

Datascan Analog Measurement Processors 7320 & 7321

General Description

The Datascan 7300 series is a series of intelligent distributed input/output modules designed for real time measurement, data collection and communication. Ideal for factory industrial and scientific applications, the Datascan 7300 combines the cost saving benefit of distributed I/O with the flexibility of local channel expansion.

Main Features

- Direct Sensor connection for DC voltages, thermocouples strain gauges RTD's resistance and 4-20mA converters
- 16 inputs on board expandable locally to 256 channels (1000 over network)
- Integral network interface for distribution over 1.2 Km (4Km with extension unit)
- 16 bit measurement performance with 0.625 μ V sensitivity
- Serial Port isolated to 500 VDC
- Wide range of compatible analog and digital input/output modules for expansion
- Local measurement speed up to 400 readings/sec 1000/sec over the network
- Individual channel programming of sensor type and speed
- Multi Vendor Software Support
- Compact Rugged DIN rail mounted
- Network Port isolated to 500 VDC

The **7300** 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.

The **7300** series is the most recent addition to the range of measurement processors and is completely compatible with the previous series of products. The 7300 series can be used with any of the 26 Datascan channel expansion modules in the range.

The **7300** series can be used autonomously or alternatively as part of a total distributed network. Each 7300 can support up to 256 channels of local inputs or outputs using the units 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). Each 7300 incorporates a programmable 16 bit ADC, an isolated serial interface, an isolated token passing network interface, on board non volatile memory for storing unit configurations, 8 or 16 inputs depending on model type, and an expansion port for channel extension. The unit is packaged in a compact DIN rail mounted carrier making it simple to install.

Specification	Model Type	No of Inputs	Sensor Types	Resolution	Input Impedance
The 7320/21 are analog input measurement processors. The 7320 is a 16 channel unit whereas the 7321 provides a total of 8 channels.	7320	16 (3 pole) expandable to 256 channels	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 and current.	7321	8 (6 pole) with pulsed energisation expandable to 256 channels	DC Voltage, Thermocouples, Resistance Thermometers, Strain Gauges, 4-20 mA, Resistance	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	30M ohms
The 7321 provides direct sensor energisation for strain gauges and resistance thermometers. Both models have integral CJC for direct Thermocouple measurement.	Sensor	Range	16 bit	14 bit	Accuracy
	DC voltage (7320/21)	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	+/-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 0.6 °C)

Each channel can be individually programmed for specific sensors speed and measurement range.	Sensor Type Thermocouple 7320/21	Ranges	Sensitivity 16 bit resolution	Sensitivity 14 bit resolution	Limits of Error
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.	K Type	-100 to 500 °C 500 to 1200 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.3 °C 0.6 °C
The integrating technique of conversion provides very high immunity to mains borne noise.	J Type	-50 to 360 °C 360 to 800 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.3 °C 0.5 °C
Software support	N Type	-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	0.6 °C 0.4 °C 0.6 °C
	T Type	-150 to 400 °C	0.02 °C	0.1 °C	0.3 °C
	R Type	0 to 1600 °C	0.10 °C	0.4 °C	1.4 °C
Datascan can be used with a wide range of standard software products available from several third party vendors.	S Type	0 to 1700 °C	0.10 °C	0.4 °C	1.4 °C
	E Type	-50 to 290 °C 290 to 1000 °C	0.02 °C 0.10 °C	0.1 °C 0.4 °C	0.3 °C 0.7 °C
Other details	B Type	200 to 1600 °C	0.50 °C	2.0 °C	4.4 °C
	Resistance thermometers PT100 (7321 only)	-50 to 300 °C -150 to 500 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.25 °C 0.50 °C
Common/series mode rejection	DC common mode : 100 dB's AC common mode : 120 dB's AC series mode : 60 dB's				
Overload Protection	Strain Gauges Full 1/2 1/4 bridge (7321 only)	0-10,000 µe	0.62 µe	3.0 µe	10 µe
RS232 Port	4-20 mA (7320/21)	4-20 mA			+/-0.15%
Baud Rates : 4800, 9600, 19.2K, 38.4K Isolation : 500V DC					
Network Specifications	Power	Dimensions	Weight	Op temp	Humidity
Electrical Specification : RS485 Media : Twisted Pair Maximum Length : 1.2Km Data Rate : 1000 results / sec Isolation : 500V DC Total channels / network : 1000	Supply 24V DC 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

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Datascan Analog Input Modules 7020 & 7021

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 7020/21 are analog input modules and can be used with either the 7010 or 7300 series of measurement processor.

