

5000 Series

Alarm & Condition Monitoring (Issue 5)



5000 Series Multi-channel Process Condition and Critical Alarm Monitoring



Description

The 5000 Series is highly versatile process condition monitor capable of the simultaneous reading of up to 24 analogue process signals. The instrument is equipped to handle most process signal types from mA and mV to RTD and Thermocouples with software selectable scaling and linearization's. Each channel is equipped with software strategies for Alarming and Logging providing the user with an array of possibilities for process monitoring.

The dual channel I/O cards are built on the proven Field 1000PLUS platform and feature high quality analogue components giving the best accuracy and thermal stability.

The system is available in 6 Channel, 12 Channel and 24 Channel base configurations.

Analogue Process Signal Capability Key Features

Resistance Temperature Devices	
PT100	-200 °C to 850 °C
Ni120	-70 °C to 300 °C
Cu10	-50 °C to 250 °C
Cu30	-50 °C to 25 °C
Pt20	-50 °C to 25 °C
Thermistor	0 °C to 150 °C

Thermocouples	
T/C Type J	-180 °C to 750 °C
T/C Type K	-180 °C to 1250 °C
T/C Type T	-200 °C to 400 °C
T/C Type E	-60 °C to 1000 °C
T/C Type N	0 °C to 1210 °C
T/C Type R	0 °C to 1600 °C
T/C Type S	0 °C to 1560 °C
T/C Type L	-200 °C to 900 °C
T/C Type U	-200 °C to 600 °C
T/C Type B	50 °C to 1820 °C
T/C Type C	0 °C to 2310 °C

Thermocouples	
Resistance	0 to 450Ω
Millivolts	-10mV to 10mV -20mV to 20mV -50mV to 50mV -100mV to 100mV -200mV to 200mV
Volts	-1v to +1v -2v to 2v -5v to 5v -10v to 10v
Milliamps	-20v to 20v 0mA to 20mA 0mA to 10mA

- 6, 12, and 24 Channel DIN Enclosure with 2 part screw terminal connections to the rear.
- Channel cards may be added at any time by the user, these are available in Single or Dual Channel format.
- Each Channel has a dedicated microprocessor for high speed data acquisition.
- Universal analogue inputs supporting many industrial process signal types with high accuracy / thermal stability electronics and high performance 24 bit ADC.
- User configurable 'soft' input scaling and linearization, alarm & event triggers and data logging.
- Dual Alarm outputs with independent set-points and triggering strategies, including; High, Low, Rate of Change and Early Indication.
- Solid State Relay alarm outputs as standard with optional Relay Output daughterboard for higher load capability.
- Analogue Output repeat facility with user defined rescaling available with optional Analogue Output daughter board.
- 3.8" LCD HMI with Touch-screen interface for channel card monitoring, local interrogation, alarm acknowledgement and system configuration.
- High speed robust and reliable MODBUS backbone between Channel cards and HMI.
- Simple setup via intuitive configuration screens on HMI.
- Auxiliary communications options available for RS232, RS485 (MODBUS RTU/JBUS) and ETHERNET (MODBUS TCP) allowing 5000 units to be networked and/or interfaced to DCS & SCADA systems.

Applications

- Temperature Monitoring
- Vibration Monitoring
- Pressure Monitoring
- Flow Monitoring
- Pump Performance Monitoring

