

## DATA PLATFORM NEW DM3300 SERIES



**DM3300-16**  
Shown with optional monitor



**DM3300-8**  
Shown with optional monitor

The DM3300 is a *physical measurement scope* that samples your signals at rates of up to 40 MS/s. Available in 8- and 16-channel models, you can add optional features such as a bright TFT display, a hard drive, and a printer for hard copy recording. With built-in Ethernet and USB computer interfaces and Windows software, the DM3300 can act as a computer controlled front-end, or a fully-functional stand-alone system. Plug-in modules adapt the DM3300 to a variety of sensors and signals – so that you can acquire 8 or 16 channels of voltages, strain gages, and more!

### Ethernet & USB Connectivity

Use the software supplied with your DM3300 to transfer data files to your PC.



### High-speed Isolated-input Amplifiers

The DM3300 features 2-ch plug-in modules for many kinds of input signals, including



DM33-HSV module

- DM33-HSV high-speed voltage (200 mV to 200V)
- DM33-M voltage and temperature (20 mV to 500V, and thermocouple types J, K, T, R, E, B)
- DM33-DCB DC strain gage (1,000 to 20,000 x 10<sup>-6</sup> strain)

### Choice of Memory Devices for Reliable Data Capture

Data is captured directly to the DM3300's internal memory devices. Select the storage device that best suits your application.



Usable Data Storage Devices by Display Mode\*

Display mode	Usable data storage device	Max. sample rate
Oscillo	Internal RAM	40 MS/s
Scroll	Internal RAM	20 MS/s
	Hard disk	1 MS/s**
	PCMCIA card	200 S/s
Fixed	Internal RAM	20 MS/s
	Hard disk	1 MS/s**
	PCMCIA card	200 S/s
XY	Internal RAM	40 MS/s

#### Internal RAM

**2 Mwords/ch**

Ideal for capturing high-speed events up to 40 MS/s, and for use in environments where there are vibrations.

#### 40 GB hard disk\*\*

Ideal for long-term data capture at speeds up to 1 MS/s, and for multi-point measurement.

#### PCMCIA card\*\*

Enables off-line transfer of data captured at the DM3300 to your PC. In addition, data can be captured directly to the PCMCIA card.

#### Data capture times

(when measuring on 8 channels)

Sampling interval	20 ns	50 ns	100 ns	200 ns	500 ns	1 µs	10 µs	20 µs
2 Mwords/ch	0.05 s	0.1 s	0.2 s	0.4 s	1 s	2 s	20 s	40 s
HDD (1 file = 2 GB)**	—	—	—	—	—	2.08 min	20.8 min	41.6 min
PCMCIA card (340 MB)	—	—	—	—	—	—	—	—
Sampling interval	100 µs	500 µs	1 ms	5 ms	10 ms	100 ms	1 s	5 s
2 Mwords/ch	3.3 min	16.6 min	33 min	2.7 h	5.5 h	2.3 days	115 days	7233 days
HDD (1 file = 2 GB)**	3.4 h	17.3 h	1.4 days	7 days	14 days	144 days	1446 days	7233 days
PCMCIA card (340 MB)	—	—	—	—	—	24.6 days	245 days	1225 days

\*1 Oscillo, Fixed and XY display modes only available when the optional display monitor is installed.

\*\*2 Max. 500 kS/s for the 16-ch model. \*\*3 Option

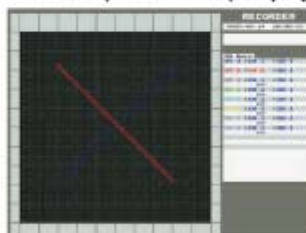
\*\*4 Please consult your Graphtec distributor for the types of PCMCIA cards that can be used.

