

Leading-edge diagnostic tools for DeviceNet industrial networks use high-speed data sampling to predict system faults for avoiding plant automation down times



Brad® eNetMeter™ DN is a passive device that continuously monitors a DeviceNet network and sends the information over Ethernet to a PLC or PC monitoring system. The eNetMeter™ DN provides extremely accurate measurements of the network parameters using high-speed sampling. By comparing acceptable baseline measurements of a known, standard network, it can predict imminent failures down to individual devices and proactively respond to out-of-tolerance parameters.

The information can be read directly by an EtherNet/IP™ master. Optionally, data can be accessed through Brad® NetAlytix™ software, a DLL interface or an OPC server. For additional information visit: www.molex.com/link/enetmeter.html

Brad® eNetMeter™ DN and NetAlytix™ DeviceNet Diagnostics

112008 eNetMeter™ DN
112008 NetAlytix™ Software



FEATURES AND BENEFITS

eNetMeter™ DN

- Continuous high-speed measurement (up to 100 mega-samples per second) of critical network parameters (CAN signals, power and shield voltage)
- DeviceNet data is monitored using a passive device, i.e. does not consume a MAC ID
- Data is available via Ethernet (10/100 Mbaud TX)
- Presents both detailed and summary (macro) data related to DeviceNet either for the entire network or broken down by individual nodes
- Compact IP20 housing can be DIN-rail or direct-panel mounted
- Portable test unit is easy to use on multiple networks
- Accurate analysis of DeviceNet physical layer parameters to avoid pending network issues
- Has no adverse effect on the network being monitored
- Standard and flexible communication for a variety of applications using a PLC and/or PC
- Users can implement a basic solution and progress to a more detailed resolution as required
- Easy installation, including retro-fit applications
- Cost-effective approach, particularly for OEMs and system integrators

NetAlytix™ Software

- Real-time display of power and CAN signals provided
- Package includes: main application, OPC Server and API/ DLL
- Ability to save a network baseline report (.csv format) for later comparison
- Easy-to-use, intuitive layout
- All network warnings and faults summarized in a convenient window
- Network signal distortions are readily apparent
- Software is flexible and easily implemented within any control scheme
- Allows for real-time comparison of behaviour to a known, standard network
- Key data can be accessed in only a few mouse clicks
- Users get a clear picture of current network issues for immediate resolution
- Summary can be printed for off-line analysis or action (to drive a maintenance work order)

MARKETS AND APPLICATIONS

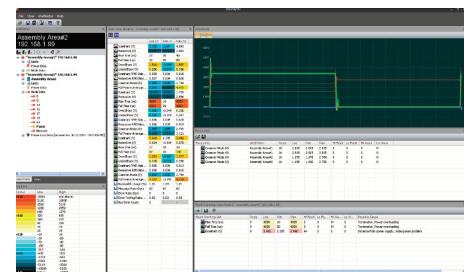
- Markets
 - Automotive assembly
 - Semiconductor processing
 - Material handling
 - Water and wastewater
 - Pulp and paper
 - Food and beverage
 - Mining and metal
- Applications
 - Validation of new and existing networks
 - Periodic and proactive comparison of network behavior to a known standard
 - Real-time analysis of faulted networks



eNetMeter™ DN



eNetMeter™ DN Portable Test Unit



NetAlytix™ Software

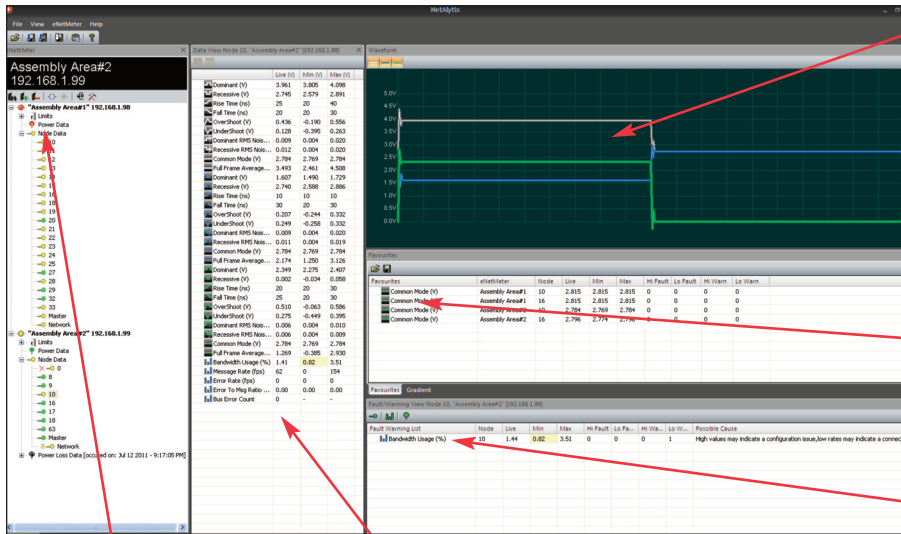
ADDITIONAL PRODUCT FEATURES

- eNetMeter™ DN measures CAN signals at high sample rates (up to 100 Mega-samples per second)
- Digitized waveforms provide detailed information about the health of the network
- Main eNetMeter™ DN data blocks:
 - Power (voltage)
 - Shield (voltage)
 - Signal (voltage)
 - Traffic (data frames)
 - Health (network & node summary)
- Additional data is calculated / summarized
- Easily accessible information in NetAlytix™ software

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NetAlytix™ Software V2



Data Waveform Area (colours match DeviceNet wiring)

