



Reyrolle – What's New in 2022

New Devices and Features

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VAR Partner Day 2022 | September 12 -14 | Zagreb, Croatia

7SR5* - Size 8 Case Withdrawable Design



7SR5* Relay Variants Available in Size 8 Case*:

- 7SR5110
- 7SR5111
- 7SR5121
- 7SR542
- 7SR5711
- 7SR5721

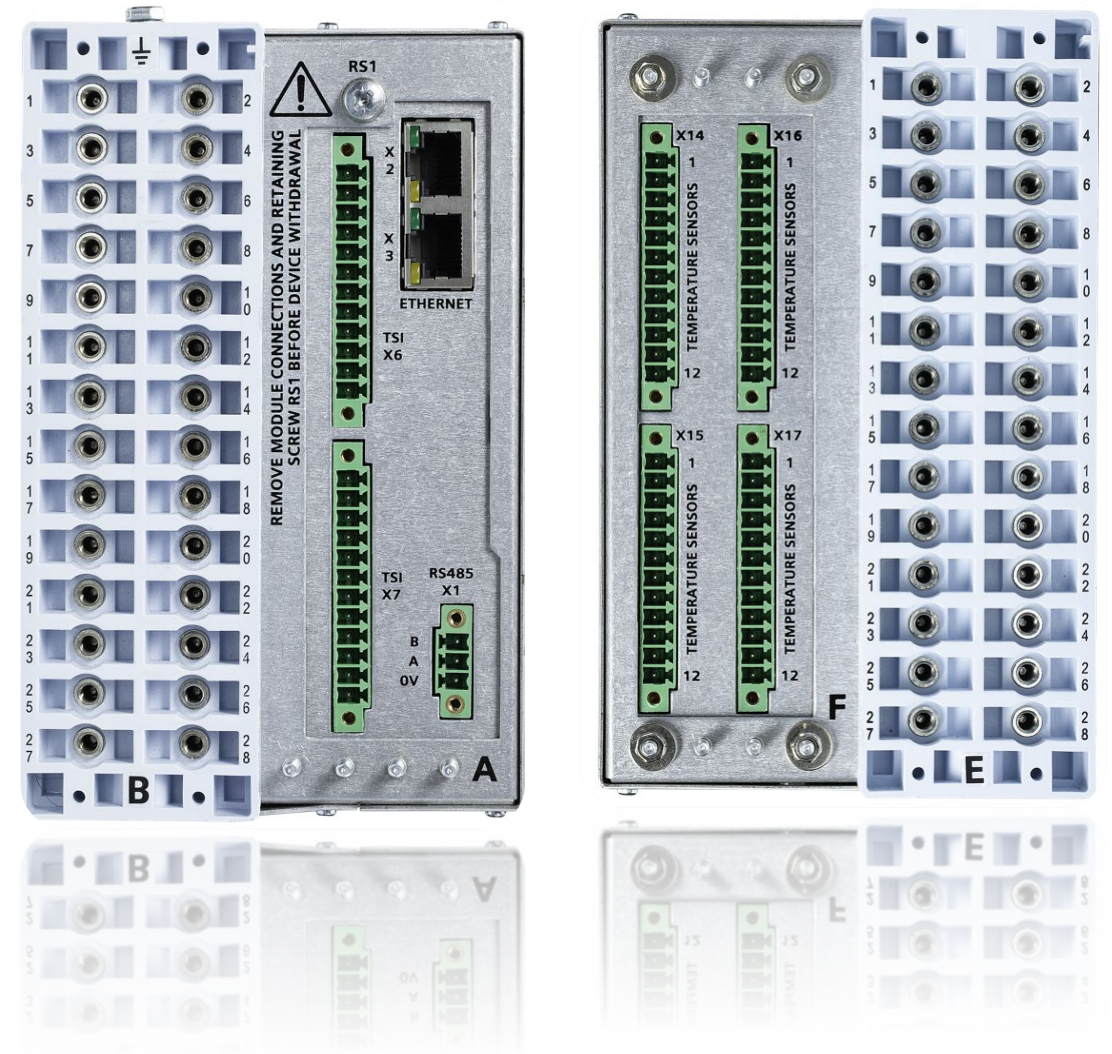
*Also relays with optional AFD/HSBO
or TSI modules*

*size 8 case in addition to size 6 & 12

7SR5* TSI Module (Optional)

