

# Datascan 8/16 Channel Measurement Processors 7220 & 7221

## General Description

The Datascan 7200 series is a series of intelligent distributed input output modules designed for real time measurement and data collection and communication. Developed for factory, industrial and scientific data acquisition applications the Datascan introduces new standards for interfacing sensors to computers. The 7200 series is used in applications where a small number of channels are required at local or remote locations.

## Main Features

- Direct Sensor Connection for DC voltage, Thermocouples, Strain Gauges, PRT's and 4-20mA Converters
- Expandable over 1.2km Twisted Pair Network (4Km with Network Extender)
- 16 Bit measurement performance with 0.625 $\mu$ V sensitivity
- In-built Cold Junction Compensation
- Solid State Differential Inputs
- Up to 400 channels/sec Measurement Speed
- Mix and Match Channel Configuration
- On Board Energisation
- High Common and Series Mode Noise Rejection
- Simple yet Powerful built-in Command Set
- Compact Rugged DIN Rail Mounted Unit

The **7200** series is designed to provide a simple reliable accurate and cost effective means of connecting plant sensors to standard computers for real time monitoring and data acquisition. The 7200 series provides a low cost, high performance interface at locations with smaller numbers of analog sensors.

The **7200** series can be used autonomously or alternatively as part of a total distributed network. The 7200 can be connected by means of the unique token passing real time network. The system can be expanded through connecting any of the other measurement processors in the range. Each 7200 incorporates a programmable 16 bit ADC an isolated serial interface, an isolated token passing network, on board non volatile memory for storing unit configurations, 8 or 16 inputs depending on model type . The unit is encapsulated in a compact, rugged DIN rail mounting unit, making them ideal to install in harsh environments.

Specification	Model Type	No of Inputs	Sensor Types	Resolution	Input Impedance
The 7220/21 are analog input measurement processors. The 7220 is a 16 channel unit whereas the 7221 provides a total of 8 channels.	<b>7220</b>	<b>16</b>  (3 pole)	DC Voltage, Thermocouples, 4-20 mA,	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	30M ohms
Both units provide direct sensor connection for Thermocouples DC voltages, 4-20 mA inputs.	<b>7221</b>	<b>8</b>  (4 pole) with pulsed energisation	DC Voltage, Thermocouples, Resistance, Thermometers, Strain Gauges, 4-20 mA, current	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	30M ohms
The 7221 provides direct sensor energisation for strain gauges and resistance thermometers, (as the 7220 it has integral CJC for Thermocouples).	<b>Sensor</b>	<b>Range</b>	<b>16 bit</b>	<b>14 bit</b>	<b>Accuracy</b>  +/-0.02%rdg+0.01%range+1bit +/-0.02%rdg+0.01%range+1bit +/-0.02%rdg+0.01%range+1bit 16bit(+/-0.02%rdg+0.01%range+5µV) 14bit(+/-0.02%rdg+0.01%range+10µV)
	DC voltage (7220/21)	10 V 1.3V 150mV 20mV Auto	320 µV 40 µV 5 µV 0.625µV	1.28 mV 160 µV 20 µV 2.5 µV	
<b>Calibration period 12 months. Calibration temperature 20°C. All quoted errors are worst case.</b>					
<i>Temperature coeff &lt;30 ppm / °C (CJC Error 0.5 °C)</i>					
Each channel can be individually programmed for specific sensors, speed and measurement range.	<b>Sensor Type Thermocouple 7220/21</b>	<b>Ranges</b>	<b>Sensitivity</b> 16 bit resolution	<b>Sensitivity</b> 14 bit resolution	<b>Limits of Error</b>
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.	<b>K Type</b>	-100 to 500 °C 500 to 1200 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.4 °C 0.7 °C
The integrating technique of conversion provides very high immunity to mains borne noise.	<b>J Type</b>	-50 to 360 °C 360 to 800 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.4 °C 0.6 °C
<b>Software support</b>	<b>N Type</b>	-200 to 100 °C 100 to 580 °C 580 to 1300 °C	0.10 °C 0.05 °C 0.10 °C	0.4 °C 0.2 °C 0.4 °C	0.7 °C 0.5 °C 0.7 °C
	<b>T Type</b>	-150 to 400 °C	0.02 °C	0.1 °C	0.4 °C
	<b>R Type</b>	0 to 1600 °C	0.10 °C	0.4 °C	1.5 °C
	<b>S Type</b>	0 to 1700 °C	0.10 °C	0.4 °C	1.5 °C
Datascan can be used with a wide range of standard software products available from several vendors.	<b>E Type</b>	-50 to 290 °C 290 to 1000 °C	0.02 °C 0.10 °C	0.1 °C 0.4 °C	0.4 °C 0.8 °C
	<b>B Type</b>	200 to 1600 °C	0.50 °C	2.0 °C	4.5 °C
<b>Common/series mode rejection</b> DC common mode : 100 dB's AC common mode : 120 dB's AC series mode : 60 dB's	<b>Resistance thermometers PT100</b>  (7221 only)	-50 to 300 °C -50 to 500 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.25 °C 0.50 °C
	<b>Strain Gauges</b> Full 1/2 1/4 bridge  (7221 only)	0-10,000 µe	0.62 µe	3.0 µe	10 µe
<b>Overload Protection</b> +/- 30V continuous +/- 200V transient <0.1s					
<b>Baud Rate:</b> 300, 1200, 9600, 38.4K	<b>4-20 mA</b>  (7220/21)	4-20 mA	0.01 µA	0.08 µA	+/-0.15%
<b>Network Specifications</b> Standard : RS485 Media : Twisted Pair Distance : 1.2Km  (4Km with network extender)	<b>Power</b>	<b>Dimensions</b>	<b>Weight</b>	<b>Op temp</b>	<b>Humidity</b>
	Supply 24V dc/ac consumption <2 Watts @ 24V	W 230 mm H 123 mm D 80 mm	750 grams	-10 to 60°C storage -20 to 80°C	RH 90% Non-Condensing
<b>Your Local Distributor</b>		Measurement Systems Ltd 16 Kingfisher Court Newbury Berkshire RG14 5SJ UK Tele: +44 (0)1635 576800 Fax: +44 (0)1635 31023  The Company reserves the right to change the specification without notice			