# SRW01

## Smart Relay





# Smart Relay SRW01



## Sumary


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## Overview

The SRW01 is a low-voltage electric motor management system with state-of-the-art technology and network communication capabilities. Additionally, its modular concept allows the expansion of its funcionalities, Plug and Play philosophy, free WLP programming software and USB communication.





## Versatility

The SRW01 supports the following communication networks protocols: DeviceNet, Modbus-RTU, and Profibus-DP.
The communication modules can be easily exchanged due to its plug and play capabilities.

The SRW01 provides a USB port for relay monitoring, programming and back-up on-line the parameters through PC when using WLP software.

The SRW has a HMI that can be used for quick system monitoring and relay parameterization. Additionally, the internal memory allows the user to do the upload and download of up to three parameters set and three user programs.

The SRW01 includes a thermal memory circuit in order to maintain a motor thermal image, even if power supply if is removed.

## Flexibility

The SRW01 has a modular design, providing easy assembling and integration.

The Control Unit (UC) can be assembled with the Current Measuring Unit (UMC) or current and voltage measuring unit (SRW01-UMCT), forming a single unit, or separated (up to 2 meters).

The SRW01 has pre-programmed operation modes, which operates in several kinds of starting and monitoring modes. One of them is the transparent mode that can be programmed according to your needs, making the SRW01 fit to the most diverse applications.

The digital input and output functions of the Control Unit (UC) are automatically configured as the operation mode is selected, defining in an easy and simple way the connection between the control circuit and the SRW01 in the starter.

The digital inputs can be configured to monitor external digital signals using the external fault funciton. With this feature the user can connect the output contact from an external relay to the digital input of the SRW01 relay. Thus the relay SRW01 makes possible the user to use various protections for a motor in a same relay, as earth leakage and thermal like PTC.

** The current and voltage measuring unit (UMCT) only allows separate assembly of the Control Unit (UC).*

# Features

The SRW01 incorporates a main Control Unit SRW01-UC and a Current Measuring Unit (SRW01-UMC) or a current and voltage measuring unit (SRW01-UMCT) that are electrically connected using a flat cable SRW01-CB.

The relay allows to add digital inputs and outputs through the digital expansion module.
This management system is a modular design, providing more flexibility in the design, project and assembly the motor starter.




The interface with the relay may be performed in three ways:

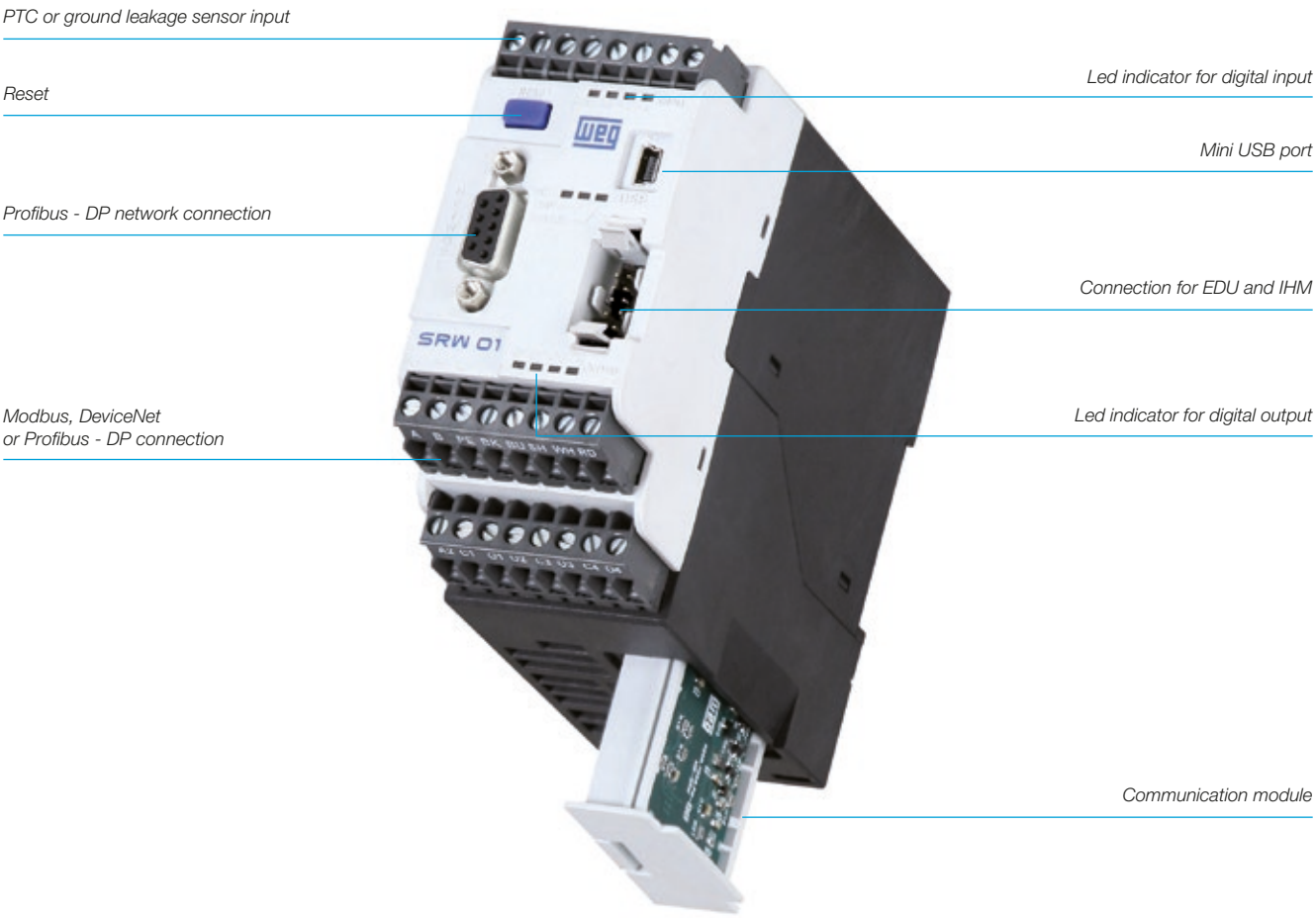
- Via Fieldbus (Modbus, DeviceNet, Profibus)
- Via SRW01-HMI
- Via software - WLP (USB)

Through Fieldbus, the user can operate, monitor and configure the SRW01 remotely, via PLC or supervisory system.
The HMI is connected to SRW01 through cable connection that can be programmed, operated and monitored in a use-friendly way.
The interaction can be done via software through a shielded USB cable or via Modbus network, through the WLP.

# Modular Design

## Characteristics

- Reduced size, compact structure
- Control Unit (UC) input power range: 110-240 V ac/dc or 24 V ac/dc
- Control Unit (UC) with 4 digital inputs and 4 digital outputs
- DIN rail or screws mounting
- Easy network module change, via exclusive drawer system
- Programming via free WLP software or HMI (optional)




The SRW01-UC Control Unit provides LED indicators for input and output activations, status, operation mode, power supply status, failure and alarm status. The mounting of the Control Unit can be done either by 35 mm DIN rail or onto back panel mounting.

Communication protocols: DeviceNet, Modbus, and Profibus are defined using proper protocol installed in the communication drawer.

The Plug and Play concept automatically recognizes and configures the SRW01 for safe operation, avoiding manual error configuration.



# Modular Design

## Digital Expansion Unit (EDU)



Provides the option of increasing the number of digital inputs and outputs. It has 6 digital inputs and 4 digital outputs, totalizing 10 digital inputs and 8 digital outputs, with the inputs and outputs of the Control Unit (UC).
It can be used to transfer information, alarm signalling or external devices state.
**Maximum of 1 digital expansion unit (EDU) for 1 Control Unit (UC).*

## Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT)



*UMC* *UMCT*

The Current Measuring Unit (UMC) measures the current of the three motor phases.

Using a current and voltage measuring unit (UMCT), in addition to measuring the motor currents (as in the UMC), it is also possible to monitor voltages up to 690 V ac, phase sequence, power factor, all the motor powers and make management and electric power consumption (kW/h).

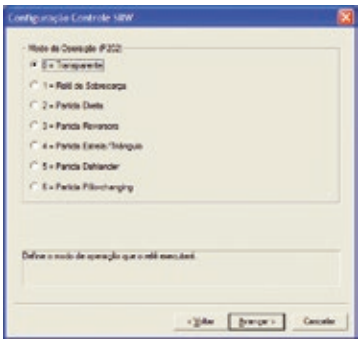
The values are digitally transmitted to the Control Unit (UC).

