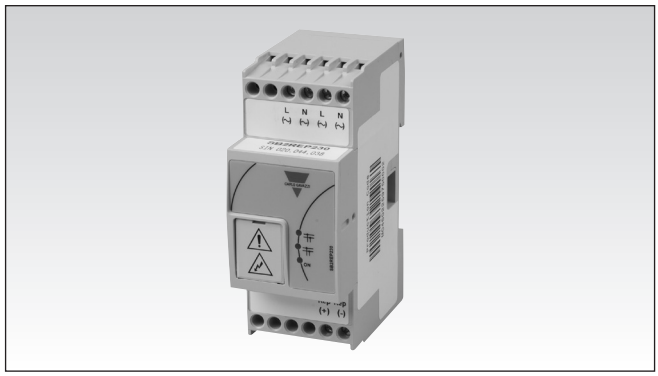
# Smart Dupline®
# Repeater
# Type SB2REP230



- **Smart Dupline® signal repeater**
- **Regenerates Dupline® signal and boosts power**
- **Simplifies network design**
- **Extends the network length in systems with high load**
- **Isolation between primary and secondary side means primary side not affected by bus short circuit on secondary side**
- **Automatic restart after removal of short circuit**
- **Can be used at any point on the Dupline® bus**
- **300 mA current drive capability**
- **For correct operation, SH2MCG24 must be used as primary generator**
- **115..240 VAC power supply**

## Product Description

SB2REP230 is a 115-240 VAC powered Smart Dupline® repeater and isolator. It is typically used to extend the length of the Dupline® network when the cable resistance and load from bus-powered devices result in an excessive voltage drop. The repeater regenerates the voltage levels of the Dupline® signal and provides an output drive capability of 300 mA. The primary and secondary Dupline® signals are isolated, which means that the primary side will continue to operate in case of a short circuit on the secondary side. As soon as the short circuit is removed, the secondary side will automatically become operational again within 10 seconds.
The repeater can be connected to any point on the Dupline® bus.

## Ordering Key

**SB2 REP 230**

**2-DIN housing**
**Repeater**
**Power supply**

## Type Selection

| Power supply | Ordering no. |
|---|---|
| 115..230 VAC | **SB2REP230** |

## Supply Specifications

| | |
|---|---|
| **Rated operational voltage** | 115..240 VAC |
| **Operational voltage range** | 115-240 VAC +/-10% |
| **Frequency** | 45 – 65 Hz |
| **Overvoltage category** | II (IEC 60664-1, par. 4.3.3.2) |
| **Rated impulse voltage** | 500V (1,2/50µs) (IEC 60664-1, tab. F.1) |
| **Rated operational power** | 10 VA |
| **Dielectric voltage** | |
| Supply - primary Dupline® | > 4 kVAC |
| Supply - secondary Dupline® | > 4 kVAC |
| Primary Dupline® - secondary Dupline® | > 4 kVAC |
| **Power ON delay** | Typ. 10 s |
| **Power OFF delay** | < 1 s |

## Dupline® Specifications

| | |
|---|---|
| **Output voltage** | 8.2 VDC |
| **Max bus voltage** | 10.0 VDC |
| **Max Dupline® current load** | 300 mA |
| **Terminal** | Sec Sec<br>Dup+ Dup- |

## General Specifications

| | |
|---|---|
| **Environment** | |
| Pollution degree | 2 (IEC 60664-1, par. 4.6.2) |
| Operating temperature | 0° to +50°C (32° to 122°F) |
| Operating temperature cURus | 0° to +40°C (32° to 104°F) |
| Storage temperature | -50° to +85°C (-58° to 185°F) |
| Humidity | 20 to 90% (non-condensing) |
| **Connection** | |
| Terminal | 6 screw-type |
| Cable cross-section area | max. 1.5 mm$^2$ |
| Tightening torque | 0.8 Nm |
| **Housing** | |
| Material | NORYL |
| Dimensions | 2 DIN module |
| Weight | 110 g |
| **Approvals** | cURus |

| | |
|---|---|
| **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) |

## Mode of Operation

SB2REP230 is a 115-240 VAC powered Smart Dupline® repeater and isolator. On one side, it has an input for the primary Dupline® bus generated by SH2MCG24, and on the other side, it has a secondary bus output with the regenerated Dupline® carrier signal. When calculating the load and cable voltage drop, the secondary Dupline® is to be considered the starting point of a new bus with a 300 mA load capability and full signal voltage. If e.g. a repeater is inserted in the middle of a bus line with uniform load distribution, cable resistance and bus load will be reduced by half for each of the two segments compared to the single line. Thereby, distance capability is increased by a factor of 4.
For further information regarding transmission distance calculations, please refer to the SxWEB HW manual.
It is allowed to connect multiple repeaters to the same primary Dupline®, but it is not allowed to use the secondary output of one repeater as primary input of another one (in other words, cascading of repeaters is not allowed).

