MicroDAQ2

Digital Pressure Scanner

- **Intelligent pressure scanner module with engineering unit output.**

- **Compatible with all TE/PSI 32 and 64 channel Pressure Scanners (including QDC options).**

- **Up to 0.05% FS accuracy output.**

- **Complete with IEEE 1588 PTPV2 time stamping**

- **Up to 3Khz per channel measurement frequency.**

- **Output over Ethernet (100Mbit TCP / UDP) and CAN.**

- **Rugged enclosure for on-vehicle applications.**

- **Fully configurable over Ethernet with embedded web server**

The MicroDAQ2 is a further development of the well-established Chell MicroDaq system. The MicroDAQ2 is a complete acquisition system giving the user fully calibrated, temperature compensated data on easy to use Ethernet and CAN interfaces.

The Ethernet output enables the MicroDAQ2 to be directly connected to a PC or via a switch for multiple unit applications. The MicroDAQ2 web server enables to user to configure the data output in terms of interface type, speed, averaging and temperature compensation giving the user complete control of the data.

MicroDAQX software is supplied with the MicroDAQ2 which can communicate with up to 16 x MicroDAQ2's, display the data and log it to disk. When more than one MicroDAQ2 is used, the data can be synchronised and the data presented as one complete data file.

The command interface for the MicroDAQ2 is straight-forward and fully documented allowing users to easily create their own software interface. In addition, a LabView driver can be supplied free of charge.

The MicroDAQ2 contains a DTC pressure scanner with shuttle valve. The pneumatically controlled shuttle valve allows all transducers to be connected to one port to facilitate re-zero and calibration. A purge facility for this valve is available as an option. The DTC scanner measures the temperature of every port to compensate for thermal effects.

The MicroDAQ2 features multiple ADC's allowing the simultaneous acquisition of pressure and temperature data. The temperature input is used to continuously update the pressure output ensuring thermally compensated data without the 'thermal bump' associated with systems that periodically acquire the temperature input.

The MicroDAQ2 multiplexes at 50kHz (20kHz for legacy scanners) enabling it to produce data at more than 1.5KHz per channel for a 32-channel model and 750Hz per channel for a 64-channel model via UDP. For TCP/IP, the maximum speeds are 1kHz and 500Hz per channel respectively. In 'Fast Mode', the first 16 channels can be selected only enabling speeds of 3kHz per channel to be achieved.

The MicroDaq is packaged and vibration tested to enable it to withstand the harsh environments of on-vehicle testing.

General	MicroDAQ2-32	MicroDAQ2-64
System resolution	16 bit	
Number of channels	32	64
Data Output		
Outputs available	CAN and Ethernet (TCP/IP & UDP), IENA	
Ethernet Specification	100Mbit TCP/IP or UDP (user configurable)	
CAN Specification (DC Powered version only)	2.0B	
Performance		
System accuracy (DTC scanner range = 4" water)	+/- 0.25% FS	
System accuracy (DTC scanner 10" water ≤ range ≥ 5 PSI)	+/- 0.1% FS	
System accuracy (DTC scanner range ≥ 5 PSI)	+/- 0.05% FS	
Maximum acquisition Speed TCP/IP (meas / channel / second).	1000	500
Maximum acquisition Speed UDP (meas / channel / second).	1500	750
Maximum acquisition Speed Fast Mode - 16 channels only (measurements / channel / second).	3000	3000
Mechanical		
Dimensions (width x depth x height in mm)	110 x 29 x 46	107 x 37 x 45
Weight	207g	278g
Enclosure Sealing	IP54	
Maximum reference pressure range < 2.5 psid	103 kPa	
Maximum reference pressure range ≥ 2.5 psid	345 kPa	
Shuttle valve control pressure	100-125 psig (7 to 8.6 bar)	
Measurement media	Dry, non-corrosive gases	
Optional purge pressure	Max 150 psig (10 bar)	
Power Supply		
Input supply	8-25 VDC at 3 VA	8-25 VDC at 4 VA
Consumption at 24 VDC	200mA	350mA
Mating connector	ASDD606-09SN-HE	
Environment		
Operating Temperature Range	+5 to +90°C	
Storage Temperature Range	-40 to +90°C	
Ambient Pressure	100mbar ABS (52,000ft) to 2.5 bar abs	
Vibration	Engine standard vibration test to DO160E category S, curve W with duration of 1 hr/axis. Fan blade (20g 2kHz)	
Shock	Fan blade out to DO160F section 7 (40g 11m/s)	
Maximum relative humidity	95% at 50°C (non-condensing)	
Timing / Data Synchronisation		
Time Stamping	IEEE 1588 PTPv2	
Time Stamping Resolution	1µS	
Hardware Trigger (DC powered version only)	5V TTL pulse, maximum 1000 Hz, minimum 2Hz	

MicroDAQ2 Performance

Range	Range (kPa)	Resolution (Pa)	Maximum Error (%FS)	Maximum Error (Pa)	Typical Standard Deviation (Pa) (using running average of 2)
4" Water	1	0.03	0.25	2.5	0.4
10" Water	2.5	0.08	0.1	2.5	0.5
20" Water	5	0.15	0.1	5	0.8
1 PSI	7	0.21	0.1	7	1.0
1.5 PSI	10	0.31	0.1	10.3	1.0
2 PSI	13.8	0.42	0.1	13.8	1.3
2.5 PSI	17.2	0.53	0.1	17.2	1.7
3 PSI	21	0.63	0.1	21	2
4 PSI	27.5	0.84	0.1	27.5	2.7
5 PSI	34.4	1	0.05	17.2	3.4
7.5 PSI	51.7	1.6	0.05	26	5
10 PSI	69	2.1	0.05	34	6.8
15 PSI	103	3.2	0.05	52	10
20 PSI	138	4.2	0.05	69	13.5
25 PSI	172	5.3	0.05	86	17
30 PSI	207	6.3	0.05	103	20
45 PSI	310	9.5	0.05	155	30
75 PSI	517	15.8	0.05	258	50
100 PSI	689	21	0.05	345	67
150 PSI	1034	32	0.05	517	101

Dimensions