## Free Programming Software - WLP (WEG Ladder Programmer)

- SRW01 parametrization, programming, command and monitoring
- Configures, edits the parameters and programs in “Ladder” language with mathematical and control blocks
- Configuration assistant
- USB or Modbus network communication

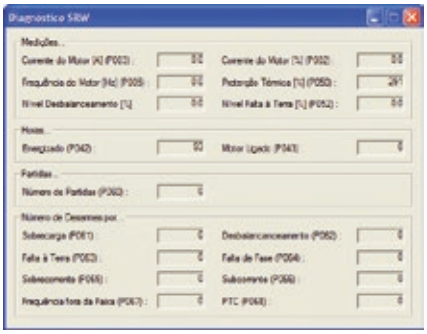


*USB connection*





*Configuration assistant*





*Monitoring diagnosis*

# Benefits

- WLP Software free
- USB port to connect the relay with the computer
- Back-up the relay configuration using the software WLP
- Downtime reduction
- Power factor monitoring and consumption, via current and voltage measuring unit (UMCT)
- Higher reliability in the motor protection system
- Safety during the operation, monitoring and maintenance
- Modularity and easy system expansion
- Reduction of the control wiring
- Reduced hardware responsible for motor control
- Remote reset via fieldbus network
- Quick and accuracy in identifying failures or alarms
- Automatic defect records and statistics
- Monitoring, supervision and control via fieldbus network, computer (WLP) or human-machine interface

# Functions

The SRW01 protection, monitoring and operating functions enhance system protection reliability and precision. The operating modes are auto-adjustable, meaning that the user selects the operating mode and the relay search for proper parameters automatically. This feature ensures quick and safe parameterization. All operating modes allow motor monitoring. Its friendly parameterization mode allows users to access all digital inputs and outputs, thus increasing flexibility to cover many applications.

## Protection

- Overload protection (adjustable tripping class 5-45)
- Thermal protection via PTC
- Phase loss protection
- Protection against current unbalance between phases
- Protection against overcurrent and locked rotor
- Protection against undercurrent
- Internal ground fault protection
- Protection against out of range frequency
- Earth leakage
- External fault
- Phase sequence*
- Voltage unbalance*
- Phase loss (voltage)*
- Over and undervoltage*
- Over and underpower*
- Over and under power factor*
- Management consumption kWh and kVArh*

## Monitoring

- Digital input and output activation
- RMS current of each phase and average in amperes or % of In adjusted current
- Line and average voltage (V)
- Motor frequency
- Number of activation per failute type
- Number of start ups
- Motor running hours
- Relay running hours
- Phase unbalance levels
- Internal ground fault level
- Earth leakage current
- Power factor*
- Consumption*
- Active, reactive and apparent power*
- PTC value

## Operating Modes

- Transparent operation - digital input and output can be configured according to application needs. In this operation mode the UMC/UMCT is used
- Operation as overload relay - similar to an overload relay
- Direct starter - direct-on-line starter for single and three-phase motors
- Reversing starter - reversing starter for three-phase motors
- Star-Delta starter - star-delta starter switch for three-phase motors
- Dahlander starter- starter for Dahlander three-phase motors
- Two windings starter - starter for two windings three-phase motors
- PLC mode - similar to the running of a PLC
  In this operation mode the UMC/UMCT is not used




** Available only using UMCT*

# Applications

The main function of the SRW01 is to protect and control electric motors in their most diverse industrial applications.

Due to its reduced size and modular design, the relay is frequently used when space for its assembly is a determining point, e.g. in Intelligent Motor Control Centers.

Its high reliability and precision make the SRW01 suitable for the toughest industrial applications.
The on-line monitoring options, failure diagnosis and failure statistics allow preventive maintenance to be more effective, thus reducing the number of downtimes.
It offers wide application for continuous process plants in the following market segments:

- Chemical and Petrochemical
- Pulp and Paper
- Mining and Cement
- Food and Beverage
- Metal and Fabrication
- Plastics and rubber
- Automotive
- Ceramics
- Textile
- Refrigeration
- Other segments





# Selection Guide

## UC - Control Unit




SRW01-U C P T 1 E47

*Communication protocol*
*B = Without communication*
*D = DeviceNet*
*M = Modbus*
*P = Profibus*

*Protection*
*E - Earth leakage*
*T - PTC*

*Digital input operating voltage*
*1 = 24 V dc*
*2 = 110 V ac*

*Supply voltage*
*E26 - 24 V ac (50-60 Hz) / V dc*
*E47 - 110-240 V ac (50-60 Hz) / V dc*

| Reference | Protection | Supply voltage | Communication protocol | Digital input voltage |
|---|---|---|---|---|
| SRW01-UC-BE1E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | Without communication | 24 V dc |
| SRW01-UC-BE1E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-BE2E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-BE2E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-BT1E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-BT1E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-BT2E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-BT2E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-DE1E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | DeviceNet | 24 V dc |
| SRW01-UC-DE1E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-DE2E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-DE2E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-DT1E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-DT1E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-DT2E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-DT2E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-PE1E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | Profibus-DP | 24 V dc |
| SRW01-UC-PE1E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-PE2E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-PE2E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-PT1E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-PT1E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-PT2E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-PT2E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-ME1E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | Modbus | 24 V dc |
| SRW01-UC-ME1E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-ME2E47 | Earth leakage | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-ME2E26 | Earth leakage | 24 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-MT1E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-MT1E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 24 V dc |
| SRW01-UC-MT2E47 | PTC | 110-240 V ac (50-60 Hz) / V dc | | 110 V ac |
| SRW01-UC-MT2E26 | PTC | 24 V ac (50-60 Hz) / V dc | | 110 V ac |

# Accessories

## Current Measuring Unit (UMC) or Current and Voltage Measuring Unit (UMCT)

Shall be chosen according to motor rated current.

| Current range (A) | Current Measuring (UMC) | Current and Voltage Measuring (UMCT) [1] |
|---|---|---|
| 0.5-5 | SRW01-UMC1 | SRW01-UMCT1 |
| 1.25-12.5 | SRW01-UMC2 | SRW01-UMCT2 |
| 2.5-25 | SRW01-UMC3 | SRW01-UMCT3 |
| 12.5-125 | SRW01-UMC4 | SRW01-UMCT4 |
| 42-420 | SRW01-UMC5 | SRW01-UMCT5 |
| 84-840 | SRW01-UMC6 | SRW01-UMCT6 |

*1) Alternating Voltage Range from 35 to 690 V.*
*Note: the Control Unit (UC) can be assembled with the Currente Measuring Unit (UMC), creating a unique unit, or detached (until 2 meters). The Current and Voltage Measuring Unit (UMCT) exclusively can assembled detached with the Control Unit.*



*SRW01-UMC1, 2 and 3*



*SRW01-UMCT1, 2 and 3*

| Width (mm) | Current (A) | Power connection |
|---|---|---|
| 45 | 0.25 - 2.5 [2] | Cable through UMC |
| | 0.5 - 5 | |
| | 1.25 - 12.5 | |
| | 2.5 - 25 | |

*2) For current range 0.25 to 2.5 A use SRW01-UMC1 or SRW-UMCT1 with two windings on the primary. For further information, verify the User's Manual.*



*SRW01-UMC4*



*SRW01-UMCT4*

| Width (mm) | Current (A) | Power connection |
|---|---|---|
| 66 | 12.5 - 125 | Cable through UMC |



*SRW01-UMC5*



*SRW01-UMCT5*

| Width (mm) | Current (A) | Power connection |
|---|---|---|
| 120 | 42 - 420 | Busbar |



*SRW01-UMC6*



*SRW01-UMCT6*

| Width (mm) | Current (A) | Power connection |
|---|---|---|
| 265 | 84 - 840 | Cable through or busbar |

*For applications in higher currents, or that are out ot the UMC's or UMCT's range showed above, it is possible to use external current transformers (CT), supplied by the user.*

## SRW01-CB Connection Cable

The cable SRW01-CB is responsable for the electric connection of the Control Unit SRW01-UC with the UMC or UMCT or EDU, make capable the assembly detached until 2 meters and facilitate the installation.



| Reference | Length (mm) |
|---|---|
| SRW01-CB0 [1] | 60 |
| SRW01-CB1 [2] | 120 |
| SRW01-CB2 [3] | 500 |
| SRW01-CB3 | 2,000 |
| SRW01-CB4 | 1,000 |

*Notes: 1) Cable for connect the Control Unit with the EDU.*
*2) Minimum cable for connect the Control Unit with the UMC/UMCT 1, 2, 3 and 4.*
*3) Minimum cable for connect the Control Unit with the UMC/UMCT 5 and 6.*

## Digital Expansion Unit - EDU

The digital expansion unit is used to add six digital inputs and four digital outputs in the Control Unit with the purpose of the control systems that has more variables.




