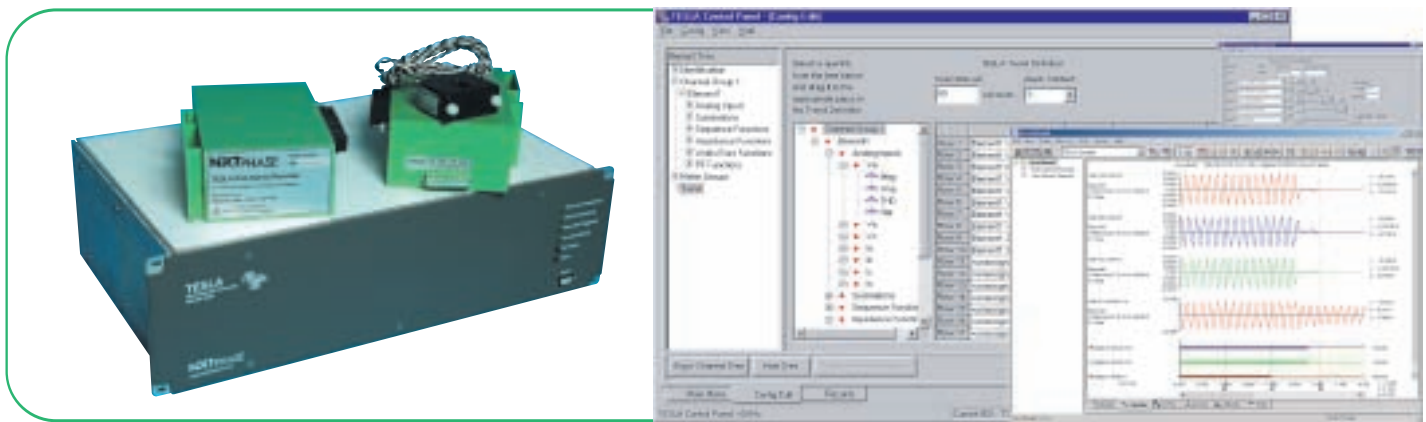




TESLA Model 3000 Disturbance Fault Recorder



mpa The TESLA Model 3000 is a multi-timeframe power system recorder that simultaneously provides fault oscillography, dynamic swing recording, trend and event logging for AC, DC, and digital channels.

Simultaneous multi-functional recording and event logging

- 36 analog/64 external input channels, 1000 record storage capacity
- Multiple units configurable to work cooperatively providing up to 144 analog / 256 external inputs and single fault record
- Over 150 calculated channels per recorder
- High speed transient fault recording captures up to the 100th harmonic
- Dynamic swing recording of disturbances and ability to cross-trigger for wide area recording
- Trend recording, user configurable for up to 60 channels
- Fault location derived from single or calculated currents
- Real-time metering of all input and calculated quantities

Powerful and intuitive setting and analysis software

- Comprehensive software for both local and remote setting and analysis (Windows® 9x/NT/2000/XP)
- Independent triggering and priority record setting
- User-configurable report templates
- Over 150 calculated channels per recorder
- User-programmable control logic statements with ProLogic

Advanced communications

- Data compression for faster file transfer
- COMTRADE import/export
- SCADA support with direct-connect DNP3 and Modbus protocols
- 10/100 Base T/Tx Ethernet
- Optional internal high-speed modem

Easy installation

- Split core CTs avoid line outages
- Analog ac and dc input isolation modules are external and DIN-rail mountable
- Input devices may be mounted up to 1000 feet (304.8m) from the recorder