Main Features

- Direct Sensor connection for DC voltages, Thermocouples, strain gauges, RTD's, resistance and 4-20 mA converters
- In built Cold Junction compensation
- On board energisation for RTD's and strain gauges.
- 16 bit measurement performance with 0.625 μ V sensitivity
- Solid state differential inputs
- High Common Mode and Series Mode rejection
- Local measurement speed up to 400 readings/sec 1000/sec over the network
- Channel mix and match capability
- Individual channel programming of sensor type and speed
- Digital configuration permitting mix and match of analog and digital inputs
- Compact Rugged DIN rail mounted
- Quoted accuracies guaranteed for 12 months, includes all errors

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 7020 and 7021 are expansion input scanners and signal conditioning units for the 7010 and 7300. The 7020 is a 16 channel unit, whereas the 7021 provides a total of 8 channels.	7020		16 (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 and 4-20 mA inputs.	7021		8 (6 pole) with pulsed energisation		DC Voltage, Thermocouples, Resistance Thermometers, Strain Gauges, 4-20 mA, Resistance	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	30M ohms
The 7021 provides direct sensor energisation for strain gauges and resistance thermometers. Both models have integral CJC for direct Thermocouple measurement.	Sensor	Range	16 bit	14 bit	Accuracy		
	DC voltage (7020/21)	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	+/-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.							
<i>Temperature coeff <30 ppm / °C (CJC Error 0.6 °C)</i>							
Each channel can be individually programmed for specific sensors' speed and measurement range.	Sensor Type Thermocouple 7020/21		Ranges		Sensitivity 16 bit resolution	Sensitivity 14 bit resolution	Limits of Error
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.	K Type		-100 to 500 °C 500 to 1200 °C		0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.3 °C 0.6 °C
The integrating technique of conversion provides very high immunity to mains borne noise.	J Type		-50 to 360 °C 360 to 800 °C		0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.3 °C 0.5 °C
A facility is provided to configure analog channels as digital inputs.	N Type		-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	0.6 °C 0.4 °C 0.6 °C
DIN rail mounting combined with plug-in screw terminal blocks make these modules easy to install and maintain.	T Type		-150 to 400 °C		0.02 °C	0.1 °C	0.3 °C
	R Type		0 to 1600 °C		0.10 °C	0.4 °C	1.4 °C
	S Type		0 to 1700 °C		0.10 °C	0.4 °C	1.4 °C
Channels can be mixed and matched under software control.	E Type		-50 to 290 °C 290 to 1000 °C		0.02 °C 0.10 °C	0.1 °C 0.4 °C	0.3 °C 0.7 °C
Wide range of supporting software	B Type		200 to 1600 °C		0.50 °C	2.0 °C	4.4 °C
	Resistance thermometers PT100 (7021 only)		-50 to 300 °C -150 to 500 °C		0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.25 °C 0.50 °C
Other Details	Strain Gauges Full 1/2 1/4 bridge (7021 only)		0-10,000 µe		0.62 µe	3.0 µe	10 µe
Overload Protection	4-20 mA (7020/21)		4-20 mA				+/-0.15%
+/- 30V continuous +/- 200V transient <0.1s	Power		Dimensions		Weight	Op temp	Humidity
DC common mode : 100 dB's AC common mode : 120 dB's AC series mode : 60 dB's	100mW typ 200mW max		W 178 mm H 123 mm D 80 mm		450 grams	-10 to 60°C storage -20 to 80°C	RH 90% Non-Condensin
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Datascan Isolated Analog Input Module 7026

General Description

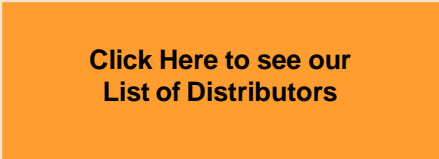
The Datascan is a series of intelligent, distributed input output modules designed for real time measurement, data collection and communication. Ideal for factory, industrial and scientific applications. The Datascan series includes intelligent Measurement Processors and various types of input modules for channel expansion, in all 26 modules for differing I/O requirements. The 7026 is a high isolation analog input module and can be used with the 7300 series of measurement processor.