| Reference | Digital inputs | External digital input supply voltage | Digital outputs |
|---|---|---|---|
| SRW01-EDU1 | 6 | 24 V dc | 4 |
| SRW01-EDU2 | 6 | 110 V ac | 4 |

## Human Machine Interface - HMI

The HMI is connected in front of the relay through a communication cable, making configuration and operation practical and easier.




| Reference | Description |
|---|---|
| SRW01-HMI | Human machine interface - HMI |



| Reference | Description |
|---|---|
| SRW01-HMI2 | Human machine interface - HMI (horizontal installation) |

## Earth Leakage Sensor (ELS)

The earth leakage sensor must be installed separately from the Control Unit (UC).
It can be installed in any position and connected on the Control Unit (UC) through a twisted pair and/or shielded cable, connected to the sensor and S1 and S2 terminals, with maximum recomended distance of 10 m.



| Reference | Diameter (mm) | UMC/UMCT compatible |
|---|---|---|
| SRW01-EL1 | 35 | SRW01-UMC/UMCT 1, 2, 3 |
| SRW01-EL2 | 70 | SRW01-UMC/UMCT 4 |
| SRW01-EL3 | 120 | SRW01-UMC/UMCT 5 |
| SRW01-EL4 | 210 | SRW01-UMC/UMCT 6 |

It is recomended to use the equivalence relation between the Current Measuring Unit (UMC) or current and voltage measuring unit (UMCT) and the ELS sensors for the instalation, as shown on the table above.

# Accessories

## Connection Cable UC-HMI



| Reference | Length (mm) |
|---|---|
| SRW01-CH1 | 500 |
| SRW01-CH2 | 1,000 |
| SRW01-CH3 | 1,500 |
| SRW01-CH4 | 2,000 |

## USB Communication Cable



| Reference | Length (mm) |
|---|---|
| SRW01-USB | 2,000 |

## Communication Module



| Reference | Communication protocol |
|---|---|
| SRW01-MCD | DeviceNet |
| SRW01-MCM | Modbus |
| SRW01-MCP | Profibus-DP |

*For part replacement or Control Unit (UC) without network module.*

## Fixing Adaptor



| Reference | Description |
|---|---|
| PLMP | Adaptor for screws fixing (2 pieces per package/0.006 kg) |

## Busbar for UMC and UMCT



| Reference | Description |
|---|---|
| JBL-RW407D | Busbar for Current Measuring Unit UMC6 and UMCT6 |

## Protection Cover



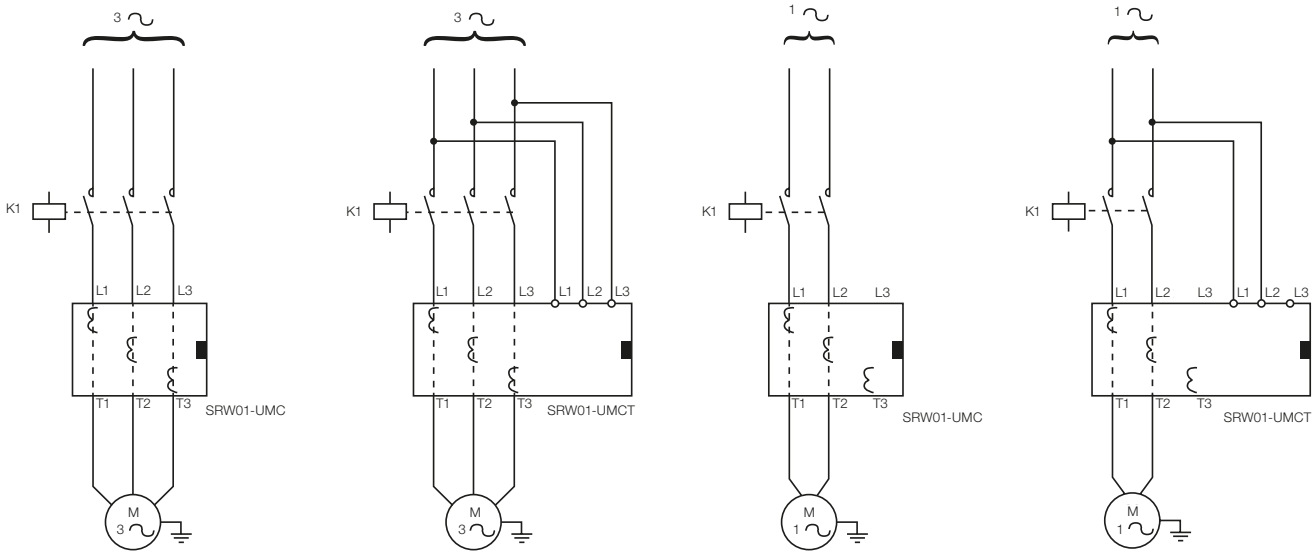
*Connector IHM* *DB9* *Mini USB*

| Reference | Description |
|---|---|
| SRW01-CDB [1] | Plastic cover for DB9 protection |
| SRW01-CMU [1] | Plastic cover for mini USB connector |
| SRW01-CBP [1] [2] | Plastic cover for HMI connector / accessories |

*Notes: 1) 10 unit package;*
*2) Plastic cover for old housing model (not the current rubber cover).*
*The protection covers are for spare part purpose, because the SRW01 is already delivered with these accessories.*

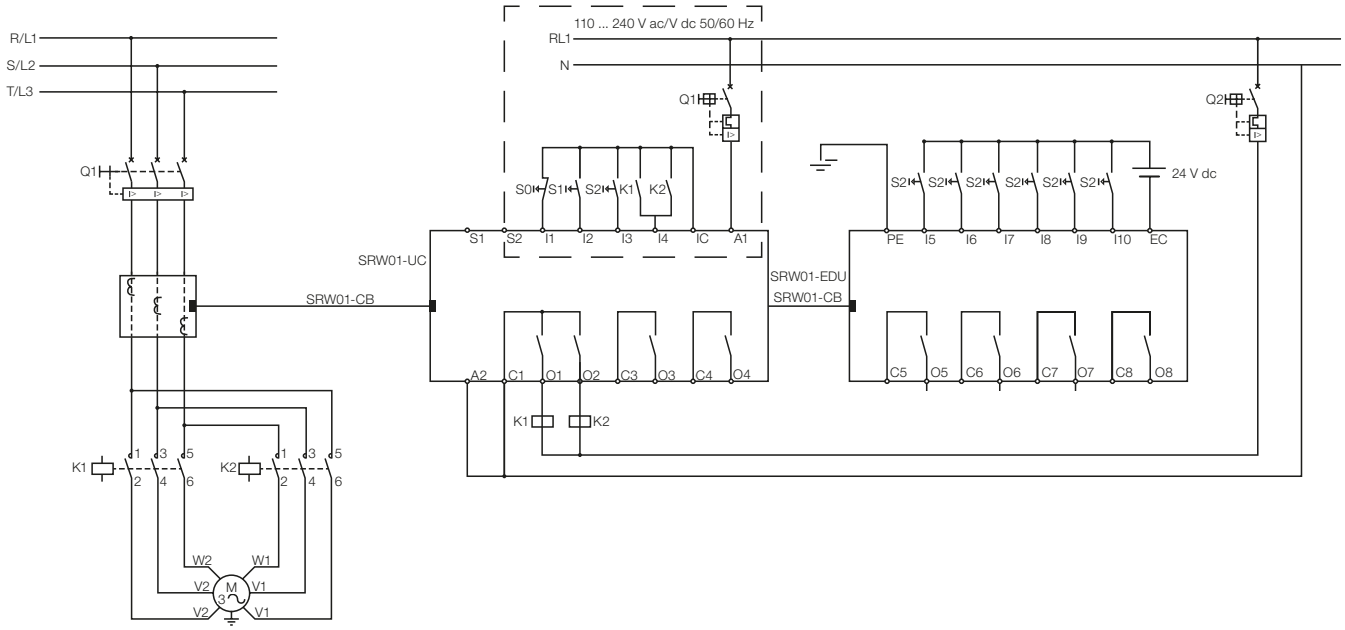
# Operating Modes Diagrams

## Power Cables




*Three-phase and single-phase of the Current Measuring Unit (UMC) and Current/Voltage Measuring Unit (UMCT).*

