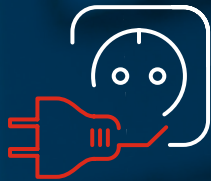


PRODUCT
FLYER



SYMAP® R

Plug-in Version

**Refit Solution: Digital protection relays for use
in medium and high-voltage power systems**



SYMAP® R (Retrofit) is a digital protection relay for use in medium and high-voltage power systems. Because of its integrated protection functions and human-machine interface capabilities, it is an efficient and cost-effective solution for all types of switch bays.

With three powerful microprocessors, SYMAP® R offers complete protection functions for generators, motors (synchronous and asynchronous), transformers, power lines, and distributions. All protection functions can be activated simultaneously, and there are no limits to using all of them at the same time. A small, integrated PLC allows individual interlocks from controlling functions. A variety of serial interfaces with different kinds of protocols is for communication between SYMAP® R units and a central control system.

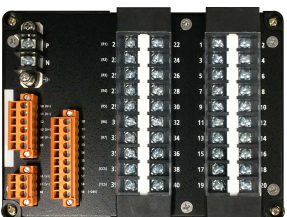
THE SYMAP® R PRODUCT LINE PROVIDES FOUR DIFFERENT DEVICE VARIANTS:

- **SYMAP® FI** Feeder protection
- **SYMAP® MI** Motor protection
- **SYMAP® 87M** Motor differential current protection (self-balanced and differential type)
- **SYMAP® TI** Transformer (2-winding) / Motor differential current protection (vector groups)

VIEWS OF SYMAP® FI



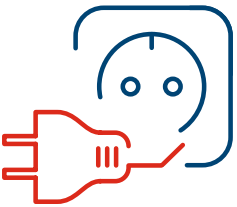
Front View



Rear View



Side View



Plug and Play installation

SYMAP® R Plug-in Version replaces the existing protection device with all functionalities. The installation is easy – just transfer the parameter settings from the existing protection device to the SYMAP® R Plug-in Version and plug in the new device. From now on you have a reliable product on board of your vessel which helps you to optimize the operational costs of your vessel.

