## Smart Dupline® Wireless Relay Output module Type SHDWRE16AE230





#### Wireless relay output module for building automation application

- Designed to fit into the eurobox
- Power supply 230 VAC
- Wireless transmission based on IEE802.15.4 @ 2.4 GHz
- Programmable routing function
- Load: 16A / 250VAC
- Withstands 130A inrush current
- Energy measurement: kWh
- Instantaneous variables readout: current, voltage, power

## **Product Description**

The SHDWRE16AE230 is a wireless module with a single relay output and energy measurement. Single phase variables: VLN, A, W. Energy measurements: total kWh. The measured values are then logged in the SH2WEB24. It is part of the smart-house concept and can be used with all the

functions supported by the smart-house controller. When an activation radio command is received, the output turns ON and remains ON until a deactivation radio command is recieved. It must always be coupled to an SH2WBU230 module.

# Ordering Key SH D W RE 16A E 230

Smart-house	
Decentral module ——	
Wireless	
Relay	
Resistive load ———	
Energy measurement -	
Power supply	

### **Type Selection**

Relay max. Load	Relay Output	Supply: 115 to 240 VAC
16A	1 SPST relay	SHDWRE16AE230

## **Output Specifications**

Output	1 SPST relay
Contact ratings (AgSnO2) Resistive load AC 1	µ (micro gap) 16 A/250 VAC
Minimum load (recommended)	100mA/12 V
Lifetime	See table to the right
Operating frequency	≤60 operations/minute



Relay Data VAC		
Load	Typ. N. of Operations	
250 V, 12A, cos φ=1	1.0 x 10⁵	
250 V, 8A, cos φ=1	3.5 x 10⁵	
250 V, 4A, cos φ=1	5.0 x 10⁵	
250 V, 3A, cos φ=1	7.5 x 10⁵	
230 V, 550 W filament lamps lin ≤ 40 Apeak loff = 2.5 A	2.0 x 10⁵	
230 V, 1000 W filament lamps lin ≤ 71.5 Apeak loff = 4.5 A	7.0 x 10 <sup>4</sup>	
230 V, 900 W fluorescent tubes (25 x 36W) parallel compensated, 30 μF	1.0 x 10⁴	
230 V, compressor lin $\leq$ 21 Apeak loff = 3.5 A cos $\varphi$ = 0.5	1.7 x 10⁵	
250V, 8A, cos φ = 0.3	1.0 x 10⁵	



# WiDup Specifications

Bus	Wireless dupline	
Frequency	IEE 802.15.4, @ 2.4 Ghz	
Diagnostic	<ol> <li>Field strength</li> <li>Network activites</li> <li>Devices' presence</li> </ol>	
Network Topology	Star with max one wireless repeater	
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	<100 m in the open air	

## **Supply Specifications**

Power supply Rated operational voltage	Overvoltage cat. II (IEC 60664-1, par. 4.3.3.2) 115/240 VAC
Rated impulse voltage	2.5 kV
Rated operational power	1 W, 2.5 VA
Power on delay	Typ. 2 s

## **General Specifications**

Installation category	Cat. II	Housing	
Insulation voltage	2 kVAC rms (3 mm)	Dimensions	43 x 43 x 25 mm
Address assignment	The address assignment is	Material	Noryl
Address designment	automatic: the controller	Weight	150 g
	recognises the module	Approvals	cURus according to UL60950
	through the SIN (Specific	CE Marking	Yes
	has to be filled in the Sx tool	EMC	
Fail aafa mada	In appa of interruption of the	Immunity	EN 61000-6-2
Fail-Sale mode	in case of interruption of the	<ul> <li>Electrostatic discharge</li> </ul>	EN 61000-4-2
	smart-nouse connection,	<ul> <li>Radiated radiofrequency</li> </ul>	EN 61000-4-3
	the channel will be forced	- Burst immunity	EN 61000-4-4
	into a specific optional sta-	- Surge	EN 61000-4-5
	tus as described below.	<ul> <li>Conducted radio frequency</li> </ul>	EN 61000-4-6
Environment		<ul> <li>Power frequency magnetic</li> </ul>	
Degree of protection		fields	EN 61000-4-8
Front	IP 50	<ul> <li>Voltage dips, variations,</li> </ul>	
Screw terminal	IP 20	interruptions	EN 61000-4-11
Pollution degree	2 (IEC 60664-1, par. 4.6.2)	Emission	EN 61000-6-3
Operating temperature	-20° to +50°C (-4° to 122°F)	<ul> <li>Conducted and radiated</li> </ul>	
Storage temperature	-50° to +85°C (-58° to 185°F)	emissions	CISPR 22 (EN55022), cl. B
Humidity (non-condensing)	20 to 80% RH	<ul> <li>Conducted emissions</li> </ul>	CISPR 16-2-1 (EN55016-2-1)
LED's indication		<ul> <li>Radiated emissions</li> </ul>	CISPR 16-2-3 (EN55016-2-3)
Power I FD	1 green		
Output LED	1 blue		

### **Electrical Values Readout**

Rated values Current Voltage Power Energy

0 to 32,000 mA 103 to 260,0 V 0.1 to 6500,0 W 0.1 to 99999999.9 kWh with roll over

### Wire connections

Power supply	Brown, blue = 2 x 1.5 mm², 250 V isolation, single core, 150 mm
Output	Orange = 2 x 1.5 mm <sup>2</sup> , 250 V isolation, single core, 150 mm



### Mode of Operation

The SHDWRE16AE230 is fully programmable via the Sx tool: the output can be individually associated to one of the functions supported by the smart-house system.

#### Fail/safe condition

The output status of the relays, 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.

#### 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.

#### Faulty lamps recognition

If the measured current is lower than 20mA, the relay module gives a message of faulty load (the connected lamp might be broken). This information can be read by the Sx2WEB24, via smartdupline and then shown on the Sx Tool if connected to the Sx2WEB24.

#### **Energy measurement**

The electrical values measured by the SHDWRE16AE230 are: current, voltage, power, energy. 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.

### **Transmission range**

The main factors that influence the transmission range of the SHDWRE16AE230 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:

ON: During network configu-

ration when configured as a

router

Device	Operating
Position	Distance
In the open air	Approx. 100m
Plaster-	Approx. 30 m
board/wood	Max. 5 walls
Tile and cellu-	Approx. 20 m
lar concrete	Max. 3 walls
Reinforced	Approx. 10 m
concrete	Max. 1 ceiling/
walls/ceilings	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).

### **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:

Short blink: Sending data when associated to a SH2WBU230 Long blink: Sending data when not associated to any SH2WBU230 or when receiving a network configuration

### Wiring Diagrams





## **Dimensions (mm)**



## **Derating Curve**

