

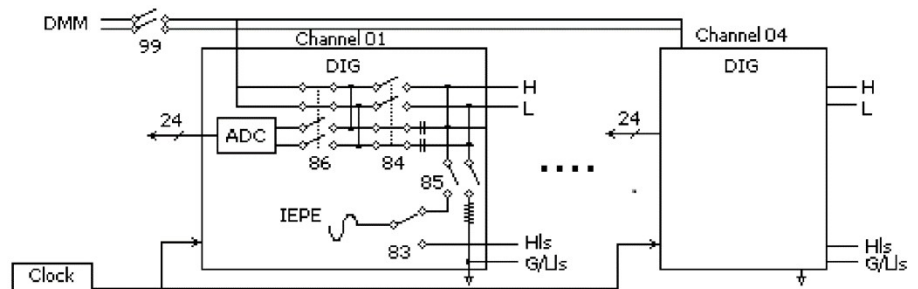
## DAQM909A

### 4-Channel 24-bit Digitizer

- Simultaneous sampling
- Up to 800 kSa/s at 24-bit
- Time/frequency domain measurement with Benchvue DAQ

The DAQM909A is a four-channel digitizer module capable of providing four simultaneously-sampled channels with sampling rate as high as 800k samples per second with a maximum resolution of 24 bits. The input channels of the DAQM909A can be configured as a differential input or a single-ended input and each of the channels can provide up to 4mA of constant current to power up an external IEPE transducer.

When three DAQM909A modules are inserted within the same instrument, all 12 channels can be synchronized to provide simultaneous sampling.



## DAQM909A (Continued)

Measurement functionality	
DC Volt	
ADC per channel	800 kSa/s @ 24-bit
Range (Hi, Lo Input to Earth) <sup>1</sup>	0.3 Vpk, 1 Vpk, 3 Vpk, 18 Vpk
Range (Differential input)	0.6 Vpk, 2 Vpk, 6 Vpk, 36 Vpk
Range (Differential input – sinewave Vrms) <sup>2</sup>	0.42 Vrms, 1.4 Vrms, 4.2 Vrms, 25 Vrms
Residual noise (20 Hz – 20 kHz)	7 $\mu$ Vrms, 16 $\mu$ Vrms, 52 $\mu$ Vrms, 175 $\mu$ Vrms
IEPE current source	OFF or ON, ON (2mA – 4mA)
IEPE currents source compliance voltage	20 V
Trigger count	1 to 85k
Sample count	1 to 16M
Pre-trigger count	0 to sample count
Trigger arm event (System)	IMM, Scan-sweep, Alarm-#
Trigger event (channel)	Software, IMM, Level/Slope
Trigger event (same module)	External/Slope, Chan-#
Trigger event (module-module)	Any Chan-#
External trigger input (one per module)	TTL compatible
External trigger delay	0 – 1000s, 1 $\mu$ s steps
External trigger latency	1-sample
External Trigger-In terminals	Screw terminal ( $\geq$ 20-gage wire)
Measurement input terminals	Screw terminal ( $\geq$ 20-gage wire)
Frequency or Time domain anti-alias filters	Yes
Time-stamped measurements	Yes (Acoustic Start)
Acquisition memory/channel	16M to 48M Samples
Log multiple digitized records (volatile)	Yes
Automatic file copy to flash drive	Yes

1. The DAQM909 is alias-protected for out-of-band inputs to 6MHz with amplitudes < 10dB below the range's maximum.

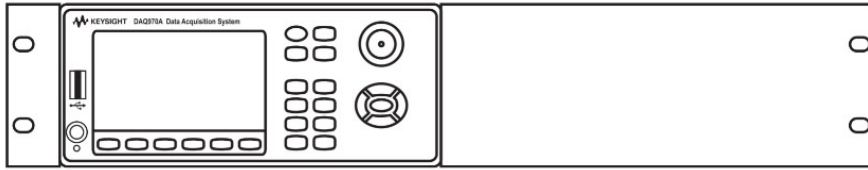
2. Balanced differential input, amplitude = range max -1dB (and < 12Vrms), 50kSa/s, frequency mode, 20kHz analysis bandwidth, DC-coupled.

