

# Datascan Analog Input/Output Module 7050

## General Description

The Datascan is a series of intelligent distributed input/output modules designed for real time measurement, data collection and communication. The products are ideal for factory, industrial and scientific applications. The Datascan series includes intelligent Measurement Processors and various types of input/output modules for channel expansion, in all a total of 26 modules for differing I/O requirements. The 7050 is an 8 channel analog input and 8 channel analog output module and can be used with either the 7010 or 7300 series of measurement processor.

## Main Features

- 8 Analog Inputs  
Can be programmed to be DC voltages, thermocouples or 4-20mA
- 8 Analog Outputs  
12 bit resolution. Can be programmed to provide -10V - +10V or 4-20mA
- Up to 400 readings per/sec
- Mix and match channel configuration
- 16 bit measurement performance with 0.625 $\mu$ V sensitivity
- High common and series mode noise rejection
- Compact, rugged DIN rail mounted unit
- In-built cold junction compensation

The **Datascan** 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 Datascan can be used universally with any type of computer as the data interface is by means of a standard serial port.

**Datascan** modules can be configured in local clusters of channels or alternatively as part of a total distributed network. Datascan can support up to 256 channels of local inputs or outputs using the unit's local expansion bus. Alternatively it can become part of a distributed network of up to 1000 channels spanning a distance of up to 4 Km (15000 ft).

Specification	Model Type	No of Inputs	Sensor Types	Resolution	Input Impedance	
The 7050 module provides 8 analog input channels and 8 output channels on a single module.	<b>7050 Inputs</b>	<b>8</b> (2 pole)	DC Voltage, Thermocouples, 4-20 mA	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	30M ohms	
Each input channel can be individually programmed to measure voltage, current or take thermocouple inputs directly.	<b>7050 Outputs</b>	<b>No of Outputs</b>	<b>Operating Modes</b>	<b>Current Modes</b>	<b>Max No. Modules per 7010</b>	
		<b>8</b> (2 pole)	Bipolar voltage 4-20 mA	External 24V DC supply required	5	
Four ranges allow voltage measurements of up to + or -12V with resolutions down to 0.625µV.	<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	10 V 1.3V 150mV 20mV	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> Temperature coeff <30 ppm / °C (CJC Error 0.5 °C)						
An internal cold junction temperature sensor enables thermocouples to be connected directly.	<b>Sensor Type Thermocouple</b>	<b>Ranges</b>	<b>Sensitivity</b> 16 bit resolution	<b>Sensitivity</b> 14 bit resolution	<b>Limits of Error</b>	
Each output channel has both voltage output (-10V to +10V) and 4-20mA current output. Ouput resolution is 12 bits.	<b>K Type</b>	-100 to 500 °C	0.02 °C	0.1 °C	0.4 °C	
		500 to 1200 °C 1200 to 1600 °C	0.20 °C 0.20 °C	1.0 °C 1.0 °C	0.7 °C 4.5 °C	
Plug-in screw terminal connections make for easy sensor connection and re-connection.	<b>J Type</b>	-50 to 360 °C	0.02 °C	0.1 °C	0.4 °C	
		360 to 800 °C	0.20 °C	1.0 °C	0.6 °C	
Firmware incorporates sensor health monitoring facilities, for open circuit thermocouple detection.	<b>N Type</b>	-200 to 100 °C	0.10 °C	0.4 °C	0.7 °C	
		100 to 580 °C	0.05 °C	0.2 °C	0.5 °C	
		580 to 1300 °C	0.10 °C	0.4 °C	0.7 °C	
The 7050 is encapsulated in a compact, rugged DIN rail mounting unit, making it ideally suited to installations in a harsh environments.	<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
Channels can be mixed and matched under software control.	<b>E Type</b>	-50 to 290 °C	0.02 °C	0.1 °C	0.4 °C	
		290 to 1000 °C	0.10 °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>Other Details</b>	<b>Voltage Outputs</b>		<b>Current Outputs</b>			
Output Range	-10V to + 10V		4 to 20 mA			
Resolution	5mV		4mA			
Maximum Error	50mV (0.2% setting + 10mV)		80µA (0.3% setting + 20µA)			
Maxiumum Output Current	5mA		-			
Maximum Load Resistance	-		800 ohms with 24V supply			
Setting Time	1mSec to 0.1%fs		1mSec to 0.1%fs			
Temperature Coefficient	100 ppm/°C + 20mV/°C		150 ppm/°C			
Output Protection	20V continuous					
<b>DC Common mode interference error</b> : <50mV/V on 1.3V and 10V ranges : <5mV/V on 20V and 150mV ranges	<b>Current</b>	4-20 mA	0.64µA	2.6µA	+/-0.15%	
<b>AC Common mode interference error</b> : <1µV/V (50 or 60Hz)	<b>4-20 mA</b>					
<b>AC Series mode interference error</b> : <1mV/V for line frequencies within 0.05% of nominal (50 or 60Hz)	<b>Power</b>	<b>Dimensions</b>	<b>Weight</b>	<b>Op temp</b>	<b>Humidity</b>	
<b>Overload protection</b> : +/- 30V continuous on one channel : 200V transients of 0.1s duration : occurring <1/min	1.5W with zero ouput current	W 178 mm H 123 mm D 80 mm	600 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					