



E-MAX WAVE DFR

THE NEW GENERATION DFR / DDR



Directory Monitor

For Shared Resources, features Auto- Display of Record Summary plus graphics display.



Activity Notification & Data Transfer

User settable dialup or network notification of Recorder activity



Prefault and Postfault Data

20 cycles (333 msec) Prefault
999 cycles (15 minutes) Postfault



Record Storage

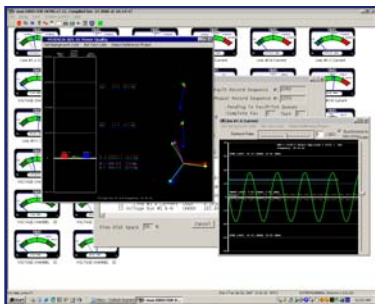
10,000 seconds record storage.
160Gb or greater SATA data drive.



Windows XP Æ System with Intel Atom™ Processor

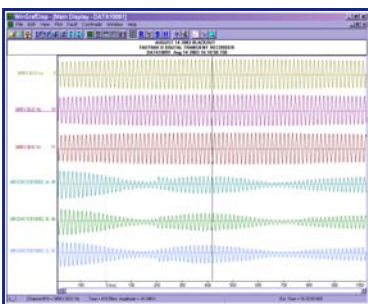


Continuous Recording Complies with
NERC - PRC-002-1
PRC-018-1
PRC-002-2 (draft)
IEEE Compliant - PC-37.232



The E-MAX Wave Digital Recorder is a new generation data acquisition and analysis system. Using Microsoft Windows XP Professional™, this revolutionary system features complete Transient Data Recording and Analysis.

The E-MAX Wave delivers full network and Internet control and reporting. The on-screen displays include Real Time channel and line groups, updated at one second intervals. High performance and accurate fault location defines the newest and most compact E-MAX DFR, the Wave.



The networking capabilities of the Wave and Windows XP™ operating system provide the power and capacity to monitor and collect data from other substation equipment and . The TCP/IP addressing and data handling also allow pass-through of communications from a Master Station to other devices. The Wave DFR communicates with other E-MAX recorders as well as substation servers and data concentrators.

SPECIFICATIONS

Analog Inputs:	8 inputs
Analog Input Range:	Voltage: 0 to 500 Vac rms or Current: 0 to 200 Amp.
Analog Isolation:	2500 Volts rms
Sampling Rate:	Standard Base Sample Rate ó 5760 samples/channel/second with 2880, 1440, 720 Hz, samples/channel/second software programmable. 11520 and 23040 samples/channel/second available.
Digital/Event Inputs:	8 or 16 inputs
1. Input Configuration	N.O. or N.C. (Software Selected)
2. Input Voltage	125 Vdc Nominal standard ó24, 48, 250 Vdc available
3. Isolation	2500 VDC (To Ground) and between inputs
Sensors:	Auto-resetting standard
1. Analog Sensors	Over-, Under- limits and rate software sensors on each channels Symmetrical component, harmonic, frequency swing sensors
2. Operation Limiters	Individual Channel: Software Settable up to 15 minutes per fault
3. Event Sensors	Individual Programmable (N.O., N.C., Trigger on ALARM and/or RETURN)
4. External Sensors	Contact or voltage input
Continuous Recording	Complies with NERC PRC-002-1 and NERC PRC-018-1, PRC-002-2(draft). Records up to 99 Days.
Long term Recording	Phasor recording - simultaneous with Transient recording. Sample rate is software selectable: 1 sample/cycle, 1/2 sample/cycle, 1/4 sample/cycle, 1/8 sample/cycle Programmable Record Length 90 days maximum length Logs of signals, power, and frequency (optional)
High Speed Fault Recording:	
Prefault Period:	Up to 10 seconds. Default setting: 10 cycles.
Postfault Period:	Minimum Record Length can be set with System Parameter file (0.5 sec default). Maximum Postfault Time - Can be set for continuous data streaming to disk capacity.
Resolution:	16 bit
Power Supply:	DC/DC Converter 120 Vac / 125 Vdc input
Controller:	Intel Atom 1.6 GHz. 2 USB 2.0 Ports, 1 Parallel Port, PCI Hard Disk Controller, Audio ports, RS-232 port.
Graphic Outputs:	Parallel Port, Ethernet 10/100/1000 Mb. Graphics display on optional monitor.
Data Storage:	Hard Disk or Solid State Disk (optional)
Clock Options:	GPS Timing - GPS Receiver or IRIG B Decoder Internal (1000 or TTL), External GPS Clock, or Internal GPS Clock Decoder
	Accuracy: Better than 20 µs.
Communications Capability:	
1. To Master Stations	Auto transmission of data files. Functions with multiple-Master system. Complete Remote Control
2. To Fax Machines	Up to 24 locations. (Up to 8 Fax numbers in each of three outputs.)
3. LAN and WAN	Software supports communication via TCP/IP
Software Supplied:	
1. Operating System	For Digital Transient Recorder, operating with setting, recording, communications and display capabilities. Microsoft Windows XP.
2. Master Station & Recorder	2000/XP/Vista compatible data display and analysis software. Complete remote control, test and data retrieval, display and screen manipulation. Remote setting of program and system parameters. Full data analysis program at recorder and Master Station
3. Communications	Remote Control Computing Program - Communication Software Network control and data transmission (Ethernet)
Environmental Characteristics:	
Operating Temperature	0° To 60° Centigrade
Storage	-20° to 65° Centigrade
Relative Humidity	0 to 95% R.H. non-condensing
Surge Withstand Capability:	ANSI C37.90.1 1999
Quality Certification:	ISO 9001:2000

INTERNATIONAL STANDARDS COMPLIANCE	
<i>Relay Safety</i>	<i>Immunity</i>
IEC 60255-2	IEC 61000-4-2
IEC 60255-4	IEC 61000-4-3
IEC 60255-5	IEC 61000-4-4
	IEC 61000-4-6

