GUIDEFORM SPECIFICATIONS

The Level 1 field units shall be microprocessor based providing protection, control, monitoring, metering, and complete register functionality for a substation bay. Separate CPU boards shall handle protection, control, and communication tasks, thus increasing system dependability and security. A redundant power supply shall be optionally available for each unit. Unit architecture shall be a PLC-like modular architecture allowing a flexible number of analog and digital I/O by the addition of single card modules.

Minimum functionality included in Level 1 field units shall be as follows:

Protection:

- Available units for different bay applications (feeder, transformer, busbar, bus coupler, auxiliary services...) including selected combinations of protection functions: 50/50N, 51/51N, 67/67N, 46, 27, 59, 59N, 81U, 81O, 87T, 64, 25, 79
- Cold load pickup
- Breaker failure units
- Selectable setting tables
- Configurable inputs and outputs

Metering:

- I_a, I_b, I_c, I_n, I_2 , V_{ab}, V_{bc}, V_{ca}, P, Q, f, cos φ real time metering
- Current maximeter
- Demand register
- Analog (several mA scales) programmable metering
- Pulse counting for energy metering

Monitoring:

- Real time monitoring of up to 7 switchgear elements (breakers, switches,...)
- Alarm generation and treatment
- Breaker supervision (I^2t)
- Breaker coil supervision

Register and Analysis Functions:

- Event register
- Oscillographic register

Control Functions:

- Programmable operations for up to 7 elements (programmable operate, fail and success conditions and operation timers)
- Programmable interlockings
- Configurable inputs and outputs
- Configurable one line diagram for the substation bay

HMI and Communications

- Local alphanumeric LCD for protection operation
- Local graphical LCD for bay information shall include as a minimum user programmable screens for:
- One line diagram displaying
- Switchgear operation
- Access to metering information
- Alarm panel display
- I/O status display
- Front (RS232) and rear (RS232, Fiber optic or RS485 selectable) communication ports with 115kb maximum communication speed

ORDERING

DDS system is composed of DMS modules. To order select the basic model and the desired features from the Selection Guide below.

DMS	*	*	**	*	*	*	*	*	***	*	*	
DMS												Digital distribution system
	2											Control functionality
	3											Protection and control functionality
		L										Line application (only model 3)
		S										Auxiliary services application (only model 2)
			**									Application variant (see table 1)
				*								Ranges depend on model
					0							RS232 communication
					1							1 mm plastic fiber optic communication
					2							62.5/125 glass fiber optic communication
					3							Point to point RS485 communication
						*						Protection inputs and outputs depend on model
							*					Control inputs and outputs depend on model
								G				48-125 VDC single source auxiliary voltage
								H				110-250 VDC single source auxiliary voltage
								J				48-125 VDC redundant source auxiliary voltage
								M				110-250 VDC redundant source auxiliary voltage
									000			Power measurement by pulse count
									100			Direct power measurement (1% error in V, I, and 2% in P, Q, Power)
										A		M-Link communications protocol
										B		M-Link and ModBus® RTU communications protocol
											–	Spanish language
											I	English language

	DMS3 (Protec.)				DMS 2
Variant	**L1**	**L3**	**L4**	**L7**	**S2**
Protection					
50/51	●	●	●	●	
50N/51N	●	●		●	
46	●		●		
67	●	●	●		
67N	●	●			
67N isolated			●		
27		●		●	
59F				●	
81		●		●	
Recloser	●	●	●		
Control					
Command	●	●	●	●	●
Interlockings	●	●	●	●	●
25	●				
Metering					
Phase current	●	●	●	●	●
Ground current	●	●	●	●	●
Phase voltage	●	●	●	●	●
Busbar 1 voltage	●	●			
Negative sequence	●		●		
Power	●	●	●	●	●
Cos φ	●	●	●	●	●
Frequency	●	●	●	●	
Monitoring					
Breaker status	●	●	●	●	●
Coupler status	●	●	●	●	●
Events	●	●	●	●	●
Breaker maintenance	●	●	●	●	
Coil supervision	●	●	●	●	
Analysis					
Events	●	●	●	●	●
Oscillography	●	●	●	●	
Others					
Multiple tables	●	●	●	●	●
Cold load pick-up	●	●	●	●	
Time synchron.	●	●	●	●	●