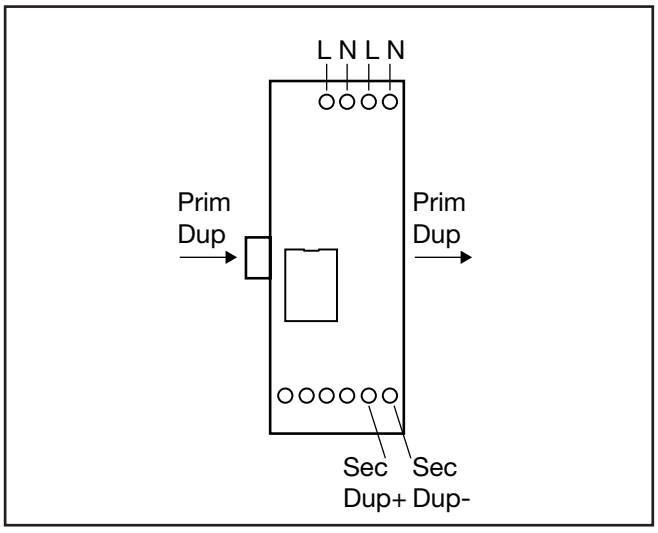
The primary and secondary buses are galvanically isolated from each other, which means that the primary bus continues to operate in case of a short circuit on the secondary bus. Hence the repeater can be used to protect an installation against short circuits. As soon as a short circuit is removed, the secondary bus will automatically start up within 10 seconds.

**Note 1**: The adapter SH1DUPFT is required for the primary bus connection.
**Note 2**: For correct operation, SH2MCG24 must be used as the primary generator.
**Note 3 for cURus**: A readily accessible disconnect device must be incorporated in the building installation wiring.