\*\*5 One data capture operation is up to 2 GB

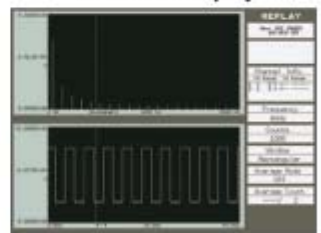
### Data Analysis\*6

The XY mode enables captured data to be displayed in X-Y format for data analysis, up to a maximum of 8 XY channels. Select between Wide screen and Narrow screen displays. FFT analysis functions are also available when the FFT mode is selected.

#### XY mode (Wide screen) display



#### FFT mode display



\*6 The XY display and FFT analysis functions are only available when the display monitor is installed.



General Specifications		
	DM3300-8	DM3300-16
Analog input	8 ch (4 slots)	16 ch (8 slots)
Logic input	8 ch	16 ch
PC interface	Ethernet (10 base-T/100 base-TX) USB (Ver. 1.1)	
Internal memory devices	Internal RAM: 2 Mbytes PCMCIA slot (Type I) 40 GB hard disk (option)	
Max. sample rate possible	Storing to internal RAM : 40 MS/s Storing to PCMCIA card : 200 S/s Storing to 40 GB hard disk : 1 MS/s	
Operating environment	0 to 40°C, 30 to 80% RH (5 to 35°C when using the hard disk and printer)	
Power supply	AC adapter (100 to 240 VAC)	AC adapter (100 to 240 VAC) x 2
Power consumption	Approx. 90 VA (max)	Approx. 135 VA (max)
External dimensions W x D x H, approx. (excluding cables, feet and protrusions)	300 x 222 x 57 mm	300 x 222 x 114 mm
Weight	Approx. 2.2 kg (including 4 amp units), excluding options and the AC adapter	Approx. 4 kg (including 8 amp units), excluding options and the AC adapters

Note: A 4-channel model can also be specified if required.

### Amplifier Unit Specifications

High speed Voltage (DM33-HSV) Amplifier	
Number of channels	2 channels/module
Input configuration	Floating ground with unbalanced-load input (each channel is independent)
Input resistance	1 MΩ ± 1%
Input coupling	AC, DC, GND, OFF
Measurement range	200 mV to 200 V (20 mV/Div to 20 V/Div) FS = 10 Div
Input filters	Line: 1.5 Hz (-3 dB) at -6 dB/oct Low-pass: 5 Hz, 50 Hz, 500 Hz, 5 kHz, 50 kHz, 500 kHz (-3 dB) at -6 dB/oct
Accuracy (23°C ±3°C)	±0.5% of FS
Isolation voltage	Between input terminal and casing: 1 minute at 1,000 V AC
A/D converter	Sampling interval: 25 ns; Resolution: 12 bits
Frequency response	DC coupling: DC to 10 MHz (+/-3 dB Typ.) AC coupling: 10 Hz to 10 MHz (+/-4.5 dB Typ.)
Max permissible input voltage	Between +/- terminals: 200 V max. (DC + AC) Between input terminals and GND: 33 V AC rms

Voltage/Temperature (DM33-M) Amplifier	
Number of channels	2 channels/module
Input configuration	Floating ground with unbalanced-load input (each channel is independent)
Measurement range	Voltage: 20 mV to 500 V/FS Thermocouples: K, J, T, R, E, B
A/D converter	Sampling interval: 10 μs; Resolution: 16 bits
Frequency response	DC to 20 kHz (+/-3 dB Typ.)
Input filter	1.5, 5, 10, 30, 50, 500 Hz, 5 kHz

DC Strain (DM33-DCB) Amplifier	
Number of channels	2 channels/module
Input configuration	Floating ground with unbalanced-load input (each channel is independent)
Measurement range	1,000 to 20,000 x 10 <sup>-4</sup> strain/FS
A/D converter	Sampling interval: 10 μs; Resolution: 16 bits
Frequency response	DC to 20 kHz (+/-3 dB Typ.)
Input filter	1.5, 10, 30, 100, 300 Hz, 1 kHz

Logic Amplifier (B-503)	
Number of channels	8 (4 channels/terminal x 2)
Input voltage range	0 to 26 V max. (single-ended ground)
Threshold levels	TTL (+1.4 V), CMOS (+2.5 V), Contact point (+5.0 V)
Sampling interval	25 ns maximum

Note: The logic amplifier uses a dedicated slot, and cannot be replaced with another type of amplifier.