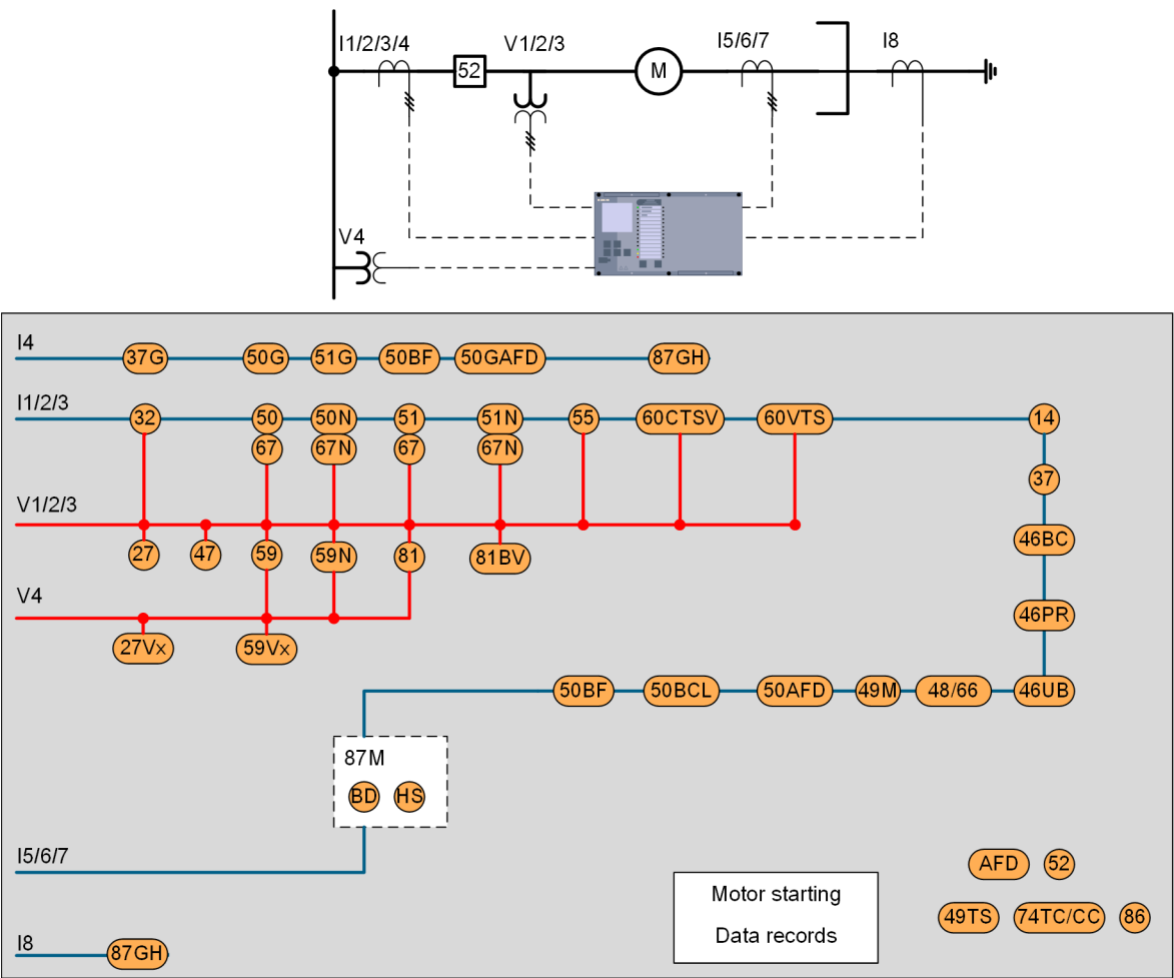
TSI modules provide direct connection to either RTD or Thermistor sensor types installed in motors and transformers:

- **RTD types:** Cu10, Ni100, Ni120, Ni250, Pt100, Pt250, Pt1000
 - **Thermistor types:** PTC (positive temperature coefficient) and NTC (negative temperature coefficient)
1. **Aux I/O slot with 8 TSIs** - available in Size 6, Size 8 and Size 12 cases
 2. **Extended I/O slot with 16 TSI's** - available only in 7SR57 in case size 12



7SR5721 – Motor Differential Protection

Motor Differential Protection 87M: 87M-BD, 87M-HS



7SR5721-2AA	1/2, 17 BI, 10 BO, 8 I, 4 V Housing width 1/2 x 19" (size 8), housing height 4U 17 binary inputs 10 binary outputs (1 break, 2 changeover, 7 make) 8 current transformer inputs 4 voltage transformer inputs Communication: USB, RS485, 2 x Ethernet
7SR5721-2AD	1/2, 17 BI, 13 BO (inc. 3 HSBO), 8 I, 4 V, 3 AFD Housing width 1/2 x 19" (size 8), housing height 4U 17 binary inputs 13 binary outputs (1 break, 2 changeover, 10 make) 8 current transformer inputs 4 voltage transformer inputs Communication: USB, RS485, 2 x Ethernet
7SR5721-2AF	1/2, 17 BI, 10 BO, 8 I, 4 V, 8 TSI Housing width 1/2 x 19" (size 8), housing height 4U 17 binary inputs 10 binary outputs (1 break, 2 changeover, 7 make) 8 current transformer inputs 4 voltage transformer inputs Communication: USB, RS485, 2 x Ethernet
7SR5721-4DD	3/4, 27 BI, 17 BO (inc. 3 HSBO), 8 I, 4 V, 3 AFD, 16 TSI Housing width 3/4 x 19" (size 12), housing height 4U 27 binary inputs 17 binary outputs (1 break, 2 changeover, 14 make) 8 current transformer inputs 4 voltage transformer inputs Communication: USB, RS485, 2 x Ethernet