TESLA Disturbance Fault Recorder

Model 3000 Specifications

Item	Quantity/Specs	Notes
General:		
Nominal Frequency	50 or 60 Hz	
Sampling Rate	User adjustable @32,64,96,128,256 or 384 samples /cycle	256 & 384 samples/cycles limited to 18 & 12 channels respectively
Power Supply	Range: 48–250 Vdc, 120 Vac	
Recording:		
Recording Rate: Transient Fault	User configurable 32-384 samples/cycle	Up to 30 seconds per record
Dynamic Swing	1 sample/cycle	Up to 30 minutes per record
Trend	User-configurable, up to 60 ch, 5 modes	
Analog Input Accuracy	+/- 0.1% of FS amplitude +/- 0.5% degree phase	
Record Storage	1000 fault, swing or combined records	Solid State Flash Drive
A/D Resolution	16 bits, 65536 counts full scale	
Channels & Triggers:		
Analog Inputs	High and low threshold, positive and negative rate of change, harmonic level, THD level and sag/swell	All triggers have independent controls for delay, logging, transient or swing record initiation, alarm contact activation and cross triggering. Assigned a priority for record retrieval. 1 to 3 input channels per summation.
Summations	High/low threshold, +/- rate of change	
Positive Sequence	High/low threshold, +/- rate of change	
Negative Sequence	High level	
Zero Sequence	High level	
Watts/VARs	High/low threshold, +/- rate of change	
Frequency	High/low threshold, +/- rate of change	
Impedance	Positive sequence circle combined with absolute rate of change	
Power Factor	Low capacitance, low inductance	
External Inputs	Rising edge, falling edge or both	
Logic	Rising edge, falling edge or both	
Fault Locator	Triggered by internal or external events	
Input & Output:		
Analog Input Channels	18 or 36 per unit, 144 maximum using four (4) units in "Cooperative Mode"	Rating: In = 5A or 1A, Vn = 69 V Continuous: 3x In, 2x Vn One Second: 20x In without distortion DC programmable gain 1000 Vdc maximum, externally powered (48–250 Vdc) 40–150 Vdc, externally wetted
External Inputs (digital)	32 or 64 per unit, 256 maximum using four (4) units in "Cooperative Mode"	
Alarm Output Relays (contacts)	4 or 8 per unit	Make: 8 A Carry: 8 A Break: 0.15 A at 125 Vdc 0.10 A at 250 Vdc
Interface & Communications:		
Front Panel Indicators	6 LEDs	Recorder Functional, IRIG-B Functional, Recorder Triggered, Records Stored, Test Mode, Alarm
Serial User Interface	Front/rear RS-232 ports to 115 K baud	Rear port can support an external modem
Network	10/100 BaseT/Tx Ethernet	RJ-45 connector
Internal Modem	38.4 Kbps, V.32 bis	Optional feature
SCADA Interface	DNP3 or Modbus	Ethernet: DNP3 RS-232: DNP3 or Modbus
Configurable Alarms	2 or 5 contacts per unit	Normally open
Cross-trigger	1 or 2 contacts per unit	Normally open
Time Sync	IRIG-B, BNC connector	Modulated or unmodulated, auto-detect
Self Checking/Recorder Inoperative	1 contact	Normally closed
Environmental:		
Ambient Temperature Range	0°C to 55°C	IEC 60068-2-1/IEC 60068-2-2
Humidity	Up to 95% without condensation.	IEC 60068-2-30
Insulation Test (Hi-Pot)	Power supply, analog inputs (through external isolation modules), external inputs, output contact at 1.5 kV, 50/60 Hz, 1 minute	IEC 60255-5
Electrical Fast Transient		ANSI/IEEE C37.90.1–2002
Oscillatory Transient		ANSI/IEEE C37.90.1–2002
RFI Withstand		ANSI/IEEE C37.90.2, IEC 255-22-3
Shock and Bump		IEC 60255-21-2 Class 1
Physical:		
Weight	5.5 kg	12 lbs
Dimensions	3U high (5.25"), 19" wide, 12" deep	19" rack mount
Input Devices	4 input current module 3 input voltage module 4 input DC isolation module Split-core & Clamp-on CTs	modules mount on DIN rail; all devices may be mounted up to 1000' from recorder chassis using twisted/shielded communication wiring

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