Main Features

- Fully Isolated to 1000 volts channel to channel, channel to ground.
- Direct Sensor connection for DC voltages, Thermocouples and 4-20 mA converters
- In built Cold Junction compensation
- High Common Mode and Series Mode rejection
- Plug in Screw terminal blocks
- Mix and Match Channel Configuration
- Local measurement speed of up to 400 readings/sec, 1000/sec over the network
- Individual channel programming of sensor type and speed
- Compact Rugged DIN rail mounted module
- 16 bit measurement performance with 0.625 μ V sensitivity

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.

The **Datascan** series 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 units 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 7026 is an expansion input scanner and signal conditioning unit which can be used in conjunction with the 7010 series. It is an 8 channel unit which uses transformer isolation to provide up to 1000 volts of isolation.	7026	8 (4 pole)	DC Voltage, Thermocouples, 4-20 mA	16 bits @ 40 rdgs/sec 14 bits @ 400 rdgs/sec	>10 M ohms 150 mV, 20 mV Ranges 255 K ohms 10 V, 1.3 V Ranges
The unit provides direct sensor connection for Thermocouples DC voltages, 4-20 mA inputs. Internal cold junction compensation and linearisation provides direct measurement in degrees C or F.	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	+/-0.05%rdg+0.03%range+2bit +/-0.06%rdg+0.04%range+4bit +/-0.05%rdg+0.03%range+2bit +/-0.06%rdg+0.04%range+5µV
Calibration period 12 months. Calibration temperature 20°C. All quoted errors are worst case. Temperature coeff <50 ppm / °C + 0.5µV (C/JC Error 0.5 °C)					
Each channel can be individually programmed for specific sensors, speed and measurement range.	Sensor Type Thermocouple	Ranges	Sensitivity 16 bit resolution	Sensitivity 14 bit resolution	Limits of Error
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.	K Type	-50 to 100 °C -100 to 500 °C 500 to 1200 °C 1200 to 1600 °C	0.02 °C 0.20 °C 0.20 °C 0.02 °C	0.1 °C 1.0 °C 1.0 °C 0.1 °C	0.3 °C 0.5 °C 2.2 °C 5.0 °C
Channels can be mixed and matched under software control.	J Type	-50 to 360 °C 360 to 800 °C	0.02 °C 0.20 °C	0.1 °C 1.0 °C	0.4 °C 2.0 °C
A facility is provided to configure analog channels as digital inputs.	N Type	-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	1.5 °C 0.4 °C 1.3 °C
The integrating technique of conversion provides very high immunity to mains borne noise.	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	2.5 °C
Wide range of supporting software	S Type	0 to 1700 °C	0.10 °C	0.4 °C	2.5 °C
	E Type	-50 to 290 °C 290 to 1000 °C	0.02 °C 0.10 °C	0.1 °C 0.4 °C	0.5 °C 2.5 °C
Number of 7026's per 7010 : 10 Number of 7026's per network : 128	B Type	200 to 1600 °C	0.50 °C	2.0 °C	4.5 °C
	4-20 mA	0-20 mA 4-20 mA	0.65 µA 0.016 %	2.6 µA 0.04 %	+/-0.15% +/-0.03%range+/-5bits
Other Details	Common mode range (channel to channel) Common mode range (channel to ground)		+/- 1000 V peak +/- 1000 V peak		
Overload Protection +/- 200 V continuous Max error on surrounding channels in overload : 10 µV	DC Common mode rejection AC Common mode rejection AC Series mode rejection		160 dB 100R unbalance 160 dB 100R unbalance 90 dB @ 50 or 60 Hz +/-0.1% (16 bit resolution)		
Connection to 7010 : Via 26 way connector	Power	Dimensions	Weight	Op temp	Humidity
	340 mW typ 400 mW max	W 178 mm H 123 mm D 80 mm	850 grams	-10 to 60°C storage -20 to 80°C	RH 90% Non- Condensing
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Datascan Reed Relay Analog Input Module 7027

