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DASH 10 Specifications

Basic System Specifications

recording method	direct thermal
frequency response	DC to 25 kHz (-3 dB)
RMS bandwidth	50 kHz
analog waveform channels	10, 20, or 30
amplitude resolution	12 dpm (300 dots per inch)
timebase resolution	■ 12 dots per mm (dpm) for 1 to 100 mm/sec ■ 6 dots per mm (dpm) for 101 to 200 mm/sec

event channels	■ 1 per waveform channel ■ 1 system event ■ 2 timer events
chart width	280 mm (11")
maximum waveform size	256 mm
grid sizes	30 independent grids up to 250 mm wide can be placed anywhere on the chart
speeds	1 mm/min to 200 mm/sec
speed accuracy	±2%
paper capacity	48 m per roll
input type	isolated, single-ended voltage amplifier
user input connector	guarded binding posts
input coupling	DC
range	50 mV to 500 V full scale
maximum differential input	500 V peak or 250 V RMS
maximum CMV (IMV)	250 V RMS
input impedance	1 Megohm
zero suppression	■ ±5V (2.5 mV step) for ranges <5V ■ ±500V (.25 V step) for ranges ≥5 V
zero suppression error	±2%
sample rate	250 kSamples/sec

RMS	handle crest factors to 7 with < 1% error
CMRR at 60 Hz	>95 dB
low pass filter	10 Hz
maximum intrinsic noise	<0.5 mm
non-linearity	<0.1% of full scale
baseline drift with time	<0.05 mm/24 hrs
baseline drift with temperature	<0.05 mm/°C
monitor type	built-in vacuum fluorescent display for both text and real-time waveforms
monitor resolution	256 dots (w) x 64 dots (h)
waveform format	waterfall scroll
monitor refresh rate	100 Hz
alphanumeric keypad	full alphanumeric keypad for annotation entry
encoder wheel	used for rapid entry of gain/zero position, chart layout, and many other recording parameters
chart speed keys	■ quick keys for 1, 5, 25, 50, 100, and 200 mm/sec or mm/min ■ 3 user-defined speed keys
indicators	battery status, arm, trigger
host interfaces	■ GPIB ■ RS232 (DTR/DSR and XON/XOFF)

disk drive	1.44 MByte, DOS compatible, 3.5" floppy drive for saving setups and annotation, archiving data, and upgrading software
remote start / stop	standard via switch closure or TTL
standard real-time recording	10 to 30 channels with annotation buffers in overlap and separate channel modes
user-defined formats	■ user can design unique charts using standard menus ■ maximum of 20 formats can be saved to floppy disk for quick chart setups
data logger	■ numeric reporting of waveform data in engineering units ■ 5 Hz maximum sample rate
timed recording	system can be programmed to start and stop recording at specific times
line print	125 columns
A/D converters	each channel has own A/D converter
ADC resolution	12 bits
annotation units	all annotation can be selected in either voltage or user-defined engineering units
system log	single line containing the time, date, chart speed, and time mark setting
channel annotation	each channel has a 128-character ASCII buffer printed at any user-specified chart location

signal conditioner annotation	if enabled, uses last 32 characters of channel annotation
on-demand annotation	128-character buffer printed anywhere on the chart
channel ID	■ each channel is labeled with channel number on demand ■ full-scale top and bottom values of the grid can be printed in either voltage or engineering units
tri-state timing marks	x1, x10, x100 mark on left, right, or both edges
horizontal grid lines	may be synchronized to time mark
time mark intervals	0.01 - 0.09, 0.10 - 0.90, 1 - 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60
manual event mark	■ front-panel key or external TTL / switch closure ■ choice of bar on/off or binary level
external event marks	maximum of 30 event marks available (TTL or switch closure), non-isolated, glitch capture
power options	standard AC, DC, or optional internal battery
AC requirement	120/240 VAC nominal at 50 or 60 Hz
DC requirement	13-20 VDC
operating temperature	0°C to 45°C
storage temperature	-20°C to 80°C
relative humidity	0% to 95%, non-condensing

overall dimensions	height: 5" (127 mm) depth: 20" (508 mm) width: 18" (457 mm)
weight	■ 36 lbs (16 kg) with battery ■ 32 lbs (15 kg) without battery (10 channel)
data capture	■ each channel can capture a maximum of 558 kSamples of data to RAM during one capture ■ captures can be stacked in 69 kSample blocks or memory can be linked for a total of 6 megasamples per ten channels ■ events are also captured
background capture	standard
capture memory	DRAM
capture time stamping	all records are time stamped at end of capture
capture sample rates	5 to 250 kSamples per second per channel
capture record sizes	■ 69 kSamples/channel (stacked) ■ 558 kSamples/channel (not stacked or linked) ■ 6 megasamples (linked, 1 channel capture per 10 channels)
capture stacking	■ maximum of 8 records can be stacked ■ stack a maximum of eight 69 kSample blocks per channel

capture header	each record contains complete capture information including analog settings
manual trigger	with front-panel key
host trigger	RS232 or GPIB
periodic trigger	user-programmed, internal
waveform trigger	inside window, outside window, AND/OR combinations
battery	■ fits internal DASH 10 compartment and charges automatically whenever unit is connected to external power. ■ ideal for field use and in the lab as a UPS
battery life	30 minutes, nominal
battery charge time	19 hours with power off