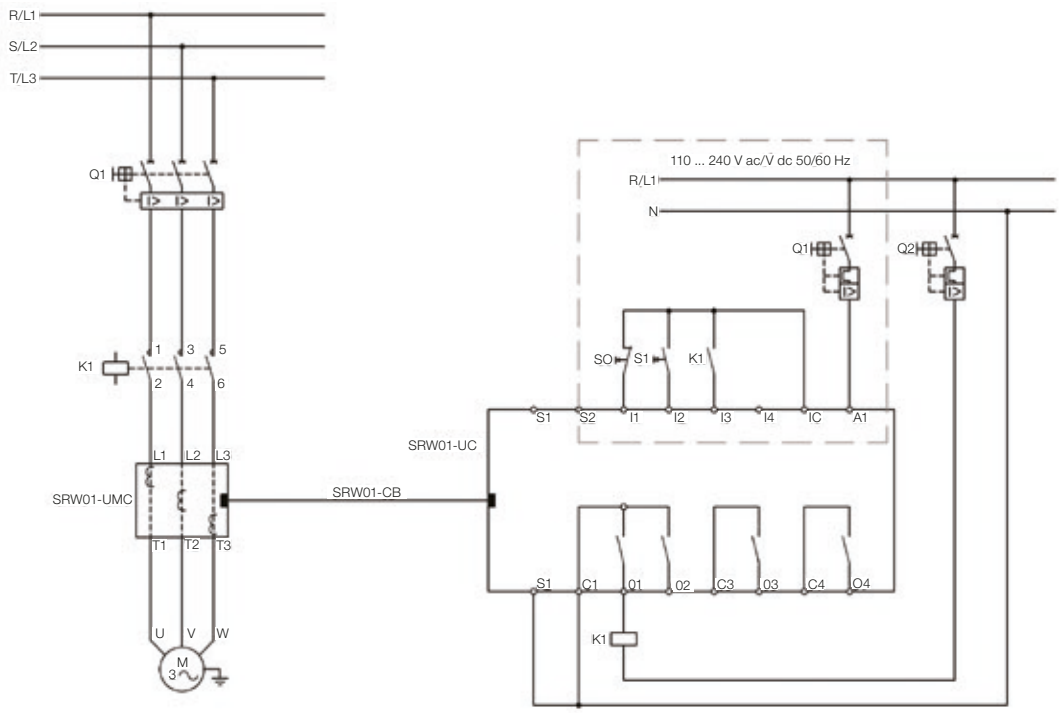
## Connection of the Control Unit to the Expansion Digital Unit




*Connection diagrams of the Control Unit (UC) with the Digital Expansion Unit (EDU).*

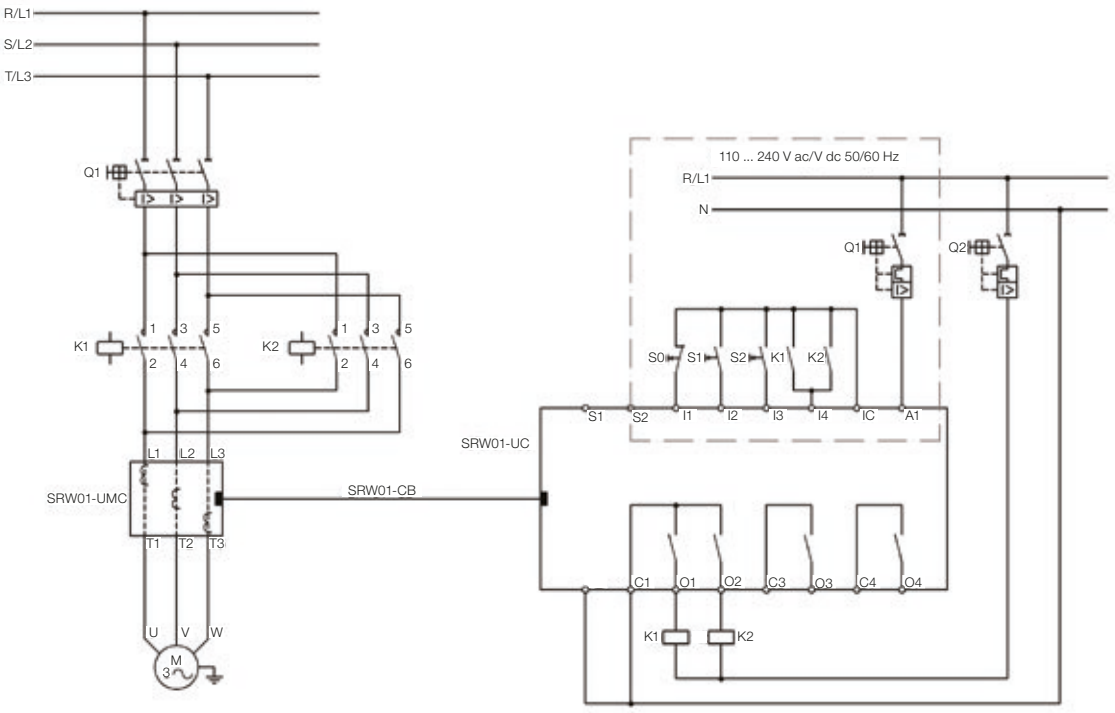
# Operating Modes Diagrams

## Direct Starter



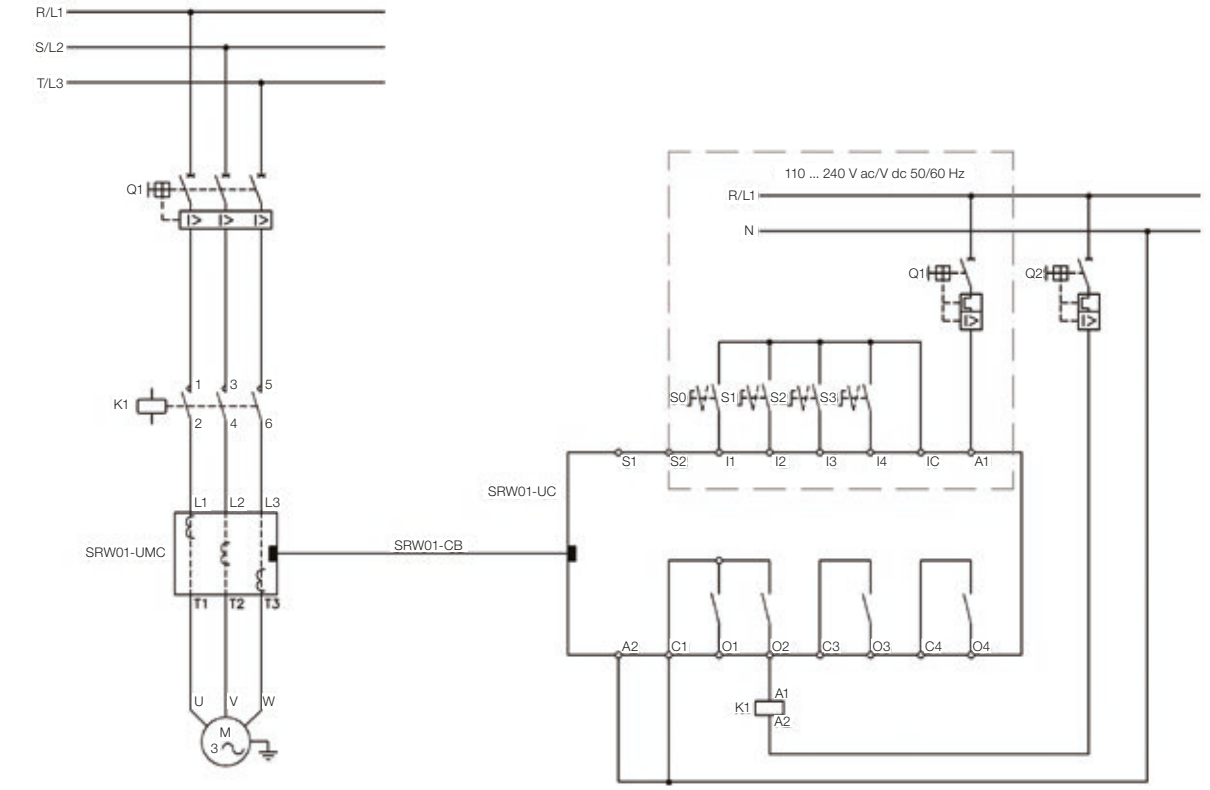

*Connection diagrams for the Direct Starting Operation Mode using digital inputs at 24 V dc and driven by pushbuttons (P230 = 1).*
*For further information consult the SRW-01 User's Manual.*

