

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 μ 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.	7050 Inputs		8 (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.	7050 Outputs		No of Outputs		Operating Modes	Current Modes	Max No. Modules per 7010
			8 (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.	Sensor	Range	16 bit	14 bit	Accuracy		
	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	+/-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)		

Calibration period 12 months. Calibration temperature 20°C. All quoted errors are worst case.

Temperature coeff <30 ppm / °C (CJC Error 0.5 °C)

An internal cold junction temperature sensor enables thermocouples to be connected directly.	Sensor Type Thermocouple	Ranges	Sensitivity 16 bit resolution	Sensitivity 14 bit resolution	Limits of Error	
Each output channel has both voltage output (-10V to +10V) and 4-20mA current output. Output resolution is 12 bits.	K Type	-100 to 500 °C	0.02 °C	0.1 °C	0.4 °C	
Plug-in screw terminal connections make for easy sensor connection and re-connection.		500 to 1200 °C	0.20 °C	1.0 °C	0.7 °C	
		1200 to 1600 °C	0.20 °C	1.0 °C	4.5 °C	
Firmware incorporates sensor health monitoring facilities, for open circuit thermocouple detection.	J Type	-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	
	The 7050 is encapsulated in a compact, rugged DIN rail mounting unit, making it ideally suited to installations in a harsh environments.	N Type	-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	
Channels can be mixed and matched under software control.	T Type	-150 to 400 °C	0.02 °C	0.1 °C	0.4 °C	
		R Type	0 to 1600 °C	0.10 °C	0.4 °C	1.5 °C
			S Type	0 to 1700 °C	0.10 °C	0.4 °C
	E Type	-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 Type	200 to 1600 °C	0.50 °C	2.0 °C	4.5 °C	

Other Details	Voltage Outputs		Current Outputs		
Output Range	-10V to + 10V		4 to 20 mA		
Resolution	5mV		4mA		
Maximum Error	50mV (0.2% setting + 10mV)		80µA (0.3% setting + 20µA)		
Maximum 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				
DC Common mode interference error : <50mV/V on 1.3V and 10V ranges : <5mV/V on 20V and 150mV ranges	Current	4-20 mA	0.64µA	2.6µA	+/-0.15%
AC Common mode interference error : <1µV/V (50 or 60Hz)	4-20 mA				
AC Series mode interference error : <1mV/V for line frequencies within : 0.05% of nominal (50 or 60Hz)	Power	Dimensions	Weight	Op temp	Humidity
Overload protection : +/- 30V continuous on one channel : 200V transients of 0.1s duration : occurring <1/min	1.5W with zero output 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

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