7SR5* - DNP3 TCP (min. FW V2.31)

Device Details

Name: New 7SR5721-6AF16-0AA0

MLFB: 7SR5721-6AF16-0AA0

Status: IEC 61850 Compile Required

IEC 61850 IED Name: Newled1

Get Info

Send

Get

Name	Type	Last Modified
Configuration		
Function Configuration	Application Functions	
User Settings	Device Parameters	
Serial Comms & Events	Serial Comms & Events	
User Logic	Graphical Logic	
DNP3 TCP	Mapping	
7SR5721 Default	HMI Screen	02/09/2021 15:30:24

Tasks

Configuration

Device Data

Messages

Device Configuration

Properties

Ethernet Interface

Ethernet Timezone

Ethernet Interface

IP Address

Services

Redundancy

SNTP

Syslog

☒ Enable SNMP (Simple Network Management Protocol)

Additional Protocol

☐ None

☐ Modbus TCP

☒ DNP3 TCP

OK

Cancel

Edit DNP3 TCP - FW V2_30/New 7SR5721-6AF16-0AA0

Binary Outputs

Binary Inputs

Analogue Outputs

Analogue Inputs

Counters

Options

Enabled	Address	Name	Type	CROB
<input checked="" type="checkbox"/>	1	CB-1	DOUBLE_BIT	Pulse_On, Latch_On, Latch_Off, Pair_Trip, Pair_Close
<input checked="" type="checkbox"/>	7	Setting Group 1	BIT	Pulse_On, Latch_On
<input checked="" type="checkbox"/>	8	Setting Group 2	BIT	Pulse_On, Latch_On
<input checked="" type="checkbox"/>	9	Setting Group 3	BIT	Pulse_On, Latch_On
<input checked="" type="checkbox"/>	10	Setting Group 4	BIT	Pulse_On, Latch_On
<input checked="" type="checkbox"/>	75	SPDOns1	BIT	Pulse_On, Latch_On, Latch_Off
<input checked="" type="checkbox"/>	76	SPDOns2	BIT	Pulse_On, Latch_On, Latch_Off
<input checked="" type="checkbox"/>	77	SPDOns3	BIT	Pulse_On, Latch_On, Latch_Off
<input checked="" type="checkbox"/>	78	SPDOns4	BIT	Pulse_On, Latch_On, Latch_Off
<input checked="" type="checkbox"/>	111	DPDOns1	DOUBLE_BIT	Pulse_On, Latch_On, Latch_Off, Pair_Trip, Pair_Close
<input checked="" type="checkbox"/>	113	DPDOns2	DOUBLE_BIT	Pulse_On, Latch_On, Latch_Off, Pair_Trip, Pair_Close
<input checked="" type="checkbox"/>	115	DPDOns3	DOUBLE_BIT	Pulse_On, Latch_On, Latch_Off, Pair_Trip, Pair_Close
<input checked="" type="checkbox"/>	117	DPDOns4	DOUBLE_BIT	Pulse_On, Latch_On, Latch_Off, Pair_Trip, Pair_Close

Validation Messages

Type Address Name Message

Apply

Cancel

7SR46 – Dual-Powered Non-Directional Overcurrent and EF Protection Relay



7SR46 – Protection Relay for Secondary Distribution Applications Examples

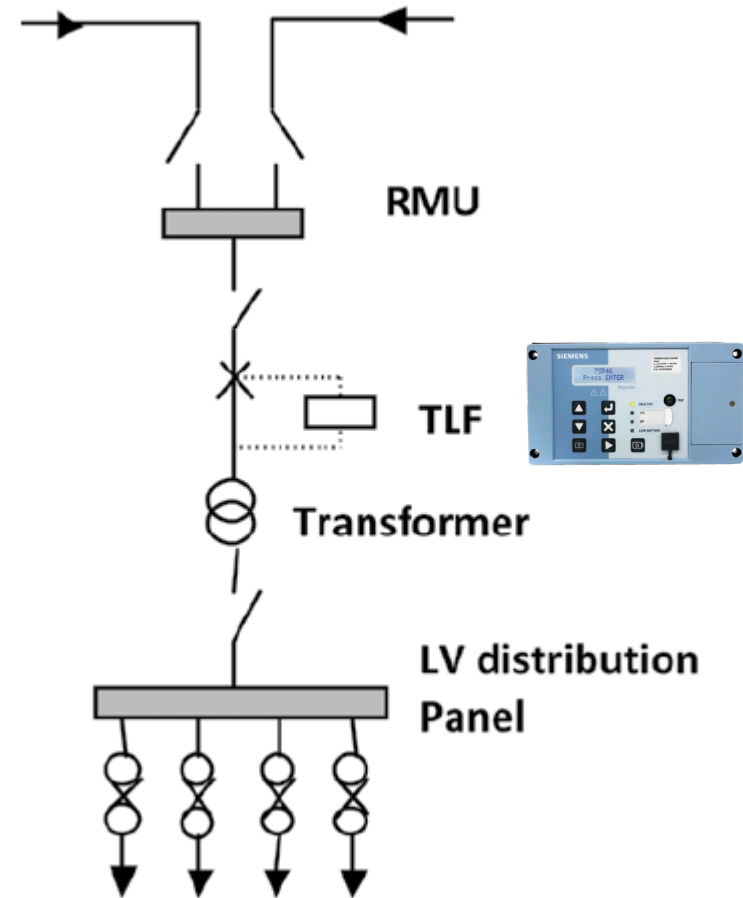
- Protection in remote locations where auxiliary power supply is not available
- Ring Main Unit (RMU) – switching device used at the load connection points of a ring-type distribution network to ensure that when the main source of power is shut down, the second source could be fed immediately