## Reversing Starter



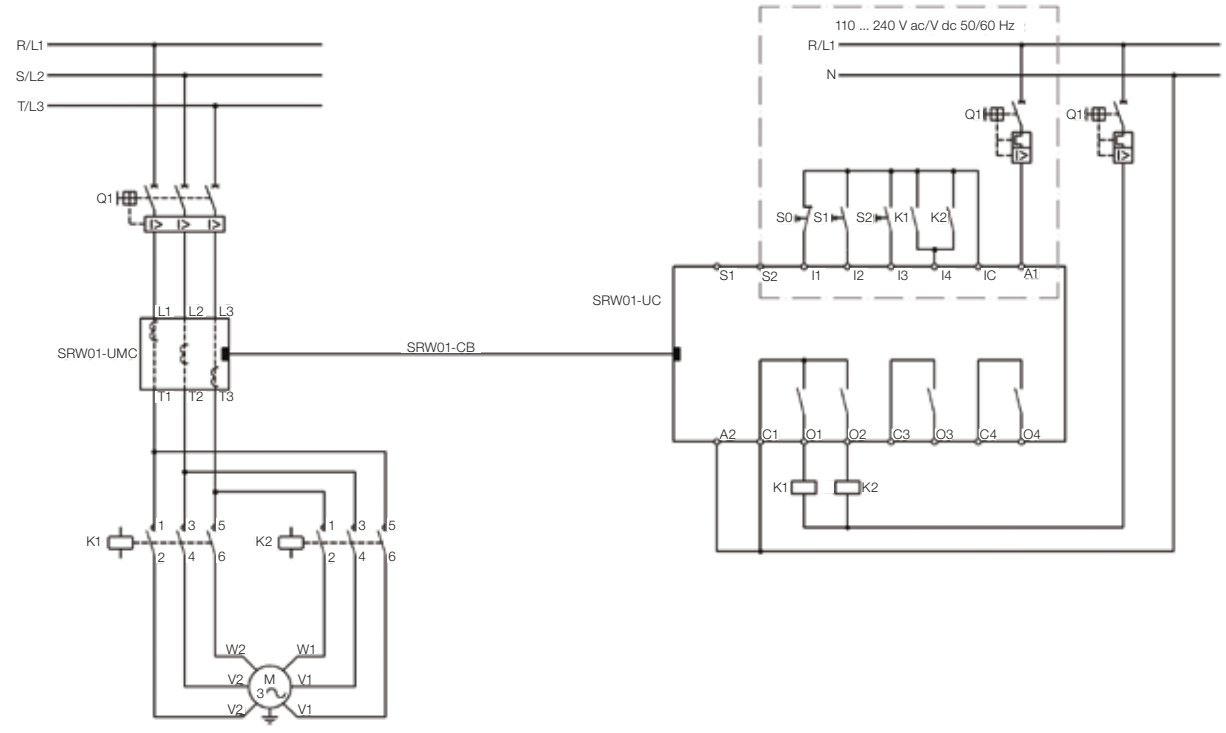

*Connection diagram for the Reverter Starting Operation Mode using digital inputs at 24 V dc and driven by pushbuttons (P230 = 1).*
*For further information consult the SRW-01 User's Manual.*

## Overload Relay




*Connection diagram for the Overload Relay operation mode using digital inputs at 24 V dc.*
*For further information consult the SRW-01 User's Manual.*

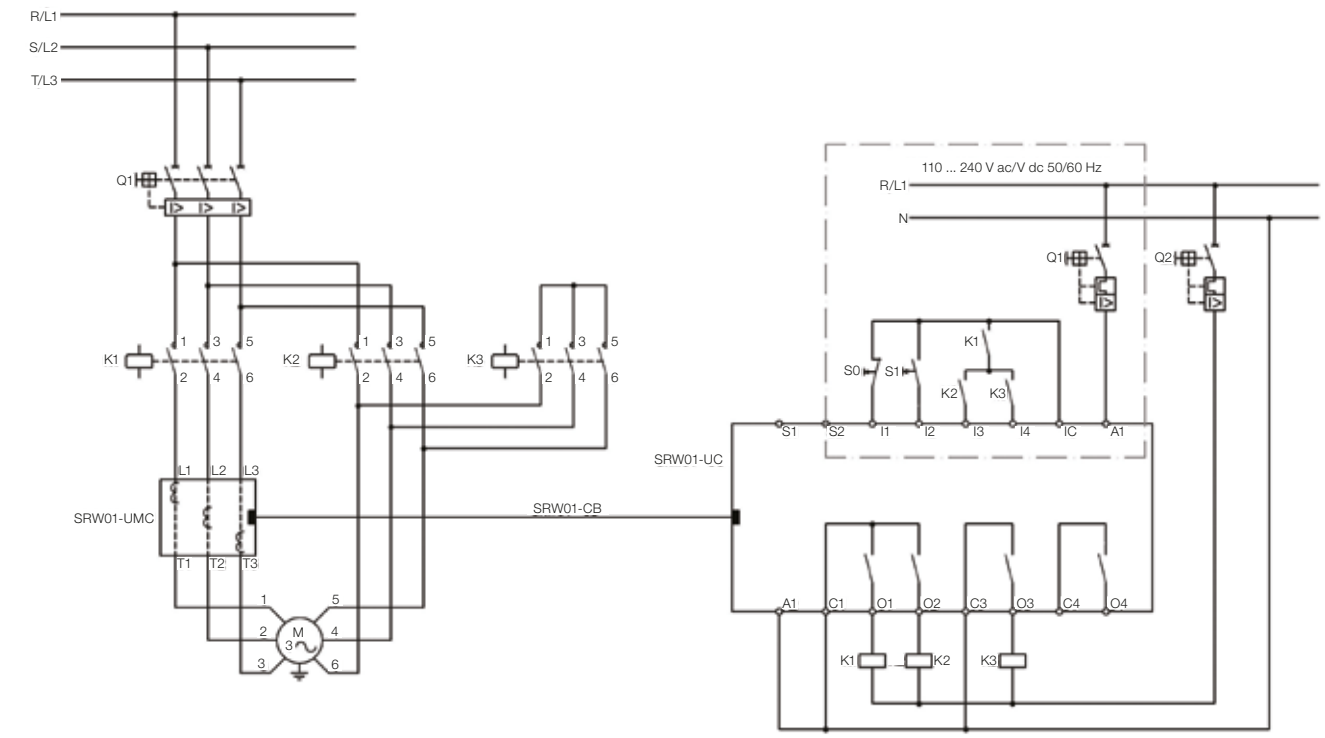
## Two Windings Starter




*Connection diagram for the Two Windings Starting Operation Mode using digital inputs at 24 V dc and driven by pushbuttons (P230=1).*
*For further information consult the SRW-01 User's Manual.*

# Operating Modes Diagrams

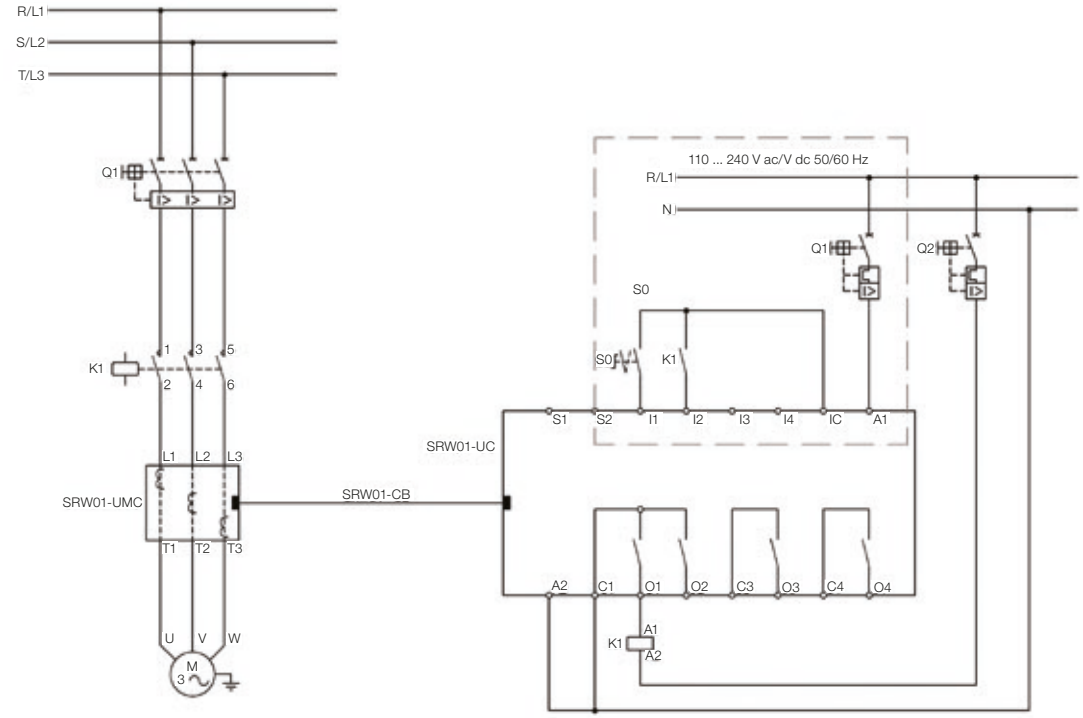
## Star-Delta Starter




*Connection diagram for the Star-Delta Starting Operation Mode - using digital inputs at 24 V dc and driven by pushbuttons (P230=1) and measuring of delta current. For further information consult the SRW-01 User's Manual.*

## Transparent Mode

The transparent mode allows the user to develop its own application using the WLP software ladder language.