General Description

The Datascan is a series of intelligent distributed input output modules designed for real time measurement, data collection and communication. Ideal for factory industrial and scientific applications. The Datascan series includes intelligent Measurement Processors and various types of input modules for channel expansion, in all 26 modules for differing I/O requirements. The 7027 is a reed relay analog input module providing up to 200 volts isolation, and can be used with the 7010 series of measurement processor.

Main Features

- Direct Sensor connection for DC voltages, thermocouple and 4-20 mA converters
- In built Cold Junction compensation
- 16 bit measurement performance with 0.625 μ V sensitivity
- High Common Mode and Series Mode rejection
- Reed Relay differential inputs
- Plug in Screw terminal blocks
- Fully Isolated to 200 volts channel to channel, channel to ground.
- Channel mix and match capability
- Local measurement speed up to 40 readings/sec 1000/sec over the network
- Individual channel programming of sensor type and speed
- Digital configuration permitting mix and match of analog and digital inputs
- Compact Rugged DIN rail mounted

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.

The **Datascan** series 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 units 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 7027 is a reed relay analog input expansion scanner and signal conditioning unit for the 7010. The 7027 is a 16 channel unit providing 200 volts isolation.	7027	16 (3 pole)	DC Voltage, Thermocouple, 4-20 mA	16 bits @ 40 rdgs/sec	1M ohm
The unit provides direct sensor connection for thermocouples DC voltages, 4-20 mA inputs and current. Internal cold junction compensation and linearisation provides direct measurement in degrees C and degrees F.	Sensor	Range	16 bit	14 bit	Accuracy
	DC voltage	10V 1.3V 150mV 20mV Auto	320 µV 40 µV 5 µV 0.625µV	1.28 mV 160 µV 20 µV 2.5 µV	+/-0.02%rdg+0.01%range+2bit +/-0.02%rdg+0.01%range+2bit +/-0.02%rdg+0.01%range+2bit +/-0.02%rdg+0.01%range+10µV
Calibration period 12 months. Calibration temperature 20°C. All quoted errors are worst case. <i>Temperature coeff <30 ppm / °C (CJC Error 0.5 °C)</i>					
Each channel can be individually programmed for specific sensors and measurement range.	Sensor Type	Ranges	Sensitivity	Limits of Error	
	Thermocouple		16 bit resolution		
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.	K Type	-100 to 500 °C 500 to 1200 °C 1200 to 1600 °C	0.02 °C 0.20 °C 0.20 °C	0.4 °C 0.7 °C 4.5 °C	
	J Type	-50 to 360 °C 360 to 800 °C	0.02 °C 0.20 °C	0.4 °C 0.6 °C	
	N Type	-200 to -100 °C -100 to 580 °C 580 to 1300 °C	0.10 °C 0.05 °C 0.10 °C	0.8 °C 0.6 °C 0.8 °C	
Channels can be mixed and matched under software control.	T Type	-150 to 400 °C	0.02 °C	0.4 °C	
	R Type	0 to 1600 °C	0.10 °C	1.8 °C	
A facility is provided to configure analog channels as digital inputs.	S Type	0 to 1700 °C	0.10 °C	2.0 °C	
	E Type	-50 to 290 °C 290 to 1000 °C	0.02 °C 0.10 °C	0.4 °C 0.9 °C	
The integrating technique of conversion provides very high immunity to mains borne noise.	B Type	200 to 1600 °C	0.50 °C	4.5 °C	
	4-20 mA	4-20 mA		+/-0.15%	
Wide range of supporting software	Common mode range (channel to channel)			+/- 200 V peak	
	Common mode range (channel to ground)			+/- 200 V peak	
Number of 7027's per network : 64 Number of 7027's per 7010 : 8	DC Common mode rejection			110 dB 100R unbalance	
	AC Common mode rejection			140 dB 100R unbalance	
	AC Series mode rejection			60 dB @ 50 or 60 Hz +/-0.1%	
Other Details	Power	Dimensions	Weight	Op temp	Humidity
	200 mW typ 300 mW max	W 178 mm H 123 mm D 80 mm	1 Kg	-20 to 50°C storage -20 to 80°C	RH 90% Non-Condensing
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Datascan Digital Input Output Modules 7031/35/36

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 26 modules for differing I/O requirements. The 7031/35/36 are a range of isolated digital input/output modules and can be used with either the 7010 or 7300 series of measurement processor.