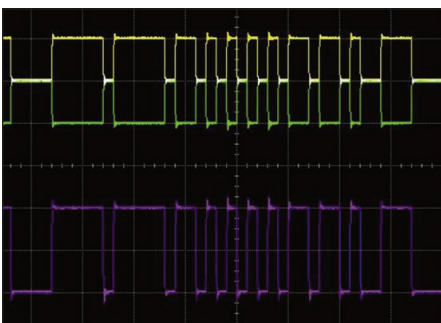
Favourites Area (User defines own)

All Warnings & Faults are displayed together

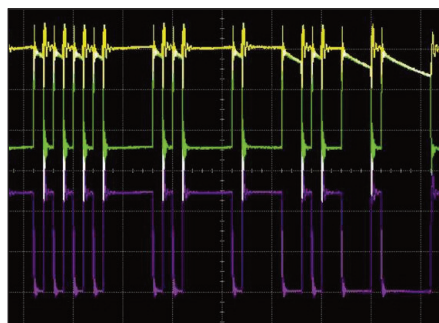
Drop-down hierarchy shows all active eNetMeters and network nodes being monitored

All data shown for network area selected in drop-down hierarchy (left panel)

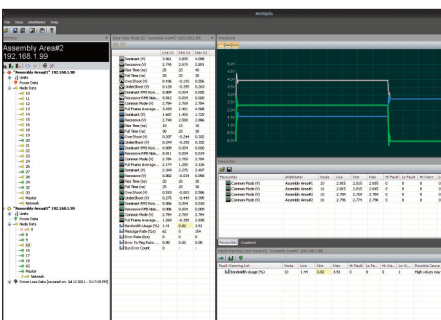
Typical Good CAN Waveform*



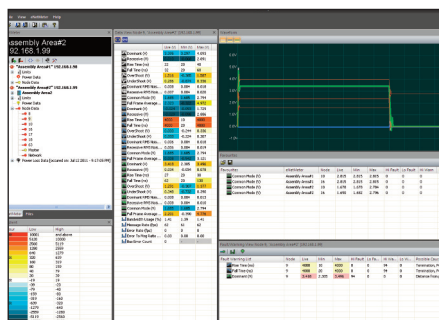
Typical CAN Frame Distortion with CAN H Shorted to Floating Shield*



NetAlytix™ CAN H/L Data Summary Indicating No Problems



NetAlytix™ CAN H/L Data Summary Indicating Problems

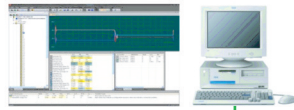


* Images are taken from a digital storage oscilloscope monitoring CAN frames on a typical DeviceNet network

Typical PLC/PAC (can access eNetMeter™ DN data)



PC running NetAlytix™ software

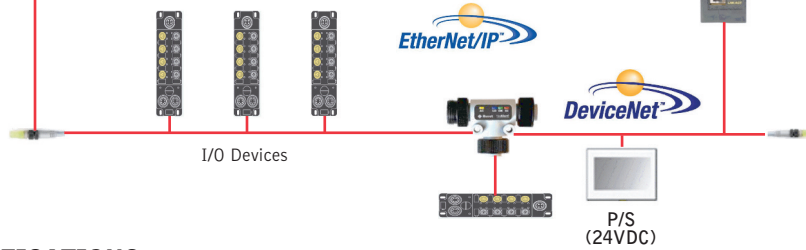


eNetMeter™ DN



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SPECIFICATIONS

Hardware:	
Diagnostic LEDs & Control	Ready, System/ Boot, Power & Comm Reset (recessed)
Operating Temperature	0 to +60°C
Storage Temperature	-5 to +75°C
Humidity	5 to 95% non-condensing
RoHS Compliant	Yes
Approvals	CE, cULus
Enclosure	IP20
Mounting	DIN-rail or panel (screw) mounted
USB	USB 2.0 master, for transfer/ storage of configuration parameters
Dimensions	eNetMeter™ DN: 39mm [1.53"] W, 142mm [5.60"] H, 102mm [4.03"] D eNetMeter™ DN Portable Test Unit: 300mm [11.80"] W, 249mm [9.80"] H, 196mm [7.70"] D
Power	eNetMeter DN: 11 to 25V DC, 300mA (typical @ 24V DC) Source can be either DeviceNet (M12 connector) or Auxiliary (screw terminal) eNetMeter DN Portable Test Unit: 110 to 230V AC, 50/60 Hz, 160mA max.
Network Specifications:	
Protocols	DeviceNet EtherNet/IP for reading data
Cable	DeviceNet: compatible with target network Ethernet: Cat 5e shielded
Connector	Ethernet: RJ45 DeviceNet: 5-pole M12 Micro-Change® threaded connector
Isolation	500V
Data Rate	DeviceNet: 125K, 250K and 500K baud Ethernet: 10/100 M baud

ORDERING INFORMATION

Product	Order No.	Engineering No.	Description
eNetMeter™ DN (Single End-User)	112008-0008	SST-ENM-DN1	Single unit (includes NetAlytix Lite)
eNetMeter™ DN & NetAlytix™ Starter Kit	112008-0012	SST-ENM-SKT	Bundle of eNetMeter™ DN (1120080008) & NetAlytix™ (1120080011) <i>Limit of one per partner or end-customer site</i>
eNetMeter™ DN Portable Test Unit Kit	112008-0016	SST-ENM-PTU	Bundle of eNetMeter™ DN (1120080008) & NetAlytix™ (1120080011) in a portable test case with DC power and external ports for networks plus AC power connections
NetAlytix™ Lite v2	112008-0010	SST-NAL-DN1	Base PC software for EIP and Data Limit Table configuration (included with eNetMeter DN)
NetAlytix™ v2	112008-0011	SST-NAS-DN1	PC software for monitoring network health. Also includes OPC Server and API/DLL