Control Software Specifications	
Functions	Setting of measurement conditions, data measurement, file format conversion
Operating environment	OS: Windows 2000, XP CPU: Pentium 4 Memory: 256 MB
Measurement condition settings	DM3300 control, communication conditions setting
Display format	Y-T, Horizontal scroll
Cursor functions	Cursor readout function, data search
File conversion	TEXT, CSV, DADSP, GBD
Report creation	Report creation mode or waveform screen copy and paste

### Option Specifications

Monitor (B-501)	
Display screen	8.4 inch color TFT
Items displayed	Menu setting screens, operating mode, measurement values
Recorder mode	
Display format	Display format : Y-T Display direction : Horizontal scroll No. of display zones : Zone specification, fixed format
Digital display	Digital display of measurement for up to 8 channels on right-hand side of screen
Display method	Scroll, Fixed, Oscillo, XY
Print details	Waveforms and screen copy
Chart speed	1, 2, 2.5, 5, 10, 20, 25 mm/s 1, 2, 2.5, 5, 10, 20, 25, 50, 100 mm/min, mm/h
Printing accuracy	Y: ±0.3% ±1 dot, X: ±2% ±0.5 mm
Annotation printing	System annotation : (System, User, System & User, OFF) Channel annotation : (Amp, User, Amp & User, Value, OFF)
Captured data replay	Waveform: display/scroll, Waveform zoom-in/zoom-out, Cursor function, Calculation function, Data search function
FFT mode	
Analysis functions	Auto-correlation : Linear spectrum, power spectrum, power spectrum density, RMS spectrum Cross-correlation : Cross spectrum, transfer function, coherence function
Analysis frequencies	16 MHz to 0.08 Hz
Number of analysis channels	4 ch
Window functions	Hanning window, rectangular window
Number of sampling points	1,000 points, 2,000 points
Averaging	Summation, exponential, peak hold
Display format	1 Division, 2 Divisions, 4 Divisions, Nyquist
Print details	Screen copy

100-mm Printer (B-502)	
Recording method	Thermal recording
Chart paper width	100 mm
Chart speed	25 mm/s maximum
Power supply	AC adapter (100 to 240 VAC)

12 V DC Drive (B-505)	
Input voltage range	10 to 18 VDC
Power consumption	Approx. 150 VA

Hard disk (B-504)	
Memory size	40 GB
Data capture speed	1 MS/s max. (8 channels simultaneously*)
File capacity	Max. 2 GB per file
Number of files	Unlimited (within the 40GB capacity)
Operating (sweep one) vibration	1 G (5-500 Hz), 2.0 oct/min sweep rate (0 to 55 Hz for the DM3300 main unit)

\* May be limited by the amount of free space left on the hard disk.

### Accessories

Cables and cords			
Name	Model number	Description	Remarks
Safety input probe (for use with oscilloscope)	RIC-141	BNC safety type, 1.2 m	
2-pin banana-plug cables	B-378	RIC-115 set of 2 input cables	Bare tips
	B-336	RIC-115 set of 4 input cables	Bare tips
	B-331	RIC-115 set of 8 input cables	Bare tips
	B-336	RIC-115 set of 16 input cables	Bare tips
BNC-BNC cable	RIC-112	1.5 m	
BNC-Banana plug cable	RIC-113	1.5 m	
BNC-Alligator clip cable	RIC-114	1.5 m	

