

DTIVA

The members of the DTIVA product line are configured to protect and control the elements of the medium voltage networks. These networks are usually not solidly grounded radial networks, the application of Petersen coils or grounding resistances result relatively low currents in case of single phase-to-ground faults. The majority of the protections are based on current measurements only, but application of distributed generation or loops in the network topology requires additional voltage measurement and directional protection functions.

FACTORY CONFIGURATIONS FOR MV APPLICATIONS

- Overcurrent protection with usual MV protection applications
- Overcurrent protection, automatic reclosing function with usual MV protection applications
- Medium voltage bay unit
- Medium voltage distance protection with usual MV protection applications
- Line differential protection (two or three line ends) with usual MV protection applications

INNOVATIVE SOLUTIONS

- Separated relay functions and communication/HMI functions in two high performance processors
- Protecta-developed code for protection functions
- Linux application for communication/HMI functions
- Short startup time for relay functions
- High-speed relay outputs for sub-cycle tripping
- Trip circuit supervision for each trip contact
- Proprietary IP rated connector for local Ethernet communication without galvanic connection
- Redundant Ethernet ports for station bus
- Parameter setting for rated input voltage and current (no HW modification is needed)
- Advanced HMI functionality by color touch-screen and embedded WEB server

COMMUNICATION

- Local HMI
 - QVGA (320 x 240) 65536 color 3.5" (optionally 5.7") TFT display
- Contact-free front panel
 - Combined Ethernet and serial connector for communication with a connected portable computer
- Standard Ethernet
 - Peer-to-peer communication over contact-free front panel connection
 - RJ45 twisted pair connection to the Ethernet
 - Optical connection to the Ethernet
 - Optional RJ45 service port at front panel
- Legacy protocols
 - Serial protocols (IEC 60870-5-101/103, Modbus RTU, DNP3, ABB-SPA)
 - Network protocols (IEC 60870-5-104, DNP3, Modbus-TCP)
 - Legacy network based protocols via 100Base-FX and 10/100Base-TX (RJ45)
- IEC 61850
 - Native IEC 61850 compatibility
 - Factory default datasets
 - GSE control blocks for GOOSE publishing
- Time synchronization

TOOLS

- **WEB browser (EOB and Ethernet)**
- **EuroCAP advanced configuration tool**
- **Evaluation of disturbance records**

**MICROENER**

DTVA – FEEDER CONFIGURATIONS

MICROENER

PROTECTA
HUNGARY

Configurations		E1	E2	E3	E4	E5	E6	E7	E71	E8	E9	E10
IEC	ANSI											
I >>>	50	X	X	X	X	X	X	X	X			
I >, I >>	51	X	X	X	X	X	X	X	X		X	X
I Dir >>, I Dir >>>	67			X	X		X					
Io >>>	50N	X	X	X	X	X	X	X	X			
Io >, Io >>	51N	X	X	X	X	X	X	X	X		X	X
Io Dir >>, Io Dir >>>	67N		X	X	X		X	X	X			
3I _L >	87L					X	X					
	87G								X			
Z <	21				X		X					
I _{2h} >	68	X	X	X	X	X	X	X	X			
I ₂ >	46	X	X	X	X	X	X	X	X			
T >	49	X	X	X	X	X	X	X	X			
U >, U >>	59		X	X	X	X	X	X	X	X	X	Op.
U <, U <<	27		X	X	X	X	X	X	X	X	X	Op.
U ₀ >, U ₀ >>	59N		X	X	X	X	X	X	X	X	X	Op.
U ₂ >	47		X	X	X		X	X	X			
U ₁ <	27D							X	X			
f >, f >>	81O			X	X		X		X	X	X	
f <, f <<	81U			X	X		X		X	X	X	
f/dt	81R			X	X		X		X	X	X	
											X	
SYNC	25			X	X		X					
0 -> 1	79	X	X	X	X	X	X					
	60				X		X					
	60	X	X	X	X	X	X	X	X		X	X
CBFP	50BF	X	X	X	X	X	X	X	X		X	
3I ₀ B >	48							X	X			
3I ₀ B >>	37							X	X			
	66							X	X			
P >	32		X	X	X		X				X	
P <	32		X	X	X		X				X	

Version	Recommended application
E1	Protection of overhead lines and cables on radial networks. The configured functions are based on current measurement, and they are extended with automatic reclosing function.
E2	Protection of overhead lines and cables of compensated or resistance grounded networks. The configured functions are based on current and voltage measurement, and they are extended with automatic reclosing function. The voltage measurement is the basis of residual directional decision, power calculation and over- and undervoltage functions.
E3	The configuration is designed to meet the requirements of a complex field unit for overhead lines and cables on compensated or resistance grounded networks. The range of functions include all current and voltage based applications, except distance protection and the line differential functions. The automatic reclosing function is performed with synchro-check. Frequency protection functions are included.
E4	The configuration is designed to meet the requirements of a complex field unit for overhead lines and cables on compensated or resistance grounded networks. The range of functions include all current and voltage based applications, including distance protection function. The exception is the line differential function. The automatic reclosing function is performed with synchro-check. Frequency protection functions are included.
E5	The configuration is designed to meet the requirements of a complex field unit for overhead lines and cables on compensated or resistance grounded networks. The range of functions include all current and voltage based applications, except distance protection function and they are extended with automatic reclosing function. The configuration is extended with line differential protection function.
E6	The configuration is designed to meet the requirements of a complex field unit for overhead lines and cables on compensated or resistance grounded networks. The range of functions include all current and voltage based applications, including distance protection function. The configuration is extended with line differential protection function, automatic reclosing function and frequency protection functions.
E7	The configuration is designed to meet the requirements of a complex motor protection device for medium voltage motors.
E8	The configuration is designed to measure voltages. Based on these measurement over- and undervoltage functions are realized. The configuration is extended with frequency protection functions.
E9	The configuration is designed to be applied on networks with distributed generation. The unique function is the vector jump protection. Additionally to voltage-based functions also current base functions are added, and the measurements support the application of calculated power-based functions.
E10	This simple configuration is designed to protect power capacitor units, based on current unbalance measurement.

FUNCTIONS

- > Three-phase instantaneous overcurrent protection (50)
- > Three-phase time overcurrent protection (51)
- > Three-phase directional overcurrent protection (67)
- > Residual instantaneous overcurrent protection (50N)
- > Residual time overcurrent protection (51N)
- > Residual directional overcurrent protection (67N)
- > Line differential (87L)
- > Generator differential protection (87G)
- > Distance protection (21)
- > Inrush detection and blocking (68)
- > Negative sequence overcurrent protection (46)
- > Thermal protection (49)
- > Definite time overvoltage protection (59)
- > Definite time undervoltage protection (27)
- > Residual overvoltage protection (59N)
- > Negative sequence overvoltage protection (47)
- > Positive sequence undervoltage protection (27D)
- > Overfrequency protection (81O)
- > Underfrequency protection (81U)
- > Rate of change of frequency protection (81R)
- > Synchrocheck (25)
- > Auto-reclose (79)
- > Fuse failure (VTS) (60)
- > Current unbalance protection (60)
- > Breaker failure protection (50BF)
- > Motor startup supervision (48)
- > Undercurrent protection (37)
- > Starts per hour (66)
- > Directional over- and underpower (32)

