MVR-200 series

Medium Voltage Relay



The MVR-200 series combines reliable protection, control and measuring functionality in a single device for medium and high voltage applications.

It meets IEC 60870-5-101/103/104 and IEC 61850 communication standards, including GOOSE messaging.

The flexible hardware design lets you add or exchange modules on-site, minimising service or repair times.

The MVR-200 is available with a 4-channel arc flash protection module, preventing severe damage to staff or equipment in the event of an arc flash incident.

The MVR-200 wide-frequency tracking algorithm ensures stable measurement and protection from 6 to 75 Hz in variable frequency applications. For example, in marine applications and in critical power applications where generators are running in island mode.

In addition to comprehensive protection, the MVR-200 provides unique control functionality, saving space, time and money for additional devices:

- Voltage control for transformers (tap changers)
- Active synchroniser for generators with additional sync-check (ANSI 25)

Main features

- → Programmable logic
- → Fast and easy commissioning and service with front communication port and intuitive software
- → Password-protected user levels
- → Individual voltage and current harmonics up to 31st
- → RS-485 Modbus RTU communication
- → IEC 60870-5-104/103/101 communication
- → IEC 61850 communication and GOOSE
- → On-site replaceable spare part modules
- → Class 0.5 power and energy measurement (Class 0.2S optional)
- → Conformal Coating available for all devices
- → Marine type approval by major class societies

The MVR-200 line has achieved marine type approval by most approval societies, making it ideal for marine, offshore and land-based applications.

		Feeder					Transformer				Busbar	Motor				Generator	
		F201	F205	F210	F215	F255	T215	T216	T256	T257	V211	M210	M215	M255	M257	G215	G257
		Feeder Protection	**Directional Feeder Protection**	**Feeder Protection**	**Directional Feeder Protection**	**Directional Feeder Protection**	**Transformer Protection**	**Transformer Protection**	**Transformer Protection**	**Transformer Protection**	**Busbar Protection**	**Motor Protection**	**Motor Protection**	**Motor Protection**	**Motor Protection**	**Generator Protection**	**Generator Protection**
Measuring																	
AC Current Measuring		5-ph	5-ph	5-ph	5-ph	5-ph	5-ph	2 × 5-ph	2 × 5-ph	2 × 5-ph	--	5-ph	5-ph	5-ph	2 × 5-ph	5-ph	2 × 5-ph
AC Voltage Measuring		--	4-ph	--	4-ph	4-ph	4-ph	--	--	4-ph	4-ph	--	4-ph	4-ph	4-ph	4-ph	4-ph
Number of Option Slots		0	0	4	3	11	3	2	10	9	5	4	3	11	9	3	9
Protection Functions	**ANSI**																
Underspeed	14											x	x	x	x		
(Sensitive) Earth fault protection stages INST, DT or IDMT	50N/51N(S)	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
100% stator Earth fault protection	64F3															●	●
Auto-reclose	79		●	●	●	●								●	●	●	●
Breaker failure protection	50BF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cable-end differential protection	87		●	●	●	●	●	●	●	●		●	●	●	●	●	●
Cold-load pick-up block	68	●	●	●	●	●											
Current transformer supervision	60L	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Current unbalance/broken conductor protection stages INST, DT or IDMT	46 /R/L	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Directional (sensitive) residual over-current protection stages DT or IDMT	67N		●		●	●	●			●			●	●	●	●	●
Directional three-phase over-current protection stages DT or IDMT	67		●		●	●	●			●			●	●	●	●	●
Fault locator	21FL		●		●	●											
Frequency protection stages	81O/U		●		●	●				●	●		●	●	●	●	●
Fuse failure	60		●		●	●	●			●	●		●	●	●	●	●
Harmonic over-current protection/inrush blocking stages INST, DT or IDMT	50H/51H/68	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Inadvertent energizing	50/27																●
Intermittent earth fault	67NT				●	●											
Load jam monitor	51M											●	●	●	●		
Loss of field	40															●	●
Machine thermal overload protection	49M											●	●	●	●	●	●
Motor or generator differential protection, 2-winding	87M/G														●		●
Motor start-up supervision element	48											●	●	●	●		
Over-excitation protection	24						●			●						●	●
Over-voltage protection stages INST, DT or IDMT	59		●		●	●	●			●	●		●	●	●	●	●
Positive/negative sequence under-/over-voltage protection stages INST, DT or IDMT	27P/47/59P		●		●	●	●				●		●	●	●	●	●
Power factor	55												●	●	●	●	●
Programmable stage	99			●	●	●	●	●	●	●	●	●	●	●	●	●	●
Rate of change of frequency	81R		●		●	●				●	●		●	●	●	●	●
Residual voltage protection stages INST, DT or IDMT	59N		●		●	●	●			●	●		●	●	●	●	●
Restart inhibit/frequent starts	66											●	●	●	●		
Restricted earth fault protection (low-imp)	87N		●	●	●	●	●	●	●	●		●	●	●	●	●	●
Reverse-/under-/over-power protection stages INDT, DT or IDMT	32		●		●	●				●			●	●	●	●	●
Switch onto fault logic		●	●	●	●	●	●	●	●	●							
Synchrocheck	25		●		●	●				●	●					●	●
Thermal overload protection (line)	49L	●	●	●	●	●											
Three-phase over-current protection stages INST, DT or IDMT	50/51	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Transformer thermal overload protection	49T							●	●	●							
Transformer, motor or generator differential protection, 2 winding	87T/G/M							●	●	●							
Under-current monitor	37											●	●	●	●		
Under-impedance protection	21						●			●						●	●
Under-voltage protection stages INST, DT or IDMT	27		●		●	●	●			●	●		●	●	●	●	●
Vector jump/surge	78				●	●					●					●	●
Voltage controlled/dependent over-current protection	51V															●	●
Voltage memory			●	●	●	●				●			●	●	●	●	●

Options

I/O extensions

Option B: Additional 8 x isolated digital inputs (2 groups), 10 to 200 V DC

Option C: Additional 5 x NO digital outputs, 220 V AC / 3A or 220 V DC / 0.3 A

Option D: Arc Flash protection 4-channels* (up to 3 daisy-chained sensors per channel)

Option F: 8 x RTD inputs*

Option I: Additional 4 x Analogue outputs 0-20 mA, 1 x Analogue input 0–20 mA

Note: * Not approved for marine.

Other optional features

Increased measuring accuracy Class 0.2S

Active synchronizer using relay outputs for speed/voltage control

AVR control (Tap changer)

Selection of motor types: synchronous/ asynchronous/synchronous with excitation

Conformal Coating

Note: Some of these features are not available for all products in the series. Contact your sales representative for more details.

Communication interface

Option G: Double RJ45 100 Mb Ethernet & IRIG-B*

Option H: Double ST 100 Mb Ethernet & IRIG-B*

Option J: Double LC 100 Mb Ethernet

Option K: Double RJ45 100 Mb Ethernet (HSR, PRP redundant protocols)*

Option L: RS232 interface + Serial fibre Plastic - Plastic (PP)

Option M: RS232 interface + Serial fibre Plastic - Glass (PG)

Option N: RS232 interface + Serial fibre Glass - Plastic (GP)

Option O: RS232 interface + Serial fibre Glass - Glass (GG)

Note: * Not approved for marine.

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For comprehensive technical documentation

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