*Connection diagram for the Transparent Operation Mode using digital inputs at 24 V dc. For further information consult the SRW-01 User's Manual.*

# WLP Software

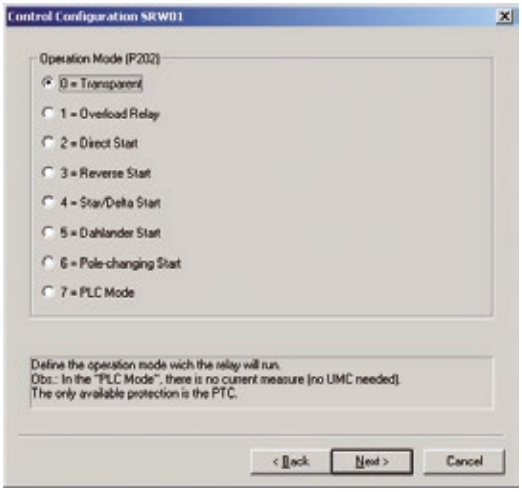
The WLP is the SRW01 configuration software for Windows environment with user friendly interface that enables system parametrization, programming, controlling and monitoring.
The WLP software enables the user to configure the relay, edit parameters and program in LADDER.
Through the WLP configuration assistants the user has a guided routine that enables relay configuration. When necessary, the relay can be programmed in LADDER using mathematical and control blocks.

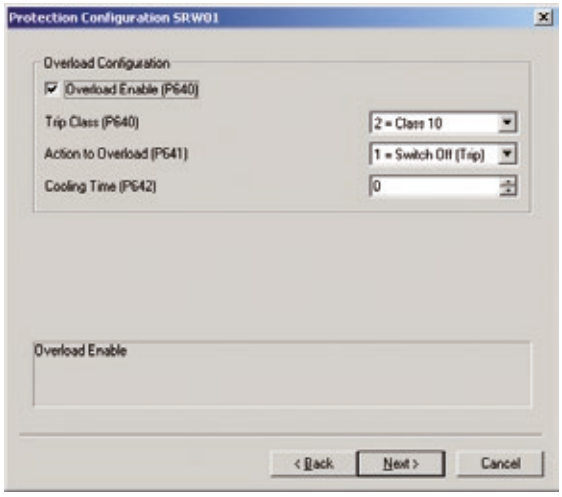
The LADDER program has a 64 kbytes memory and can use the relay digital inputs and outputs.
Communication between software and relay can be performed through USB port or Modbus network.
The WLP software is free and supplied with the product.
It can be also obtained from the website *www.weg.net*.

## Configuration Assistants

These routines have been especially created to assist relay configuration. They help the user to configure the relay in an easy self explanatory manner.

- Configuration assistant: control configuration

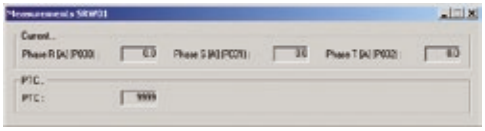


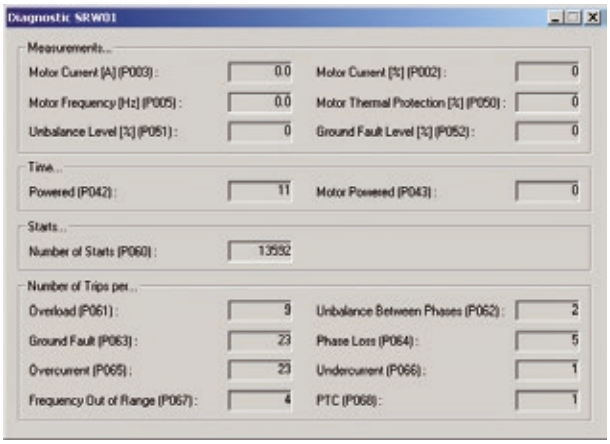



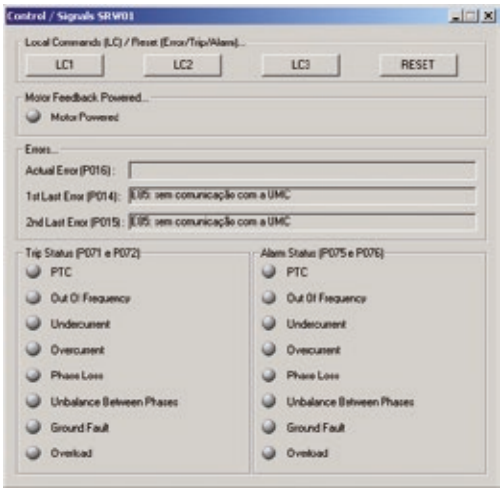

## Monitoring Dialogues

These dialogues have been especially created to monitor the relay.
They monitor exclusive relay information.

- Monitoring dialogues: diagnostic





# Technical Characteristics

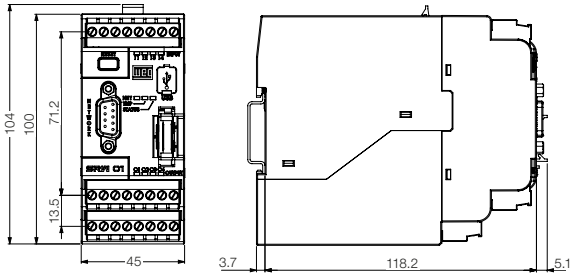
| | | | |
|---|---|---|---|
| **General data** | Mounting position | Any | |
| | Pollution degree | 2 | |
| | Protection degree (IEC 60529) | - Control Unit (UC): IP20<br>- Current Measuring Unit (UMC):<br>- Without busbar: IP20<br>- With busbar: IP00<br>- Current and voltage measuring unit (UMCT):<br>- Without busbar: IP20<br>- With busbar: IP00<br>- Digital expansion unit (EDU): IP20<br>- Human machine interface (HMI): IP54<br>- Earth leakage sensor (ELS): IP20 | |
| | Allowed ambient temperature | - Operation: According IEC: 0...+55 ºC<br>According UL: 0...+40 °C<br>- Storage and transport: -25...+80 °C | |
| | Short-circuit ratings (UL)[1)] | Control Unit (UC): 200,000 A<br>Current Measuring Unit (UMC) and Current/voltage Measuring Unit (UMCT): 200,000 A | |
| | Tripping class (UL) | - Control Unit (UC): classes 10/20/30<br>- Current Measuring Unit (UMC): classes 10/20/30 | |
| **Control Unit (UC)** | Isolation rated voltage Ui | 300 V | |
| | Supply rated voltage | 110 - 240 V ac/V dc @ 50/60 Hz | 24 V ac/V dc @ 50/60 Hz |
| | Operation range | 0.85 Us - 1.10 Us | 0.80 Us - 1.20 Us |
| | Consumption (typical)[2)] | 6 W | 5 W |
| | Number of digital inputs | 4 opticaly isolated inputs (24 V dc or 240 V ac) | |
| | Digital inputs supply | 24 V dc | 110 V ac |
| | Digital inputs power source | Internal 24 V dc isolated power source or external | External 110 V ac power |
| | Digital inputs current | 11 mA @ 24 V dc | 5 mA @ 110 V ac |
| | Digital inputs isolation | 3 kV | |
| | Number of digital outputs | 4 relay outputs | |
| | Contacts grouping | - 2 SPST outputs<br>- 2 common shared SPST outputs | |
| | Maximum operation voltage | 250 V dc, 240 V ac | |
| | Smallest operation power | 1 W or 1 VA | |
| | Switching capacity per relay contacts | - UL 508: C300, R300<br>- AC-15 (IEC 60947-5-1): 1.5 A ac / 120 V ac<br>0.75 A ac / 240 V ac<br>- DC-13 (IEC 60947-5-1): 0.22 A dc / 125 V dc<br>0.1 A dc / 250 V dc | |
| | Contacts capacity (resistive load) | 3 A, 30 V dc / 250 V ac | |
| | External protection against short-circuit | 6 A gL/gG fuse | |
| | Motor protection VIA - PTC | - TRIP value: > 3.4 kΩ<br>- Rearm value: < 1.6 kΩ | |
| | Terminals (conectors) | - Torque: 0.5 Nm - 4.5 lb.in<br>- Conductors section:<br>- Rigid and bare: 1 x (0.2 ... 2.5 $mm^2$); 1 x (2 ... 12 AWG)<br>- Flexible with/without terminals: 1x (0.2 ... 2.5 $mm^2$); 1 x (26 ... 12 AWG)<br>- Screws: M3 | |
| | Reset button | - Error or fault reset - system<br>- TRIP or alarm reset - protections<br>- TRIP test | |