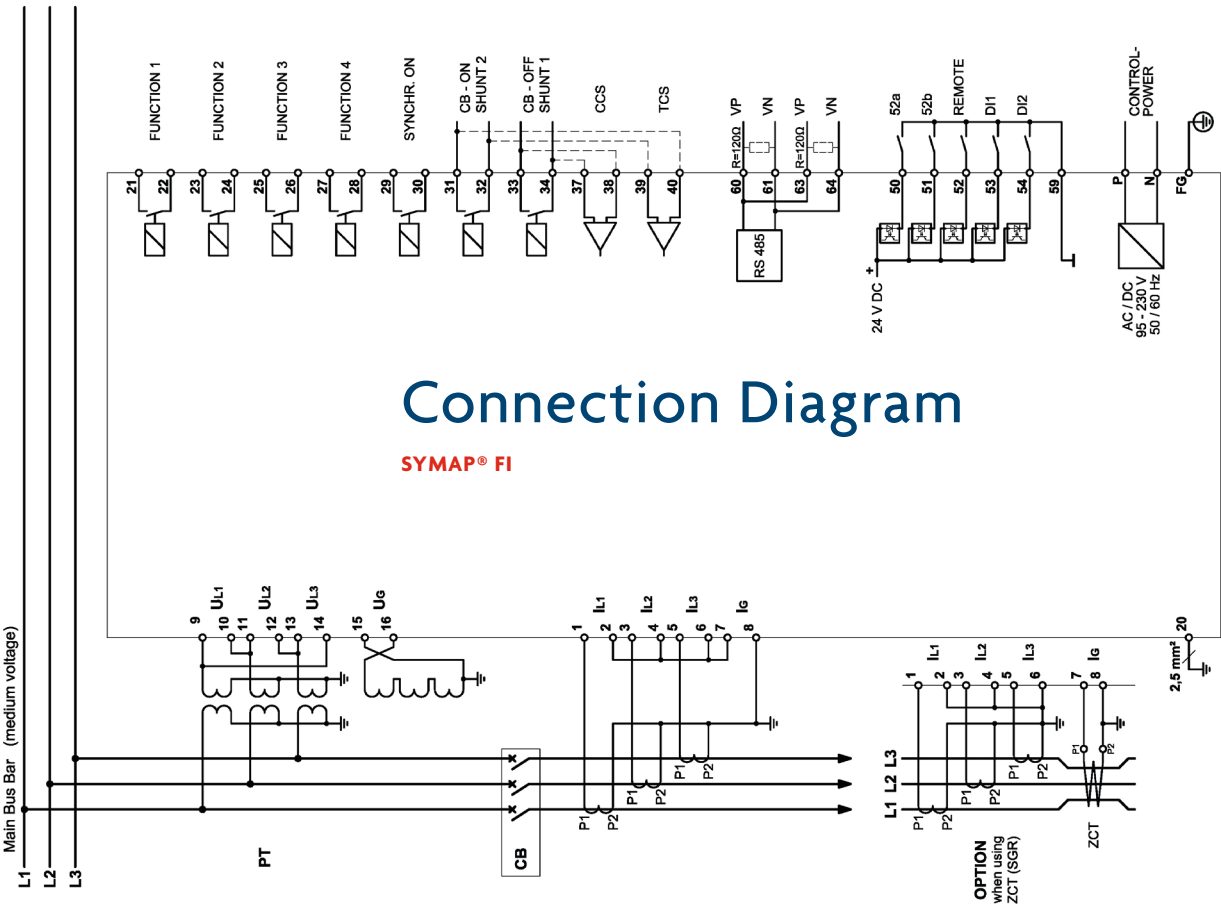
- **Easy to install**
- **Installation by crew**
- **Reliable and approved technology**
- **Optimized operational costs**

Protection functions

The following table shows the device type related protection functions of SYMAP® R Plug-in Versions.

ANSI No.	HHI code	Protection function	FI	MI	87M	TI
27	UVR (27R, 27M, 27S)	Undervoltage, instantaneous, definite time	•	–	–	–
37	MPR (UCR)	Undercurrent	–	•	•	–
46	MPR (NSR)	Reverse phase current	–	•	•	–
47	POR	Positive phase sequence overvoltage	•	–	–	–
47	NSOVR	Negative phase sequence overvoltage	•	–	–	–
49	MPR (THR)	Thermal overload protection	–	•	•	–
50	OCR	Overcurrent, instantaneous	•	•	•	• ¹
50G/N	OCGR	Current earth fault, instantaneous	•	•	•	•
50H	MPR (50H)	Current element to block ANSI 49	–	•	•	–
51	OCR	AC time overcurrent, definite time, IDMT (6 curves)	•	•	•	• ¹
51G/N	OCGR	AC ground overcurrent, definite time, IDMT (6 curves)	•	•	•	•
51LR	MPR (51LR)	Locked rotor	–	•	•	–
59	OVR	Overvoltage relay, instantaneous, definite time, normal inverse	•	–	–	–
59N	OVGR	Ground overvoltage	•	–	–	–
66	MPR (NCHR)	Start inhibit	–	•	•	–
67	DOCR	AC directional overcurrent, definite time, IDMT	•	–	–	–
67GS/GD	SGR/DGR/DOCGR	AC directional earth fault, definite time	•	•	•	•
87G/M2	87M	Generator/Motor differential	–	–	•	–
87T	DFR	Transformer differential	–	–	–	•
94	TCS/CCS	Trip circuit supervision/Closing coil supervision	•	•	•	•
95i	–	Inrush blocking	–	–	–	•

• = available
¹ Restricted available due to single voltage measuring input.



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Made in Germany. Since 1968.



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