Main Features

- Opto-Isolated to 240V AC RMS, 354V DC
- On board Volt Free Energisation for Contact Closures
- Low Frequency Counter Option (7031)
- AC input capability (50/60 Hz)
- LED status display of Inputs and Outputs
- Plug in Screw Terminal Blocks
- 240V AC RMS Overload protection
- Compact Rugged DIN rail mounted module

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.

The **Datascan** series 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 units 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).

Model Type	No of Inputs	Input Signal	Input Threshold	Overload Protection	Maximum Input Voltage
7031 Digital Input Module	16 isolated inputs	DC or 50/60Hz	1.0<Vt<4.0	240V AC RMS 354 VDC	24V DC
			Input Current		
			1-2mA @ 5V		

The 7031 is a 16 channel opto-isolated digital input module designed to be used with the Datascan 7000 and 7300 series. Packaged in a rugged DIN rail-mounted module, it connects directly to the Measurement Processor by means of the expansion bus connector. Inputs are individually isolated up to 240V AC RMS or 354V DC, channel to channel and channel to ground. Signals can be status monitored or counted to a maximum frequency of 10Hz. LEDs on the module indicate the status of each input. A current limited 5V DC power supply is provided for volt free contact energisation, eliminating the need for external supplies. The unit can accept both DC or AC input signals. Positive temperature coefficient thermistors are used to prevent damage under overload conditions of up to 240V AC RMS.

Model Type	No of Outputs	Maximum On Current	Maximum Off Voltage	Maximum On Resistance	Isolation
7035 Digital Output Module	16 isolated outputs	0.5 amps	32 volts	1 ohm	240V AC RMS 354V DC channel to channel
					240V AC RMS 354V DC channel to ground

The 7035 is a 16 channel isolated digital output module. Like the 7031 the unit is packaged in a DIN rail-mounted module, and can be connected to the Measurement Processor via the expansion bus. Outputs are individually isolated to 240V AC RMS or 354V DC, channel to channel and channel to ground. The use of open drain MOSFETS provides the capability of switching 0.5 amp loads with up to 32 volts. Protection on each output permits the direct drive of inductive loads. LEDs on the module indicate the status of each output.

Model Type	No of Inputs	Input Signal	Input Threshold	Overload Protection	Maximum input voltage
7036 Digital Input/Output Module	8	DC	1.0<Vt<4.0	240V AC RMS 354V DC	24V DC
	No of Outputs	Maximum On Current	Maximum Off voltage	Maximum On Resistance	Isolation
	8	0.5 amps	32 volts	1 ohm	240V AC RMS

The 7036 combines the features of both the 7031 and 7035 into a convenient multi-purpose module. Protected and isolated to 240V AC RMS the unit offers sensor energisation and counting to 10Hz.

Power	Dimension	Weight	Operating Temperature	Humidity
From 7010 or 7300	W 178mm H 128mm D 80mm	650 gms	-10 to + 60 °C Storage -20 to + 80 °C	RH 90% Non-condensing

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Datascan

Counter Timer Module

7041

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 combines the cost saving benefit of distributed I/O with the flexibility of local channel expansion.

Main Features

- 3.5 KHz Input counting
- Input status monitoring
- Period measurement
- 3.5 KHz frequency measurement
- High speed event timing
- Rugged DIN rail mounted design
- Isolated to 240V RMS
- Variable de-bounce
- On board 5V energisation for contact closure

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.

The **Datascan** series can be configured in local clusters of channels or alternatively as part of a total distributed network. Each 7300 can support up to 256 channels of local inputs or outputs using the units 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).