*Notes: 1) Consult the user's manual;*
*2) Considering the Control Unit (UC) and Current Measuring Unit (UMC) or current/voltage measuring unit (UMCT) consumption.*

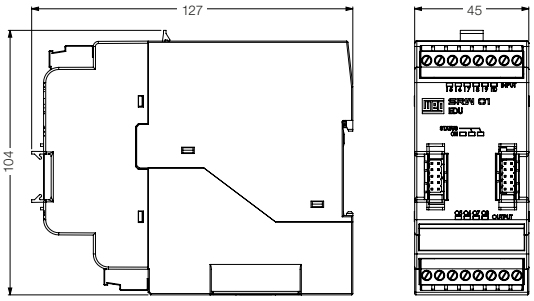
| | | | |
|---|---|---|---|
| **Current Measuring Unit (UMC)** | Current range | 0.25 - 840 A ac | |
| | Isolation degree $U_i$ | 690 V ac | |
| | Rated operational voltage $U_e$ | - IEC 60947-4-1: 690 V ac<br>- UL 508: 600 V ac | |
| | Impulse voltage $U_{imp}$ | 6 kV | |
| | Frequency range | 50/60 Hz | |
| | Application | Three-phase, single-phase | |
| | Cable hole diameter | - UMC 1, 2 and 3: 8 mm<br>- UMC 4: 15 mm<br>- UMC 5: busbar<br>- UMC 6: 32 mm or busbar | |
| **Current and Voltage Measuring Unit (UMCT)** | Current range | 0.25 - 840 A ac | |
| | Voltage range | 35 - 690 V ac | |
| | Isolation degree $U_i$ | 690 V ac | |
| | Rated operational voltage - $U_e$ | IEC 60947-4-1: 690 V ac<br>UL 508: 600 V ac | |
| | Impulse voltage $U_{imp}$ | 6 kV | |
| | Frequency range | 50/60 Hz | |
| | Application | Three-phase, single-phase | |
| | Cable hole diameter | UMCT 1, 2 and 3: 8 mm<br>UMCT 4: 15 mm<br>UMCT 5: busbar<br>UMCT 6: 32 mm or busbar | |
| | Terminals (connectors) | - Torque tightening: 0.5 Nm - 4.5 lb.in<br>- Maximum conductos section:<br>- Rigid and bare: 1 x (0.2 ... 2.5 $mm^2$); 1 x (26 ... 12 AWG)<br>- Flexible with/without terminals: 1 x (0.2 ... 2.5 $mm^2$); 1 x (26 ... 12 AWG)<br>- Screws: M3 | |
| **Earth Leakage Sensor (ELS)** | Current range | 0.3 - 5 A ac | |
| | Isolation degree $U_i$ | 690 V ac | |
| | Rated operation voltage | - IEC 60947-4-1: 690 V ac<br>- UL 508: 600 V ac | |
| | Impulse voltage $U_{imp}$ | 6 kV | |
| | Frequency range | 50/60 Hz | |
| | Application | Monophasic and triphasic | |
| | Window internal diameter | - EL1: 35 mm<br>- EL1: 70 mm<br>- EL1: 120 mm<br>- EL1: 210 mm | |
| | Terminals (conectors) | - Torque: 0.29 Nm - 2.6 lb.in<br>- Maximum conductos section:<br>- Rigid and bare: 1 x (0.2 ... 2.5 $mm^2$); 1 x (22 ... 14 AWG)<br>- lexible with/without terminals: 1 x (0.2 ... 1.5 $mm^2$); 1 x (22 ... 14 AWG)<br>- Screws: M3 | |
| **Digital Expansion Unit (EDU)** | Rated isolation voltage $U_i$ | 300 V | |
| | Number of digital inputs | 6 optically isolated inputs (24 V dc or 110 V ac) | |
| | Digital inputs supply | 24 V dc | 110 V ac |
| | Digital inputs power source | External 24 V dc power source | External 110 V ac power source |
| | Digital inputs current | 11 mA @ 24 V dc | 5 mA @ 110 V ac |
| | Digital inputs isolation | 3 kV | |
| | Number of digital outputs | 4 relay outputs | |
| | Contacts grouping | 4 SPST outputs | |
| | Maximum operation voltage | 250 V dc, 240 V ac | |
| | Smallest operation power | 1 W or 1 VA | |
| | Switching capacity per relay contact | - UL 508: C300, R300<br>- AC-15 (IEC 60947-5-1): 1.5 A ac / 120 V ac<br>0.75 A ac / 240 V ac<br>- DC-13 (IEC 60947-5-1): 0.22 A dc / 125 V dc<br>0.1 A dc / 250 V dc | |
| | Contacts capacity (resistive load) | 3 A, 30 V dc / 250 V ac | |
| | Short-circuit external capacity | 6 A gI/gG fuse | |
| | Terminals (conectors) | - Torque: 0.5 Nm - 4.5 lb.in<br>- Conductors section:<br>-Rigid and bare: 1 x (0.2 ... 2.5 $mm^2$); 1 x (26 ... 12 AWG)<br>-Flexible with/without terminals: 1 x (0.2 ... 2.5 $mm^2$); 1 x (26 ... 12 AWG)<br>- Screws: M3 | |