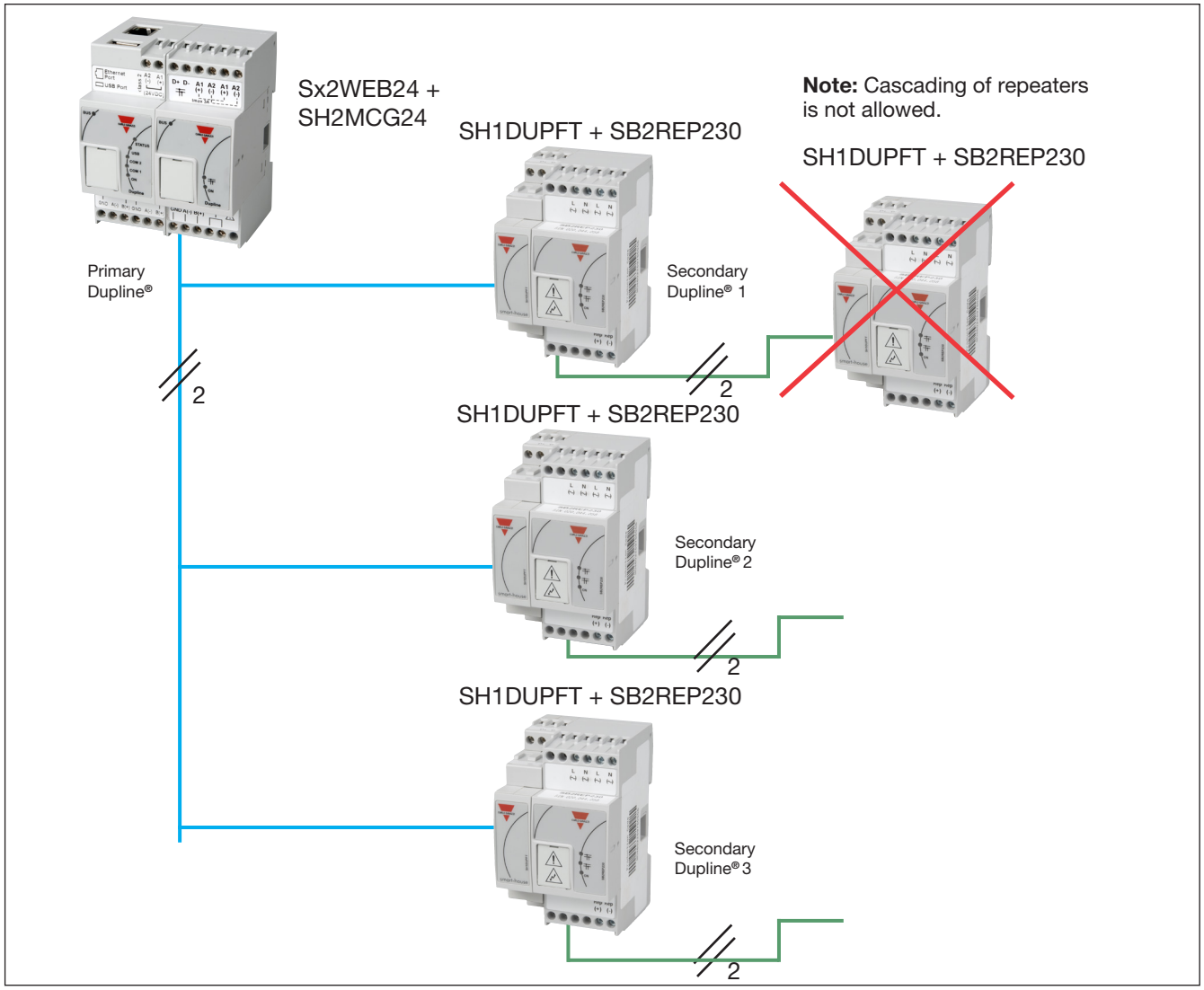
## Settings and LED Indication

| | | |
|---|---|---|
| **Power LED (green)** | ON<br>OFF | Supply ON<br>Supply OFF |
| **STATUS LED (yellow)** | ON<br>OFF | Primary Dup OK<br>Not present/error |
| **STATUS LED (yellow)** | ON<br>1 blink<br>2 blinks<br>3 blinks<br>4 blinks<br>5 blinks | Secondary Dup OK<br>Wrong connection<br>Short circuit<br>Overcurrent<br>Critical overcurrent<br>HW error |

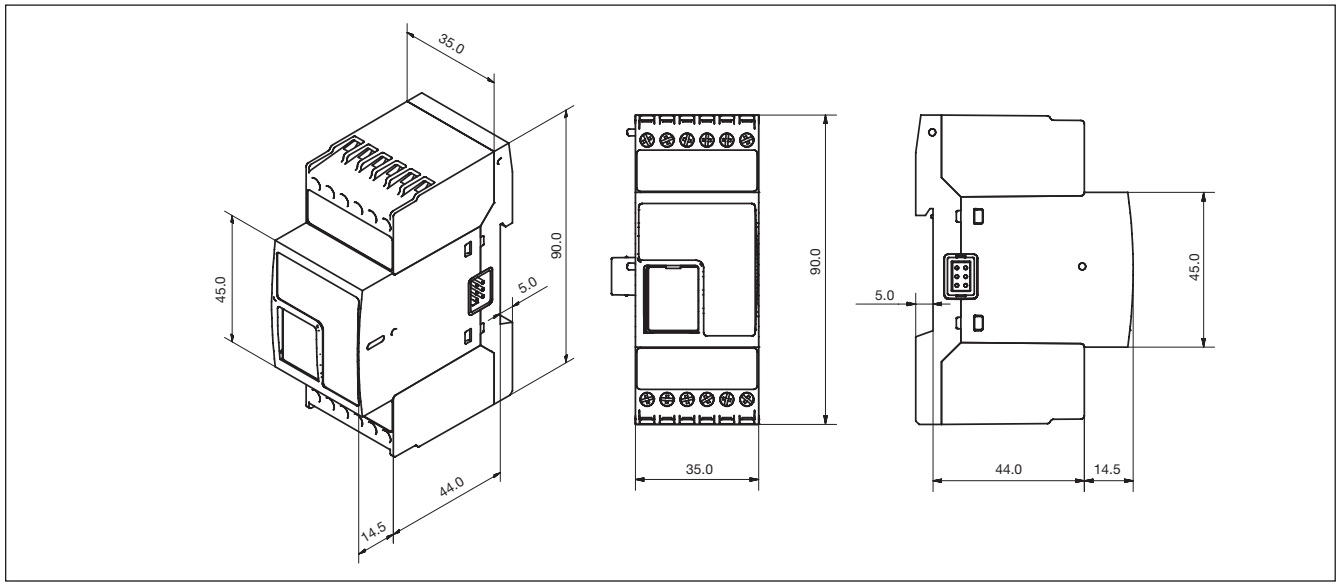
## Wiring Diagram



## System Diagram




## Dimensions



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