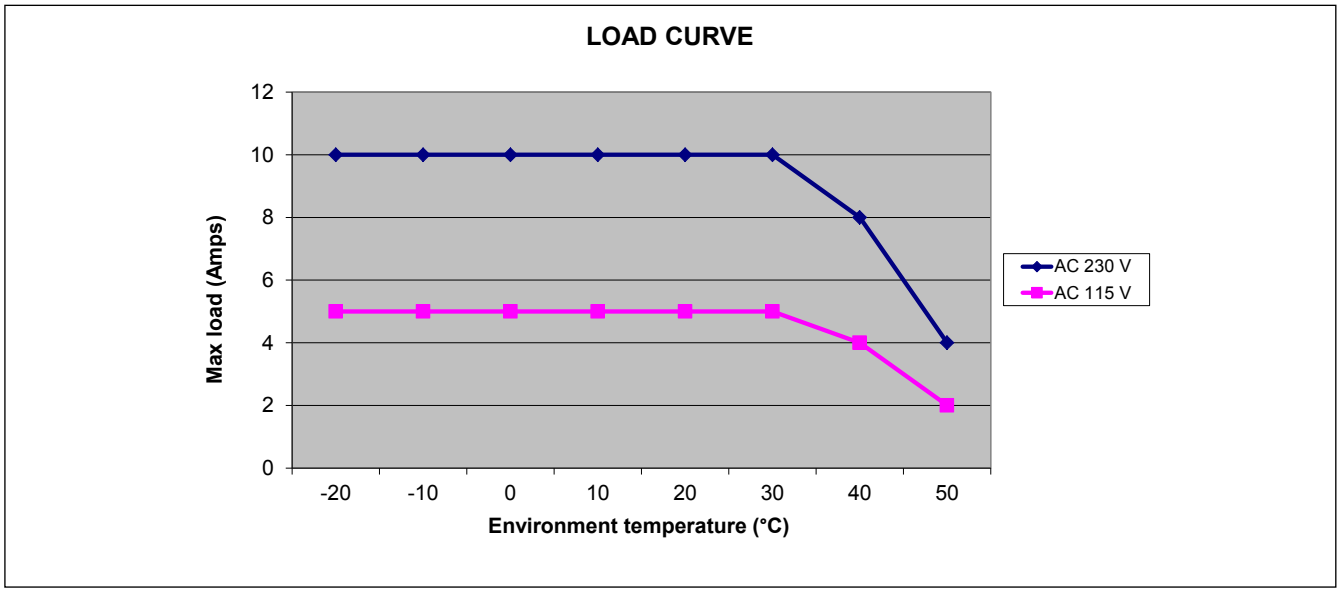
The main factors that influence the transmission range of the SHJWRE10AExxx are the antenna location of the receivers and transmitters, the building structure and the number of obstacles in the connection path.
Other factors are noise sources (wi-fi routers, micro oven, blue tooth devices,…) that affect the receiver and dead spots caused by signal reflection from nearby conductive objects.
Since the anticipated transmission range depends on these system conditions, range tests should be performed before a specific range is determined for an application.
The following transmission ranges are to be viewed as general guidelines:

Device Position	Operating Distance
In the open air	Approx. 700 m
Plasterboard/wood	Approx. 30 m Max. 5 walls
Tile and cellular concrete	Approx. 20 m Max. 3 walls
Reinforced concrete walls/ceilings	Approx. 10 m Max. 1 ceiling/wall

The transmission range is limited by:
- insulation material with metal foil
- intermediate ceilings with metal or carbon fibre panels
- lead glass or metal-coated glass
- mounting wall transmitters on metal walls

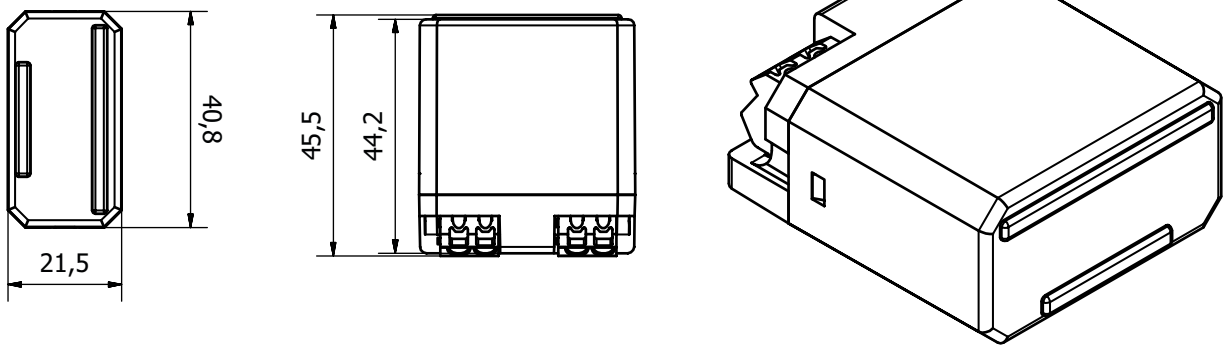
For more information about how to install a wireless network, please read here (link).

Derating Curve

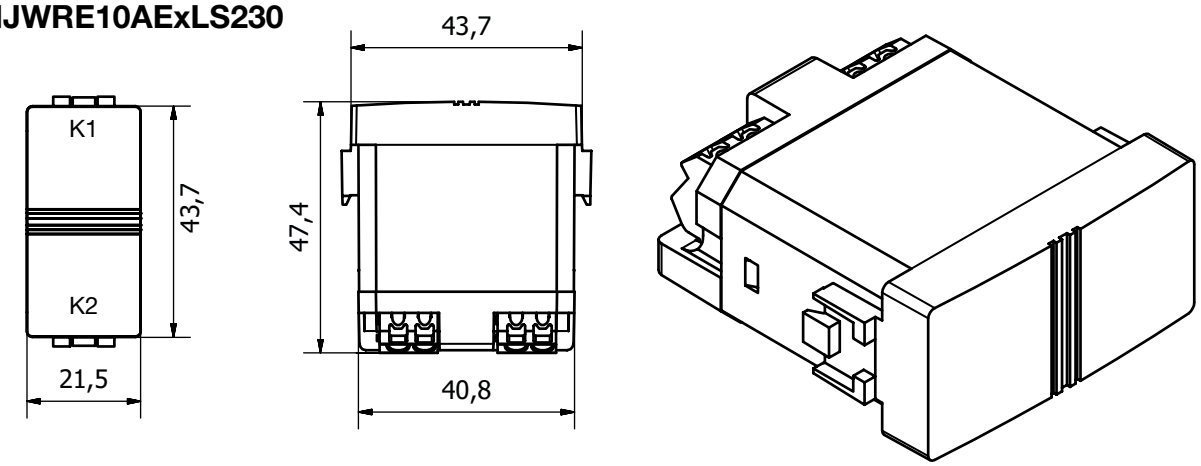


Dimensions

SHJWRE10AExxx



SHJWRE10AExLS230



Wiring Diagram