Model Type	No of Channels	Input Threshold	Max Input Voltage	Input Isolation	Debounce Options
7041 Counter Timer Module	16	1V<Vt<4V	24V DC	240 V AC RMS 354 V DC	0.2 msec 5 msec 50 msec

The 7041 is a 16 channel counter/timer module designed to operate with the Datascan series. Packaged in a DIN rail-mounted module, it connects directly to the Datascan network through the RS485 network interface. Inputs are individually isolated to 240 VAC RMS or 354 VDC, channel to channel and channel to ground. Contact bounce is eliminated by software programmable debounce algorithm.

The first 8 channels may be programmed individually for a range of fast digital functions including counting, event timing, frequency and period measurement. In addition the remaining 8 channels may be configured for digital status monitoring or counting at up to 10Hz with an on-board power supply providing energisation for volt free contacts.

The 7041 will count digital pulses with debounce at rates up to 3.5 KHz into a 24 bit counter. Frequency may also be measured at up to 3.5 KHz with variable gate intervals. The 7041 will measure on-period, off-period or total period on any timer interval between 20 msec and 2000 sec with a resolution of 128 µs. An event timing mode is also provided allowing timings between one event and another to be measured with a resolution of 128 µs. Plug-in screw terminal connectors make for easy sensor connection and re-connection.

Digital Inputs (Channels 1 - 16)		Frequency Measurement (Channels 1 - 8)	
Modes	Normal, Inverted	Maximum input frequency	3.5 KHz
		Minimum hold time	128 µs
Counter Input (Channels 1 - 8)		Gate intervals	0.1 sec, 1 sec
Maximum input rate	3.5 KHz	Automatic retrigger	
Minimum hold time	128 µs		
Count length	24 bit		
Counter Input (Channels 9 - 16)		Event Timing (Channels 1 - 8)	
Maximum input rate	10 Hz	Trigger modes	Trigger on High
Count length	16 bit		Trigger on Low
Period Measurement (Channels 1 - 8)		Capture modes	High to low
Modes	Period High		Low to High
	Period Low	Maximum event duration	2000 sec
Min measurement period	20 ms	Resolution	0.128 µs
Resolution	0.128 µs		

Power	Dimension	Weight	Operating Temperature	Humidity
1W max at 24V	W 230mm H 123mm D 80mm	750 gms	-10 to + 60 °C Storage -20 to + 80 °C	RH 90% Non-condensing

Your Local Distributor

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The Company reserves the right to change the specification without notice

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 +/-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	
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. Ouput resolution is 12 bits.	K Type	-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.	J Type	-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
		N Type	-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
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
		S Type	0 to 1700 °C	0.10 °C	0.4 °C
The 7050 is encapsulated in a compact, rugged DIN rail mounting unit, making it ideally suited to installations in a harsh environments.	E Type	-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 Type	200 to 1600 °C	0.50 °C	2.0 °C
Channels can be mixed and matched under software control.					
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)		
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				
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 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
Your Local Distributor	<p style="text-align: center;">Click Here to see our List of Distributors</p> <p>Datascan Technology 7B Faraday Road Newbury Berkshire RG14 2AD UK Tele: +44 (0)1635 551222 Fax : +44 (0)1635 551677</p> <p>The Company reserves the right to change the specification without notice</p>				