# Dimensions (mm)

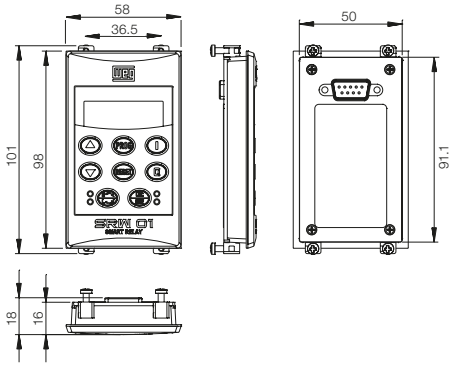
## Control Unit - SRW01-UC



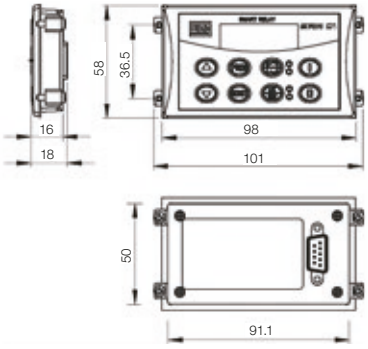

## Digital Expansion Unit - EDU



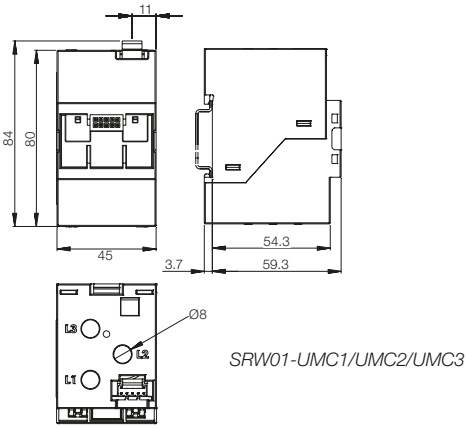

## Human Machine Interface - HMI



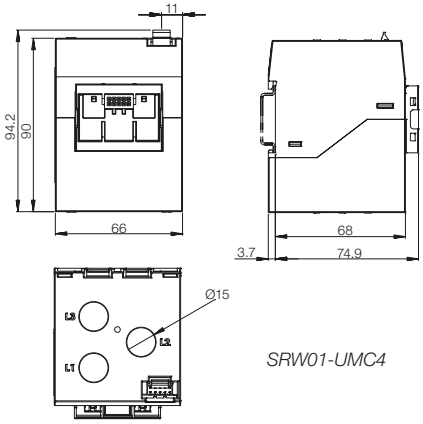

## Human Machine Interface (Horizontal) - HMI



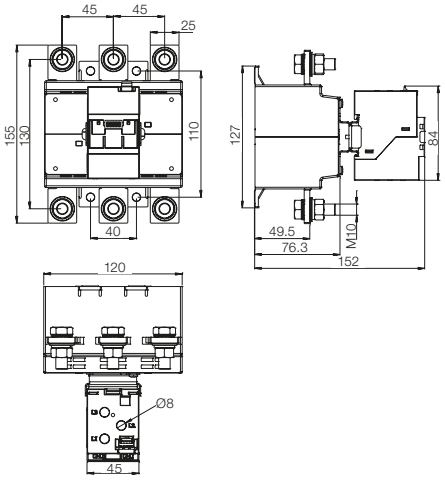

## Current Measuring Unit - SRW01 - UMC




*SRW01-UMC1/UMC2/UMC3*

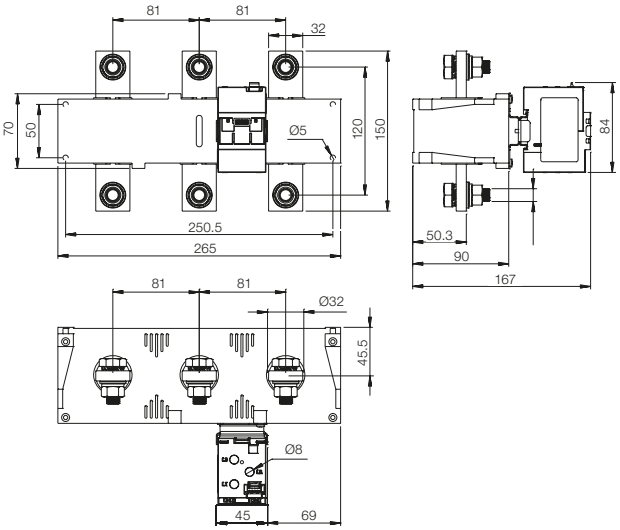



*SRW01-UMC4*

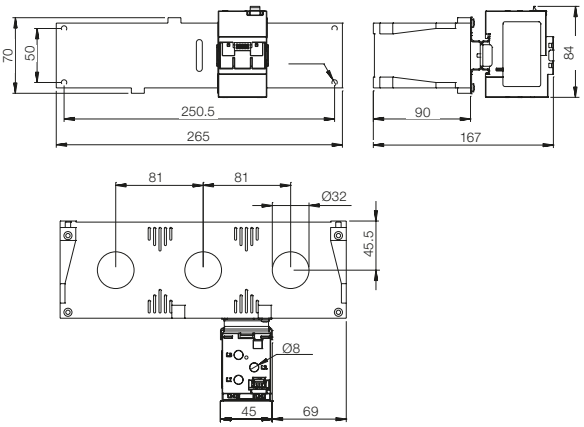



*SRW01-UMC5*

## Current Measuring Unit - SRW01 - UMC

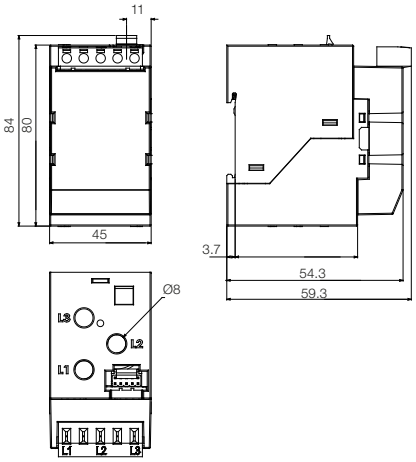



*SRW01-UMC6*
*(without busbar)*




*SRW01-UMC6*
*(with busbar)*

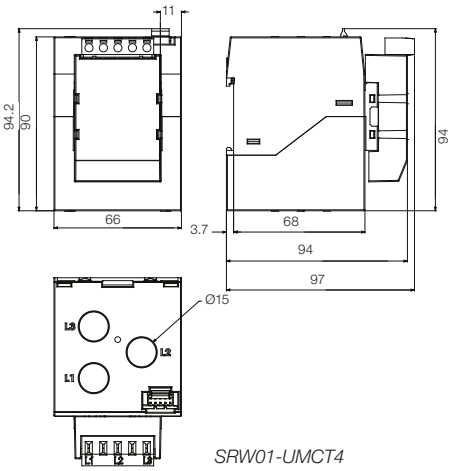
## Current and Voltage Measuring Unit - UMCT



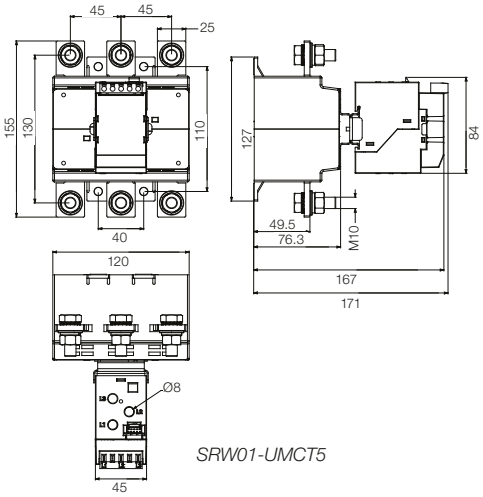

*SRW01-UMCT1 - UMCT2 - UMCT3*

# Dimensions (mm)

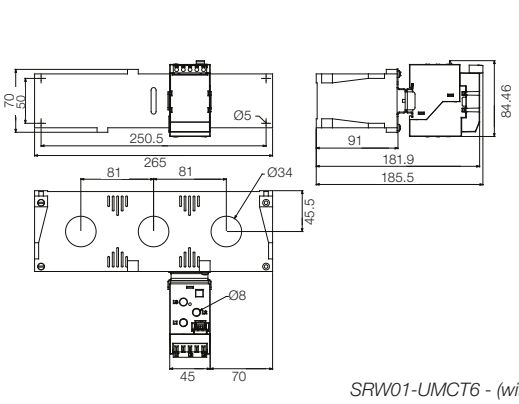
## Current and Voltage Measuring Unit - UMCT



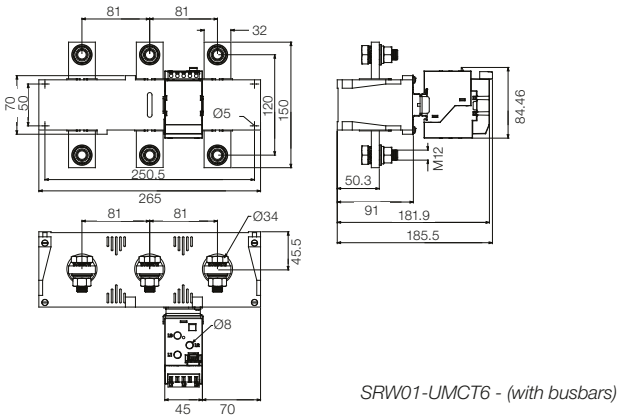

SRW01-UMCT4




SRW01-UMCT5

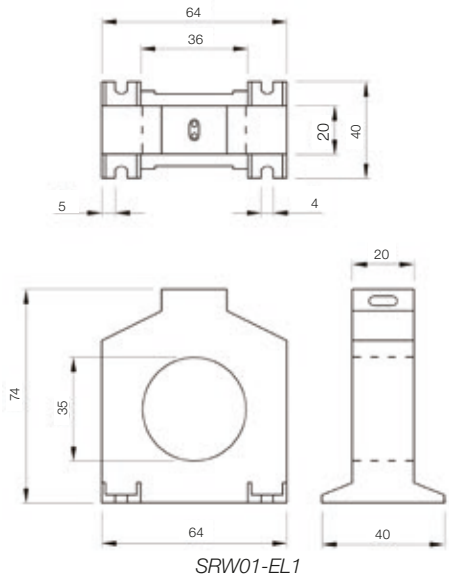



SRW01-UMCT6 - (without busbar)

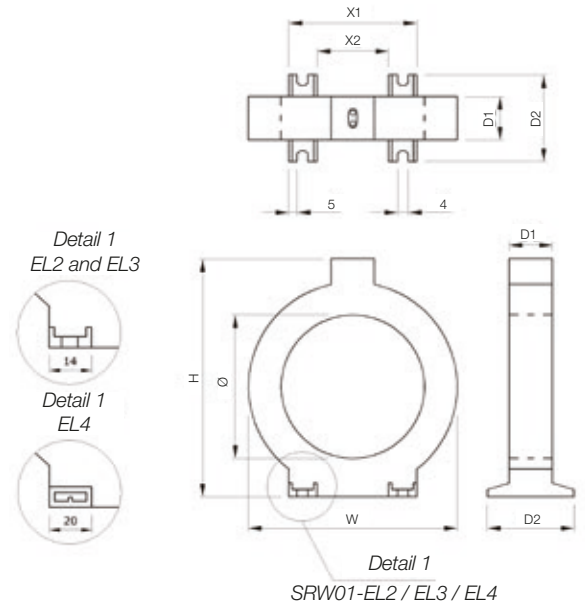



SRW01-UMCT6 - (with busbars)

## Earth Leakage Sensors (ELS)




SRW01-EL1




SRW01-EL2 / EL3 / EL4

| Model | ∅ | H | W | X1 | X2 | D1 | D2 |
|---|---|---|---|---|---|---|---|
| EL2 | 70 | 116 | 104 | 64 | 36 | 20 | 40 |
| EL3 | 120 | 169 | 154 | 94 | 66 | 20 | 40 |
| EL4 | 210 | 304 | 290 | 150 | 110 | 33 | 90 * |

** With base metallic support.*

# Notes

# Notes

# Notes

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