

# Transmission Line Protection Selector Guide



Transmission Line Protection

Features	Device	D30
<b>Applications</b>		
Distance	21	•
Line Differential - Current Comparison	87L	
Line Differential - Phase Comparison	87PC	
Breaker-and-Half configurations		
Series Compensation		•
Three terminal lines		•
Lines with In-zone transformers		•
Synchphasors		
<b>Protection &amp; Control</b>		
Typical Operating Time (cycles)		<2
Mho Phase & Ground Distance (No. of Zones)	21P/G	3
Quad Phase & Ground Distance (No. of Zones)	21P/G	3
IOC, Ground/Neutral/Phase/Negative Sequence	50G/N/P/2	G/N/P/2
TOC, Ground/Neutral/Phase/Negative Sequence	51G/N/P/2	G/N/P/2
Directional overcurrent, Neutral/Phase/Neg. Seq.	67G/N/P/2	N/P/2
Wattmetric Ground Directional		
Overvoltage Phase/Auxiliary/Neutral	59P/X/N	P/X/N
Undervoltage Phase/Auxiliary	27P/X	P/X
Negative Sequence Overvoltage	59_2	•
Under/Over frequency	81U/O	•
Out-of-Step Blocking/Tripping	68B	•
Switch on to Fault (Line Pickup)	SOTF	•
Voltage Transformer Fuse Failure	VTF	•
Current Transformer Supervision		
Open Pole Detector		
Load Encroachment Logic		•
Breaker Failure	50BF	
Breaker Flashover		
Lockout Functionality	86	•
Synchronism Check or Synchronizing	25	•
AC Reclosing (No. of Shots)	79	4
Trip Modes: Three-Pole/Single-Pole		3
Pilot Protection Logic		
Fault Location		•
<b>Automation</b>		
Programmable Protection Logic (no of lines)		512
Programmable Automation Logic (no of lines)		
FlexElements™		•
User Programmable Self-Test Contact		•
Settings Groups		6
Non-volatile latches (up to)		16
Contact Inputs Programmable - (up to)		80
Contact Outputs Programmable - (up to)		64
Virtual Inputs - (up to)		32
Virtual Outputs - (up to)		64
Direct Inputs/Outputs		•
Breaker Control (up to)		2
User-Programmable LEDs (up to)		48
User - Programmable Annunciator Alarms (up to)		
User-Programmable Push Buttons (up to)		12
User-Programmable Self Test		•
User Definable Displays		•
Large HMI		
Timers		•
Selector Switch		•
Digital Counters		•
Digital Elements		•
IRIG-B Input		•
Analog Inputs/Outputs (up to)		24
RTD Inputs (up to)		24
<b>Monitoring &amp; Metering</b>		
Current, voltage		•
Symmetrical Components		•
Power - Apparent, Real, Reactive		•
Energy		
Power Factor		•
Frequency		•
Fault Location		
Event Recorder - Number of Events		1024
Oscillography - Sampling Rate		64/5
Disturbance Recorder - Sampling Rate/Duration in seconds		
Breaker Arcing Current		•
Trip/Close Coil Supervision		•
Data Logger		
<b>Communications Interfaces</b>		
RS232 Port		•
USB Port		
RS485 Port		•
Ethernet Port (Fiber and Copper, up to)		1
Direct Fiber Communications (800nm, 1330nm, 1550nm)		•
Communication Interface (RS422, G.703, C37.94)		•
<b>Protocols</b>		
ModBus (RTU and TCP/IP)		•
DNP3		•
IEC60870-5-104		•
UCA2/MMS		•
IEC61850		•
Simple Network Time Protocol (SNTP)		•
HTTP		•
TFTP		•
Process Bus (IEC 61850-9-2)		•

\* For the most current comparison list, see [www.GEMultilin.com/selector/transmission.pdf](http://www.GEMultilin.com/selector/transmission.pdf)

