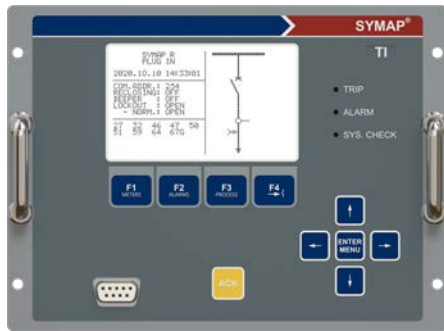


Power solutions. Worldwide.
Made in Germany. Since 1968.



SYMAP® R

Digital protection relay as
plug-and-play retrofit solution



For medium and
high voltage systems

Reliable SYMAP®
technology



Digital protection relays for maritime applications as retrofit solution

SYMAP®R (Retrofit) is a digital protection system for medium and high voltage switchboards on vessels. As part of obsolescence management, this device was specially developed as an efficient plug-in retrofit solution for the following protection devices:

HIMAP

- HIMAP FI – feeder protection
- HIMAP MI – motor protection
- HIMAP 87M – motor differential current detection
- HIMAP TI – transformer differential current detection

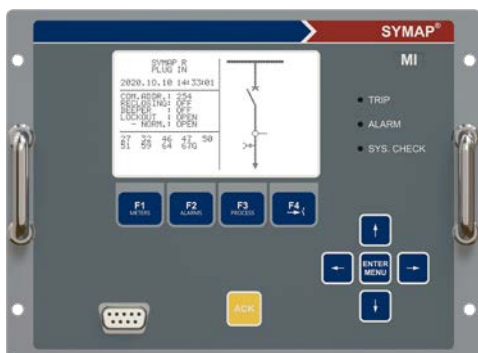


SYMAP®R offers the following versions:

- SYMAP®R-FI – feeder protection
- SYMAP®R-MI – motor protection
- SYMAP®R-87M – motor differential current detection
- SYMAP®R-TI – transformer differential current detection

Installation

Installation is easy as there is no need for cutting the cabinet or for wiring. Parameter settings can be adopted from the former device. After retrofitting to SYMAP®R you benefit from high reliability of the device, thus having a positive effect on your operational costs. Being equipped with three powerful micro-processors, SYMAP®R offers all protection functions for generators, motors (synchronous and asynchronous), transformers, power lines and distributions. All protection functions can be activated at the same time. An integrated PLC enables individual locking of the control functions. As communication interface, we offer Modbus RTU.



Your benefits

- reliable SYMAP® technology, increased safety
- updated design
- efficient plug-and-play retrofit solution
 - no mechanical and wiring work
 - simple data conversion
 - adherence to short inspection windows, for example during docking
- the stuckeGROUP worldwide service network is your partner for the after-sales-service

Protection functions

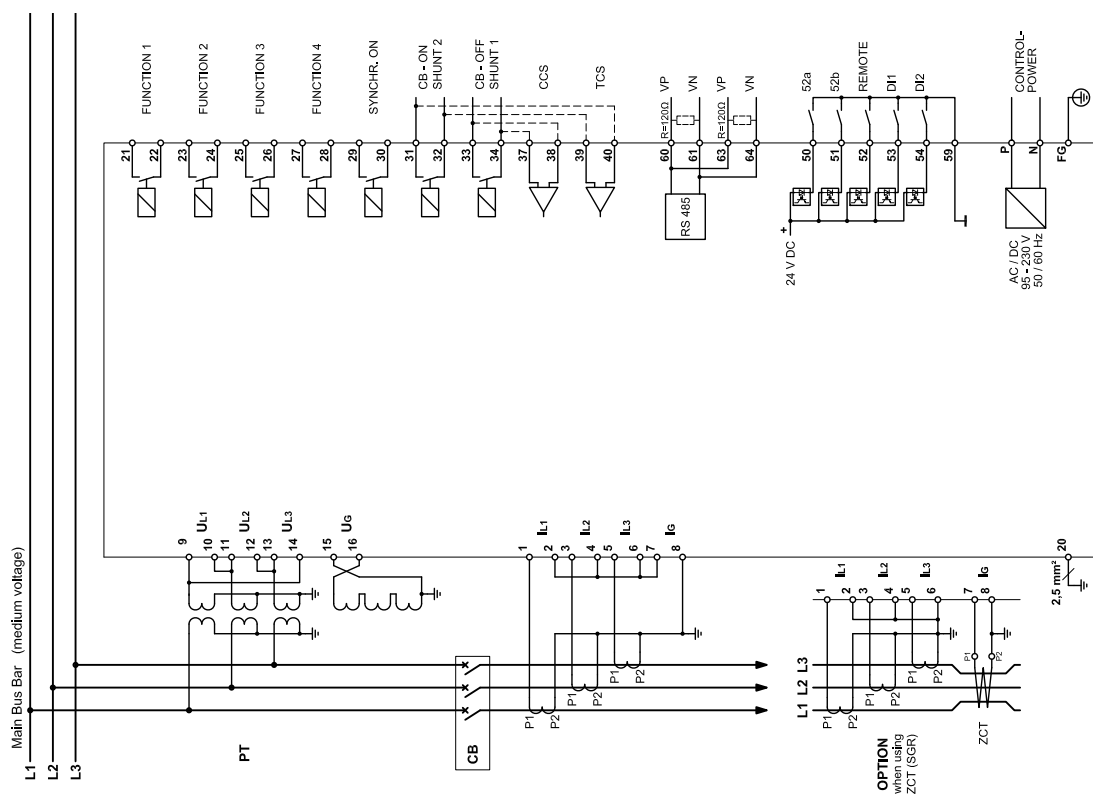
The following table shows the device type related protection functions of SYMAP®R as plug-in version:

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	-	-	-	✓

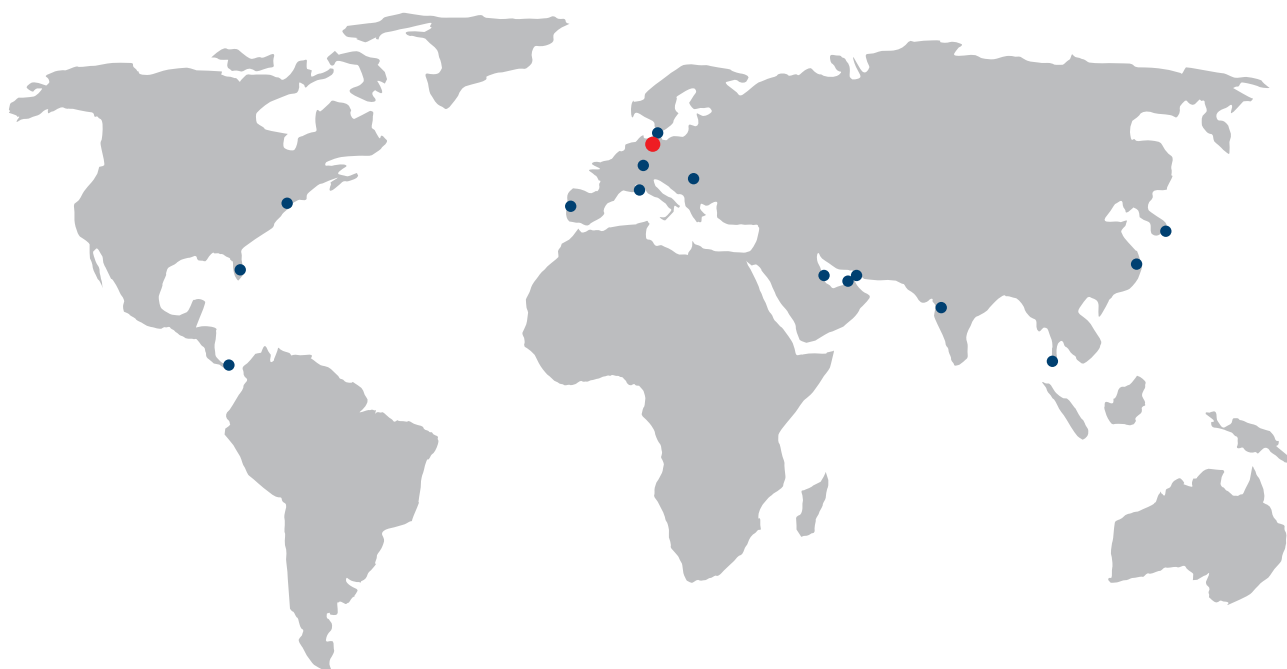
✓ : available

1 : restricted available due to single voltage measuring input.

Connection diagram SYMAP®R-FI



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