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

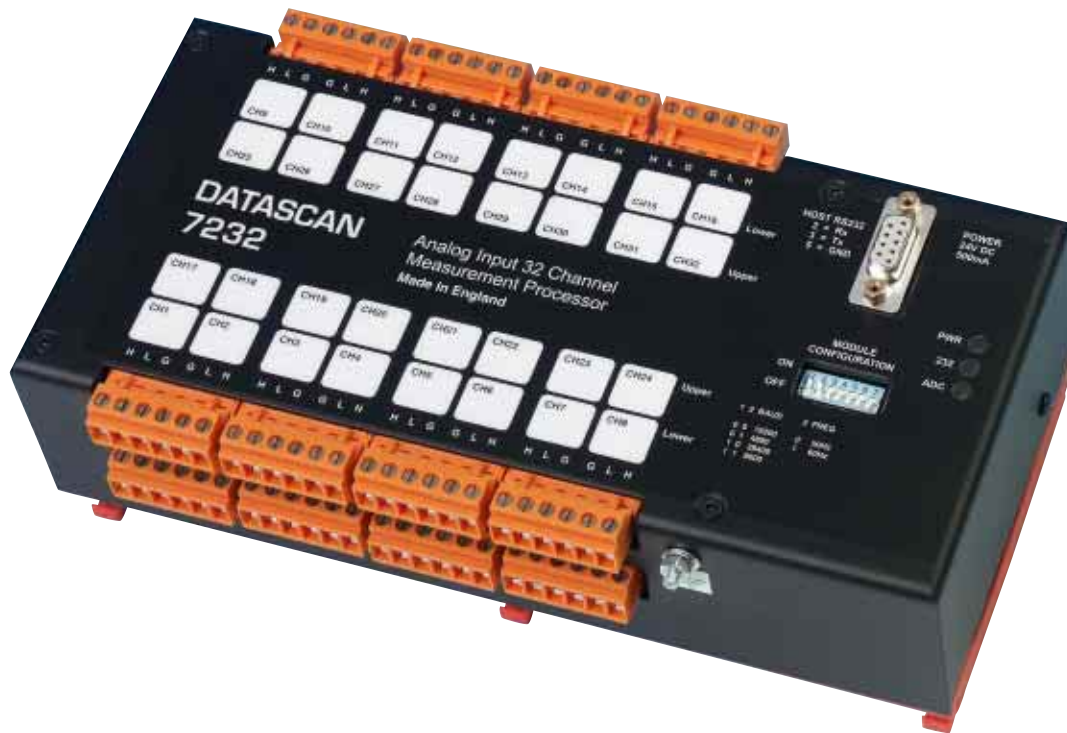
- Direct Sensor Connection for DC voltage, Thermocouples, Strain Gauges, PRT's and 4-20mA Converters
- Expandable over 1.2km Twisted Pair Network (4Km with Network Extender)
- 16 Bit measurement performance with 0.625 μ V sensitivity
- In-built Cold Junction Compensation
- Solid State Differential Inputs
- 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.		7220		16 (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.		7221		8 (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).		Sensor		Range		16 bit		14 bit		Accuracy	
		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		+/-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)	
<p>Calibration period 12 months. Calibration temperature 20°C. All quoted errors are worst case.</p> <p>Temperature coeff <30 ppm / °C (CJC Error 0.5 °C)</p>											
Each channel can be individually programmed for specific sensors, speed and measurement range.		Sensor Type Thermocouple 7220/21		Ranges		Sensitivity 16 bit resolution		Sensitivity 14 bit resolution		Limits of Error	
The high performance 16 bit ADC (Analog to digital converters) offers sensitivities as high as 0.625 µV.		K Type		-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.		J Type		-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	
Software support		N Type		-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	
		T Type		-150 to 400 °C		0.02 °C		0.1 °C		0.4 °C	
Datascan can be used with a wide range of standard software products available from several vendors.		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		1.5 °C	
		E Type		-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	
Other details		B Type		200 to 1600 °C		0.50 °C		2.0 °C		4.5 °C	
		Resistance thermometers PT100 (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	
Overload Protection +/- 30V continuous +/- 200V transient <0.1s		Strain Gauges Full 1/2 1/4 bridge (7221 only)		0-10,000 µe		0.62 µe		3.0 µe		10 µe	
Baud Rate: 300, 1200, 9600, 38.4K		4-20 mA (7220/21)		4-20 mA		0.01 µA		0.08 µA		+/-0.15%	
Network Specifications Standard : RS485 Media : Twisted Pair Distance : 1.2Km (4Km with network extender)		Power		Dimensions		Weight		Op temp		Humidity	
		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	
<p>Your Local Distributor</p> <p>Click Here to see our List of Distributors</p>						<p>Datascan Technology 7B Faraday Road Newbury Berkshire RG14 2AD UK Tele: +44 (0)1635 551222 Fax : +44 (0)1635 551677</p> <p>The Company reserves the right to change the specification without notice</p>					

DATASCAN TECHNOLOGY



- **Direct Sensor Connection for DC voltages, thermocouples, and 4-20mA converters**
- **32 analog inputs in one compact DIN rail mounted unit**
- **16 bit measurement performance with 0.625 μ V**
- **Serial Port isolated to 500V DC**
- **Local measurement speed up to 400 reading/sec.**
- **Multi-vendor software support**
- **Individual channel programming of sensor type and speed**
- **Compact Rugged DIN rail mounting**

The 7232 is a 32 channel analog input measurement processor. The unit provides direct sensor connection for thermocouples, DC voltages and 4-20mA inputs. Each channel can be individually programmed for specific sensors, speed and measurement range.