### Clamp adapters, meters, and probes

Name	Model number	Description	Remarks
Clamp adapter	CM-102	Measures AC 0 to 1200 A	1 ch
Floating voltage input probe	CM-105	For use with logic amp	4 ch
Voltage conversion probe	CM-106	For use with logic amp	1 ch
Digital clamp meter	CM-111	Measures AC/DC current (0 to 2000 A), AC/DC voltage (0 to 1000 V), resistance (0 to 4,000 kΩ), frequency (0 to 4000 Hz), and temperature (-50 to +160°C)	1 ch
Line separator	CM-108	x1, x10	For use with CM-111
Temperature probe for clamp meter	RIC-110	-30 to +200°C	For use with CM-111
Logic IC cable	RIC-07	To connect RIC-08/09 with logic amp	
Alligator-clip cable	RIC-08	For use with logic amp	
IC-clip cable	RIC-09	For use with logic amp	
Probe set	RIC-10	One each of RIC-07, -08, -09	

### Other

Safety BNC adapter	SMA-102	For use with high-voltage BNC to banana conversion adapter	
BNC conversion plugs	SMA-101	Banana to BNC, 4 per set	
Chart paper	PR-119	5 rolls/box	
Head cleaner set	B-368	Contains cleaning liquid and sheets	



### Unit Configuration

Unit name	Model name	Description	Remarks
8-channel main unit	DM3300-8	Channels 1 to 8; plug-in amps (maximum 4 slots)	Must be specified at time of initial order
16-channel main unit	DM3300-16	Channels 1 to 16; plug-in amps (maximum 8 slots)	Must be specified at time of initial order
High-speed voltage amplifier	DM33-HSV amp	2 channels/module	Can be added at any time
Voltage/Temperature amplifier	DM33-M amp	2 channels/module	Can be added at any time
DC Strain amplifier	DM33-DCB amp	2 channels/module	Can be added at any time
Logic amplifier (two sets are required for DM3300-16)	B-503	8 channels/module	Can be added at any time
Monitor	B-501	8.4 inch color TFT display; connection cable to main unit (approx. 70 mm)	Can be added at any time
HDD	B-504	40 GB internal hard disk (max. file size: 2 GB)	Must be specified at time of initial order
12 VDC drive	B-505	DC power cord x 1; cables to connect the DC power adapter and the main unit x 3	Can be added at any time
100-mm printer	B-502	External thermal printer Chart width: 100 mm; max. chart speed: 25 mm/s	Can be added at any time
Monitor cable set	B-506	One 225-mm cable to mount the monitor at the front of the DM3300 unit; one 1-m cable for detached monitor use	Can be added at any time
Report creation software	OPS021-OP	Saves waveform data in BMP or WMF file format for easy report generation	Provided as a standard accessory

Note: Graphtec shall not be held liable for any loss of data caused by a DM3300 malfunction. Please be sure to make back-up copies of all your data.

**⚠ To ensure correct and safe use of the DM3300:**

- Read your User's Manual before using the DM3300, and operate it correctly in accordance with the procedures described.
- To prevent malfunctions or electrical shock due to current leakage, ensure that the DM3300 has a good protective ground, and ensure that the supply voltage conforms to the DM3300's power rating.

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### DPM230 Series Systems

The following pre-configured systems are also available:	
<b>DPM230</b> (8 channels)	DM3300-8 main unit x 1, DM33-HSV amp x 4, B-501 monitor x 1, B-504 HDD x 1, RIC-114 cable x 8, RIC-141 probe x 1, USB cable (1-m length) x 1, OPS021-OP report creation software package x 1
<b>DPM231</b> (16 channels)	DM3300-16 main unit x 1, DM33-HSV amp x 8, B-501 monitor x 1, B-504 HDD x 1, RIC-114 cable x 16, RIC-141 probe x 1, USB cable (1-m length) x 1, OPS021-OP report creation software package x 1
<b>DPM232</b> (4 channels)	DM3300-8 main unit x 1, DM33-HSV amp x 2, B-501 monitor x 1, B-504 HDD x 1, RIC-114 cable x 4, RIC-141 probe x 1, USB cable (1-m length) x 1, OPS021-OP report creation software package x 1