Key applications of RMUs:

- Renewable Generation: wind power, solar power
- Distribution: compact substations
- Infrastructure: tunnels, airports, ports, metro stations
- Buildings: hospitals, offices, shopping malls, data centres
- Industries: water, mining, paper, cement, petroleum

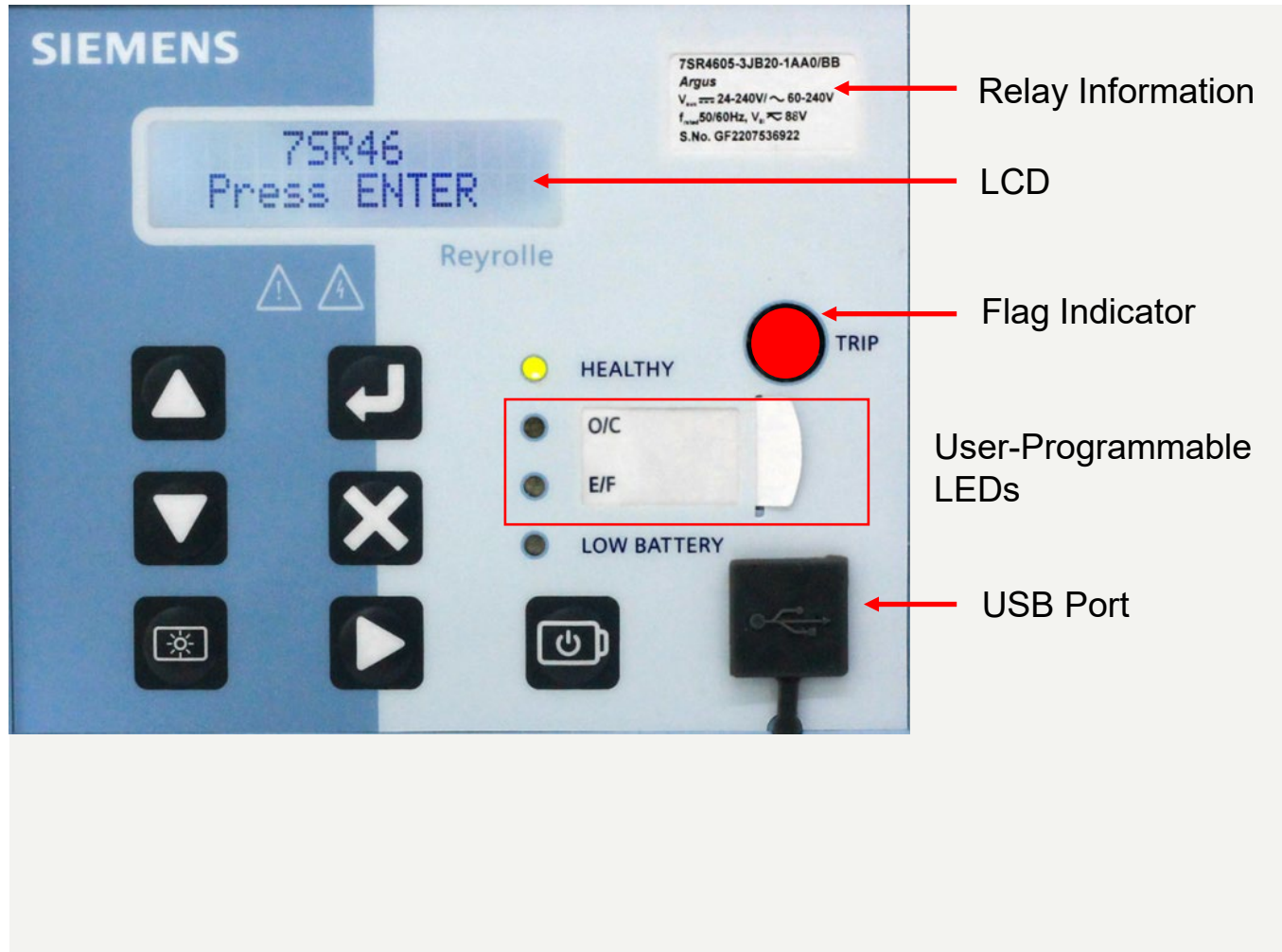
To protect the transformer or downstream network from fault currents by tripping the circuit breaker, two types of protection devices are used:

- TLF - Time limit fuses – OR:
- Protection relays – e.g. Reyrolle 7SR45 and 7SR46



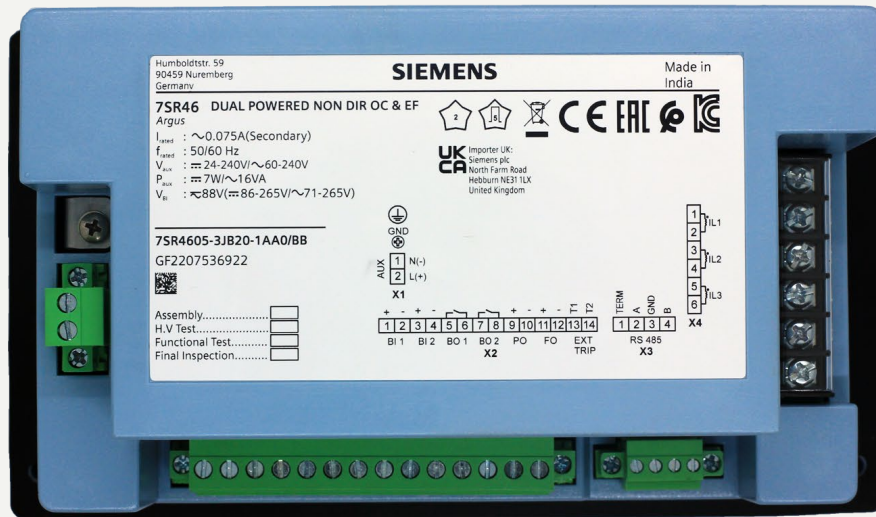
7SR46 – Dual Powered OC and EF Protection Relay

Overview of HW Features



- Flush mounting, non-withdrawable polycarbonate case
- Dual Powered: Aux + CT Powered
- Compatible with Specific CTs 5P80
- Programmable from fascia via keypad
- USB front port + rear RS 485 port
- LCD - 2 lines x 16 characters, backlit
- Trip Flag indicator on fascia
- Keypad interface with 7 navigation keys
- 2 fixed LEDs (Healthy and Low Battery) + 2 user-programable LEDs
- IP 54 housing

7SR46 Dual Powered OC and EF Protection Relay Construction



- Compact size:
 - Height 104 mm,
 - Width 185 mm,
 - Depth 79 mm
- Pluggable type terminals for BI, BO, comms. and power supply wire connections
- Fixed terminals for CT Connectors
- Rear RS 485 communication port

7SR46 Dual Powered OC and EF Protection Relay

Additional Features:

- Two Settings Groups
- Password Protection (2-levels)
- Self Monitoring – Relay Healthy & Battery Low
- Healthy shut-down at below operating ranges
- External Trip - voltage-free contact can be connected for trip operation (e.g. Buchholz, push button on the panel etc)

Data Storage:

- Fault Records (Trip Log) – 10 records
- Event Recording (Event Log) - 100 events



