

(✓ = Standard, ◦ = Option)

MCDLV4-2

Protection functions	ANSI		
Overexcitation V/Hz	24		✓
Synchro check	25		✓
Undervoltage	27		✓
Power protection: P, Q, Qr, S, Pr	32F, 37F, 32Q, 37Q, 37QR, 32S, 37S, 37R		✓
QU protection (undervoltage- directional reactive power protection)	27&32Q<		✓
Negative sequence elements (current/DEFT/INV)	46		✓
Negative/positive sequence elements (voltage)	47		✓
Overload protection with thermal replica	49		✓
Circuit breaker failure protection	50BF / 62BF		✓
Phase current elements (non-directional)	50/51		✓
Earth current elements (non-directional and directional)	67N		✓
Inrush detection IH2 (2nd harmonic)			✓
Voltage controlled current protection	51C		✓
Voltage restraint current protection	51V		✓
Negative sequence elements (current/IEC/ANSI curves)	51Q		✓
Power factor cos (φ)	55		✓
Overvoltage	59		✓
Residual voltage elements	59N		✓
Voltage transformer supervision	60FL		✓
Current transformer supervision	60L		✓
Trip circuit supervision	74TC		✓
Vector surge	78		✓
Auto reclosing	79		✓
Underfrequency / Overfrequency	81 O/U		✓
Frequency gradient (ROCOF)	81R		✓
Lockout function	86		✓
Generator differential protection	87G		✓
Transformer differential protection	87T		✓
Cable / Line differential protection	87L		✓
Breaker Wear Monitor	BKM		✓
Protection parameter sets			4
Reverse interlocking			✓
Event, failure and disturbance recorder			✓
Trend recording			✓

Control

Control function for 1 / up to 6 switchgear(s)			6
Logic (up to 80 equations)			✓

Measuring functions

Currents			✓
Thermal overload θ			✓
Voltages			✓
Frequency			✓

Hardware

Number of binary output relays (depends on type of device)			7/13/20
Number of digital inputs (depends on type of device)			8/16/24

Communication

IEC61850 (RJ45 or fiber optic [FO] LC)			◦
MODBUS RTU (via fiber optic [FO] ST or RS485)			◦
Modbus TCP (RJ45 or fiber optic [FO] LC)			◦
IEC60870-5-103 (via fiber optic [FO] ST or RS485)			◦
Profibus DP (via fiber optic [FO] ST or RS485)			◦
DNP3.0 RTU (via fiber optic [FO] ST or RS485)			◦
DNP3.0 TCP (RJ45 or fiber optic [FO] LC)			✓
IRIG-B interface (time synchronization)			✓