## DAQM909A (Continued)

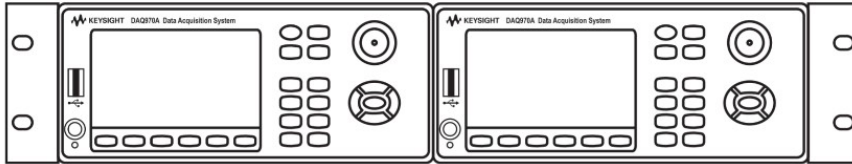
Characteristics: Typical	
Accuracy (DC) <sup>1</sup>	0.017% of readings + 0.004% of range (ACAL)
THD (1 kHz) <sup>2</sup>	- 103 dB
SFDR (1 kHz) <sup>2</sup>	- 105 dB
THD (20 Hz - 20 kHz) <sup>2,3</sup>	- 83 dB
SFDR (20 Hz - 20 kHz) <sup>2</sup>	- 85 dB
Characteristics: Nominal	
Flatness (dc - 20 kHz)	0.1 dB
Input impedance (Hi or Lo to Earth)	1 M $\Omega$    400 pF
Single Ended (SE) Lo-Earth	150 $\Omega$
Coupling	AC, DC
A/D converter (per channel)	24-bit Delta-Sigma
Sample rate	
Time domain	800 k/2 <sup>n</sup> n=0,1,2,... 9
Frequency domain	100 k/2 <sup>n</sup> n=0,1,2,... 6
Acquisition bandwidth	
Time domain (-3 dB)	0.2*Fs or 125 kHz max
Frequency domain (-0.1 dB)	0.4*Fs or 30 kHz max
Analog bandwidth (-3 dB)	125 kHz (measured)
Channel to channel gain match (1 kHz)	0.003 dB
Channel to channel phase match (1 kHz) <sup>4</sup>	0.045°
Channel to Channel cross-talk (1 kHz) <sup>4</sup>	-100 dB
Common mode input voltage	
Range (0.3, 1, 3 Vpk)	± 8 V
Range (18 Vpk range)	± 18 V
Common mode rejection	60 dB (dc – 1 kHz, DIFF in)
Overvoltage protection	± 42 V

1. AC accuracy = DC accuracy + Flatness
2. Balanced differential input, amplitude = range max -1dB (and < 12Vrms), 50kSa/s, frequency mode, 20kHz analysis bandwidth, DC-coupled.
3. THD analysis BW is up to 20kHz. All harmonics above 20kHz are excluded. Worst case THD is usually at 6.67kHz.
4. Performance within the same module.

## Rack mounting



To rack mount a single instrument, order the adapter kit (part number: DAQ190A or 1CM124A))



To rack mount two instrument side-by-side, order the lock-link kit (part number: DAQ194A or 34194A) and flange kit (part number: DAQ191A or 1CM107A)

## Ordering Information

### Mainframe

<b>DAQ970A</b>	Data Acquisition System Mainframe with USB and LAN
<b>DAQ973A</b>	Data Acquisition System Mainframe with USB, LAN and GPIB
<b>Option Z54</b>	ANSI Z540 compliant calibration

### Modules

<b>DAQM900A</b>	20-Channel solid-state multiplexer
<b>DAQM901A</b>	20-Channel armature multiplexer
<b>DAQM902A</b>	16-Channel reed multiplexer
<b>DAQM903A</b>	20-channel actuator/general purpose switch
<b>DAQM904A</b>	4 x 8 Two-wire matrix switch
<b>DAQM905A</b>	Dual 4-Channel RF multiplexer, 50 $\Omega$
<b>DAQM907A</b>	Multifunction module
<b>DAQM908A</b>	40-Channel single-ended multiplexer
<b>DAQM909A</b>	4-Channel simultaneous sampling digitizer

### Accessories

<b>11062A</b>	Kelvin clip set
<b>34307A</b>	10-pack of J-type thermocouples
<b>34308A</b>	5-pack of 10 k $\Omega$ thermistors
<b>34905-60001</b>	Kit of 10 SMB-to-BNC adapter cables, 50