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TECHNICAL SPECIFICATION

Electrical		
Supply Voltage:	<i>DC Model:</i>	24 Vdc (±10%)
	<i>AC Model:</i>	90 to 250 Vac (50 – 60 Hz)
Consumption:		5 to 48 Watts
Isolation:	<i>Power supply to Logic:</i>	1000 Vdc/μS
	<i>Comms to Logic:</i>	1000 Vdc/μS
	<i>Logic to Output:</i>	1000 Vdc/μS
	<i>Channel to Channel:</i>	600 Vdc/μS
Analogue Inputs		
Accuracy:	<i>Measurement:</i>	±0.1% of Range
	<i>Linearisation:</i>	±0.9% of Range
Resolution:	<i>Raw ADC:</i>	24 bit
	<i>Processed:</i>	16 bit
Scan Rate:		<100mS
CMR:		>90dB @ 50Hz
Temperature Co-efficient:		500Vdc to Earth
CJC Accuracy:		±20ppm / °C
		±0.1°C
Analogue Outputs		
Resolution:		12 bit
Accuracy:		±0.1%
Alarm Outputs		
Solid State:		Normally Open Contacts
<i>Load Switching:</i>		100mA @ 247Vac/dc
<i>ON resistance:</i>		20 Ω
Relay:		Normally Open and Closed Contacts
<i>Load Switching:</i>		3A @ 30Vdc / 5A @ 250Vac
<i>ON resistance:</i>		150 mΩ
Mechanical		
Casing:	<i>Outer:</i>	Powder Coated Aluminium
	<i>Inner:</i>	Powder Coated Mild Steel
	<i>Bezel:</i>	Wet Sprayed Aluminium
Fixings:		Side secured fixing clamps
Terminals:		2-part cage clamp screw terminals Maximum conductor size: 2.5mm ²
Environmental		
Ambient Limits	<i>Storage:</i>	-20 to +70°C
<i>Operation:</i>		-10 to +50°C
<i>Humidity:</i>		20 to 90% RH (non-condensing)
Protection:		IP42 Standard
EMC	<i>Immunity:</i>	EN50082-2
	<i>Emissions:</i>	EN50081-1
Safety		EN609050
Functional		
Delay Time:		Adjustable: 0 to 255s (each alarm trip point)
Hysteresis:		Adjustable: 0 to 25% of IP range (0.1% increments)
Response Time:		<200 mS
Logging:		Alarm event and data logging (time-stamped) Up to 32768 events/data points

ORDER CODES																					
Chassis																					
5106-M1	6 channel chassis. 24 Vdc powered. 90mm touchscreen HMI. No channel cards.																				
5106-M2	6 channel chassis. 90 - 250 Vac powered. 90mm touchscreen HMI. No channel cards.																				
5112-M1	12 channel chassis. 24 Vdc powered. 90mm touchscreen HMI. No channel cards.																				
5112-M2	12 channel chassis. 90 - 250 Vac powered. 90mm touchscreen HMI. No channel cards.																				
5124-M1	24 channel chassis. 24 Vdc powered. 90mm touchscreen HMI. No channel cards.																				
5124-M2	24 channel chassis. 90 - 250 Vac powered. 90mm touchscreen HMI. No channel cards.																				
Channel Cards																					
5602	Dual channel universal input plug-in card with 2 x alarm O/Ps per channel. No analogue O/P or relay O/P cards fitted.																				
Options																					
5401	Dual relay O/P cards – one per channel. (fit to IO pins on 5602 channel card)																				
5501	Single channel analogue O/P card 0-20mA (0-10V) – one per channel. (fit to IO pins on 5602 channel card) NB – default setting is mA OP unless specified with order																				
Dimensions																					
<i>All dimensions shown in millimetres unless specified otherwise</i>																					
	<table border="1"> <thead> <tr> <th>Chassis</th> <th>A</th> <th>B</th> <th>C</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>5106</td> <td>200</td> <td>186</td> <td>187 (±2)</td> <td>3.8 kg</td> </tr> <tr> <td>5112</td> <td>293</td> <td>281</td> <td>282 (±2)</td> <td>4.6 kg</td> </tr> <tr> <td>5124</td> <td>437</td> <td>425</td> <td>426 (±2)</td> <td>5.8 kg</td> </tr> </tbody> </table>	Chassis	A	B	C	Weight	5106	200	186	187 (±2)	3.8 kg	5112	293	281	282 (±2)	4.6 kg	5124	437	425	426 (±2)	5.8 kg
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Field Electronics Ltd reserve the right to update this publication periodically and make changes to product specifications without obligation to notify any person of such revision or changes.



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