7SR46 – Dual Powered OC and EF Protection Relay

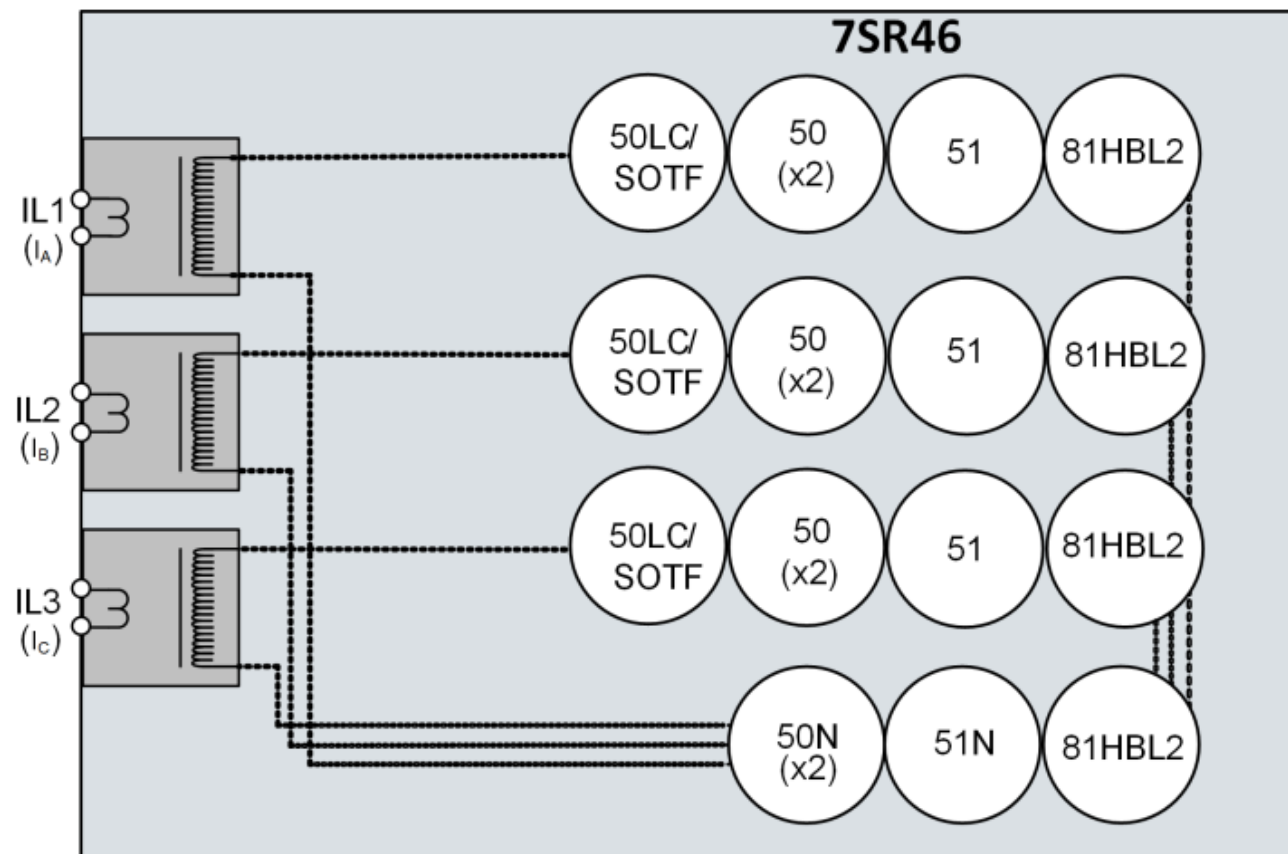
Protection Functions

Protection Functions

50	Instantaneous Phase Overcurrent
50N	Instantaneous Derived EF
51	Time Delayed Phase Overcurrent
51N	Time Delayed Derived EF
50LC/SOTF	Switch-On-To-Fault

Ancillary Functions

81HBL2	Inrush detector
49T	External Trip (via BI or External Trip Input)



7SR46 – Wiring Diagram

Analogue Input Configuration

- 3 x CT inputs (suitable for Specific CTs class 5P80)
- 50 or 60Hz selectable

Binary Inputs

- 2 programmable BI with V threshold 19V DC or 88V AC/DC.
- 1 External Trip Input

Binary Outputs

- 2 Programable BO

Aux Power Supply

- 24 – 240V DC | 60 - 240V AC

Comms Interface

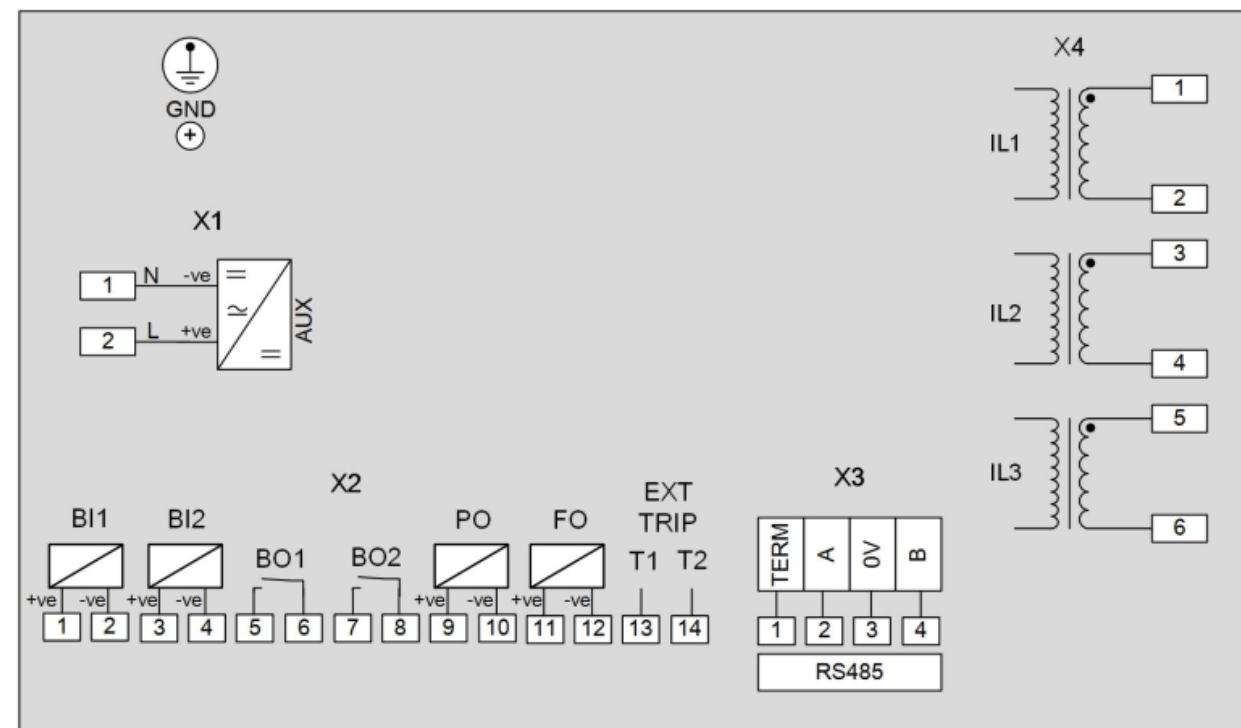
- USB (front) & RS485 (rear)
- RS485 Protocol - Modbus RTU / IEC 60870-5-103