The high performance 16 bit ADC offers sensitivities as high as 0.625 microvolts. The integrating techniques of conversion provides high immunity to mains borne noise.

DIN rail mounting combined with plug-in screw terminal blocks make these modules easy to install and maintain. The channels can be mixed and matched under software control.

7232 ANALOGUE INPUT MODULE

The 7232 is designed for those applications that require a high packing density of channels in one unit. Using the pseudo digital input facilities of the product it is possible to mix and match both analog and digital inputs.

Each 7232 is supplied with a version of the Datascan configuration software DALITE. This will permit the user to configure the product and to log data as well as monitor measured values.

Datascan is supported by a wide range of standard software products.

Model type	No. of inputs	Applicable sensor types	Resolution	Input impedance
7232	32 (3 pole)	DC voltage, thermocouples, 4-20mA	16 bits @ 40 readings/sec 14 bits @ 400 readings/sec	30M ohms

Sensor	Range	Resolution 16 bit	Resolution 14 bit	Accuracy
DC voltage	10V	320 μ V	1.28mV	$\pm 0.02\%rdg \pm 0.01\%range + 1$ bit
	1.3V	40 μ V	160 μ V	$\pm 0.02\%rdg \pm 0.01\%range + 1$ bit
	150V	5 μ V	20 μ V	$\pm 0.02\%rdg \pm 0.01\%range + 1$ bit
	20V	0.625 μ V	2.5 μ V	16bit($\pm 0.02\%rdg \pm 0.01\%range + 1$ bit+5 μ V
	Auto			14bit($\pm 0.02\%rdg \pm 0.01\%range + 1$ bit+10 μ V

Calibration period 12 months. Calibration temp @20°C. All quoted errors are worst case Temperature coeff <30ppm / degC (CJC error 0.6 deg C).

Thermocouples	Ranges	Sensitivity	Sensitivity	Limits or Error
K type	-100 to 500°C	0.02°C	0.1°C	0.3°C
	500 to 1200°C	0.20°C	1.0°C	0.6°C
J type	-50 to 360°C	0.02°C	0.1°C	0.3°C
	360 to 800°C	0.20°C	1.0°C	0.5°C
N type	-200 to 100°C	0.10°C	0.4°C	0.6°C
	100 to 580°C	0.05°C	0.2°C	0.4°C
	580 to 1300°C	0.10°C	0.4°C	0.6°C
T type	-150 to 400°C	0.02°C	0.1°C	0.3°C
R type	0 to 1600°C	0.10°C	0.4°C	1.4°C
S type	0 to 1700°C	0.10°C	0.4°C	1.4°C
E type	-50 to 290°C	0.02°C	0.1°C	0.3°C
	290 to 1000°C	0.10°C	0.4°C	0.7°C
B type	200 to 1600°C	0.50°C	2.0°C	4.4°C

Other sensor types		
4-20mA	4-20mA	0.15%

Other specification details		
Common/series mode rejection:	DC common mode: 100dB's	AC Common mode: 120dB's AC Series mode: 60dB's

Power	Dimensions	Weight	Operating temp.	Humidity
Supply 24V DC Consumption <2watts@24V	W 230mm H 123mm D 80mm	1100 grams	Operating -10 to 60°C storage -20° to 80°C	RH 90% Non- condensing

RS232 Port	Overload protection
Baud rates: 4800, 9600, 19.2K, 38.4 Isolation: 500V DC	$\pm 30V$ continuous $\pm 200V$ transient <0.1s

DATASCAN TECHNOLOGY

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