Pulse Output

- 24VDC, 0.1Ws

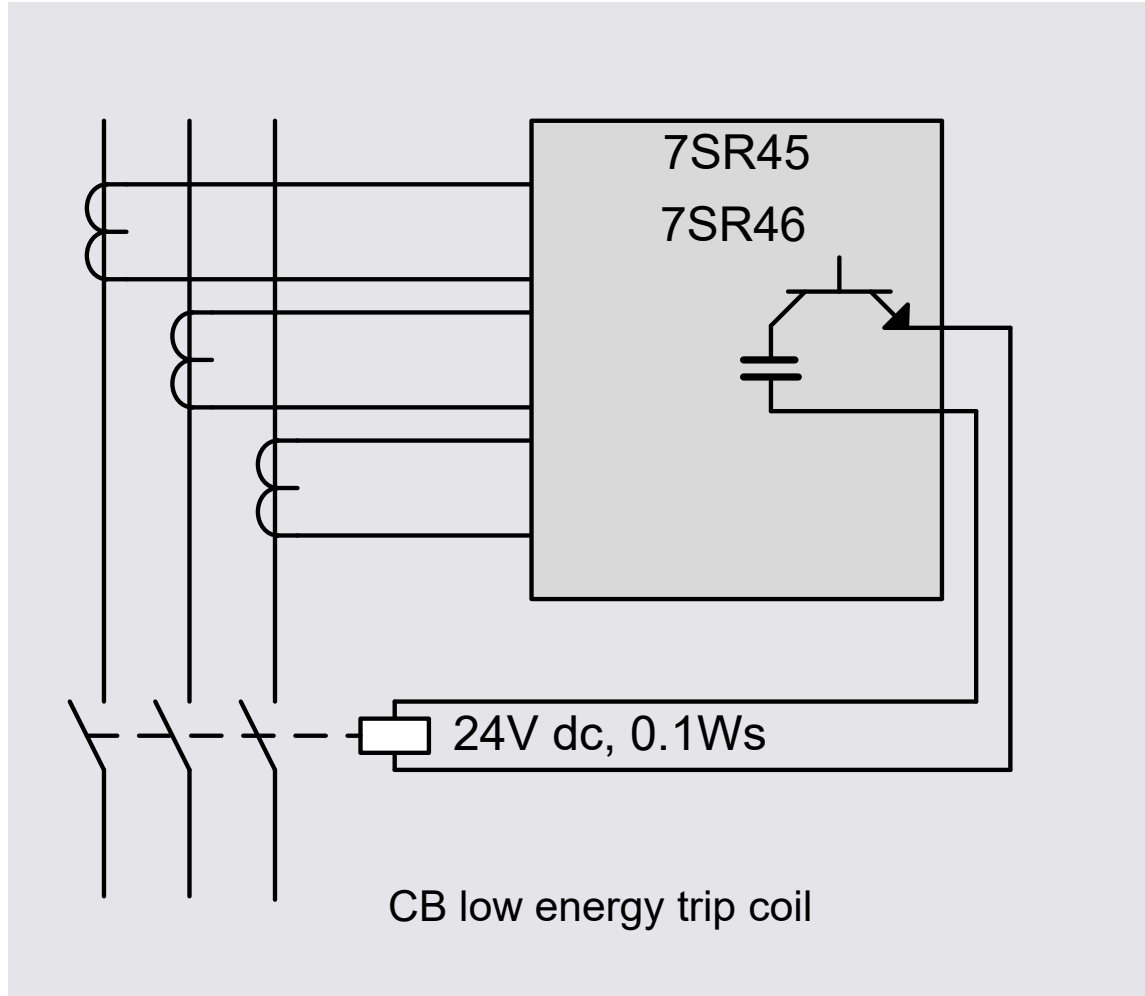
Remote Flag Output

- For External Flag indicator



7SR46 in Installations without Aux Power Supply

Tripping CB from the Pulse Output



For installations without Aux power supply:

Siemens SION 3AE5 and 3AE6 CBs are offered with a CT-operated shunt release 3AX1104 - low-energy release suitable for a tripping pulse of ≤ 0.1 Ws from the 7SR46 relay.

Pulse output interfaces directly with a low energy CB trip coil.

Pulse output = 24V, 0.1Ws

Energy for the trip coil is stored by the internal capacitor of the 7SR46 relay.

The capacitor is charged from the current inputs.

7SR46 with Specific CT Class 5P80

Range of Specific CT Types and Relay Sensitivity

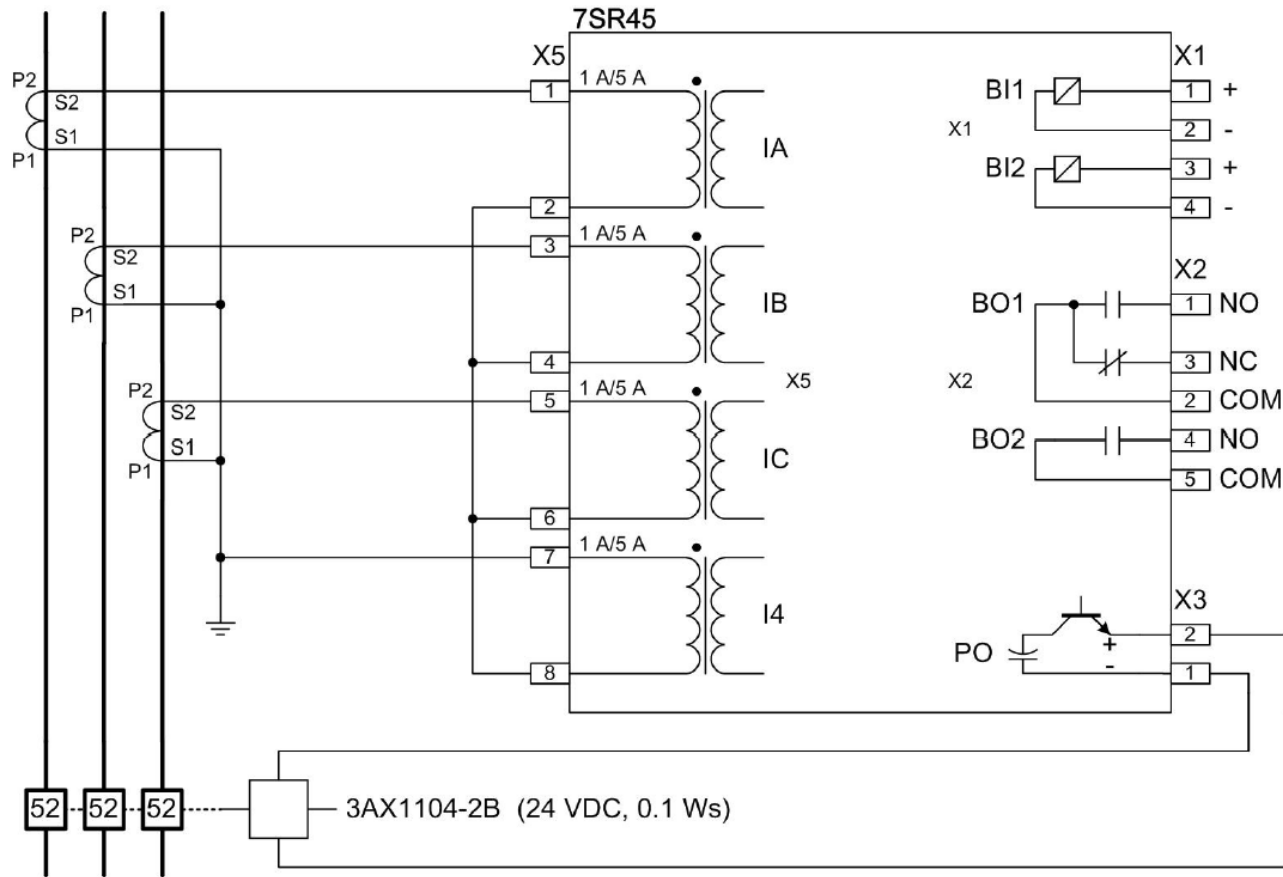
CT Type	CT Ratio	Is Range (amps)		Device 3Ø Sensitivity	Device 1Ø Sensitivity
CT01	7.2/0.075	8	28	3.2	6.4
CT02	14.4/0.075	16	56	6.4	12.8
CT03	28.8/0.075	32	112	12.8	25.6
CT04	57.6/0.075	64	224	25.6	51.2
CT05	115.2/0.075	128	448	51.2	102.4
CT06	230.4/0.075	256	896	102.4	204.8



7SR46 relay sensitivity:
40% of **min secondary** current for 3Ph
80% of **min secondary** current for 1Ph

Alternative Self-Powered Relay – 7SR45

7SR45 CT Types and Relay Sensitivity



7SR45 - Trip from the Pulse Output

Pulse output = 24V, 0.1Ws

Energy for the trip coil is stored in the internal capacitor of 7SR45 that is charged from the CT inputs.

7SR45 Uses Conventional CTs:

- $I_{\text{rated}} = 1 \text{ A}$: CT Class 5P10 or 5P20
- $I_{\text{rated}} = 5 \text{ A}$: CT Class 5P20

7SR45 Relay Sensitivity:

10% of **rated** current for 3-phase
20% of **rated** current for 1-phase

Disclaimer

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