

Models 5100V/5180V

Specification sheet

TECHNICAL SPECIFICATION (Recorder)

Board types and hardware options

Six-channel universal input

Model 5180V: Four boards (24 channels) max.

Model 5100V: One board (6 channels) max.

Three Change-over relay output board

Model 5180V: Four boards (12 outputs) max.

Model 5100V: Two boards (six outputs) max.

3.5 inch floppy disk, or PC Card (ATA flash or hard disk).

Environmental Performance

Temperature limits PC Card option: Operation: 0 to 50°C; Storage: -25 to 70 °C

Floppy disk drive option: Operation: 5 to 40°C; Storage: -20 to +50°C

Humidity limits PC Card option: Operation: 8% to 85% RH; Storage: 8% to 90% (both non-condensing)

Floppy disk drive option: Operation: 20% to 80% RH; Storage: 8% to 80% (both non-condensing)

Protection Bezel and display IP65

Shock BS EN61010

Vibration (10 to 150 Hz) 2g peak

Altitude <2000 metres.

Electromagnetic compatibility (EMC)

Emissions BS EN50081-2

Immunity BS EN50082-2

Electrical safety

(BS EN61010)

Installation cat. II; Pollution degree 2

Physical (Model 5100V)

Panel mounting

DIN43700

Bezel size

144 x 144 mm.

Panel cutout dimensions

138x138 (both -0 + 1 mm)

Depth behind bezel rear face

248 mm

Weight

3 kg

Panel mounting angle

Recorders with hard disk: Vertical panel only

Recorders with floppy disk: ± 15 °

Other 5100V recorders: No constraint on mounting angle

Physical (Model 5180V)

Panel mounting

DIN43700

Bezel size

288 x 288 mm

Panel cutout dimensions

281x281 (both -0 + 1 mm)

Depth behind bezel rear face

305 mm

Weight

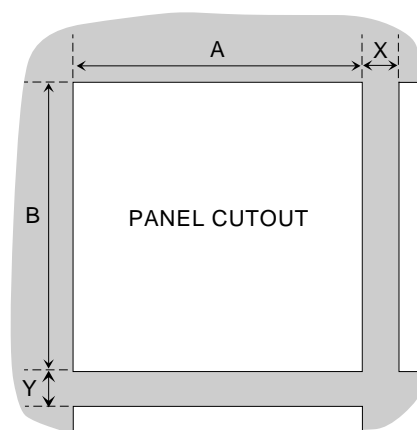
7.5 kg

Panel mounting angle

Recorders with hard disk: Vertical panel only

Recorders with floppy disk: ± 15 °

Other 5180V recorders: No constraint on mounting angle



Model	A x B (-0.0 + 1) mm	Minimum recommended spacing	
		Side clamps	Top/bottom clamps
5100	138 x 138 (-0.0 + 1) mm	X = 15 mm Y = 10 mm	X = 10 mm Y = 15 mm
5180	281 x 281 (-0.0 + 1) mm	X = 25 mm Y = 12.5 mm	X = 12.5 mm Y = 25 mm

Operator interface

Type

Colour TFT LCD with cold cathode backlighting.

Fitted with resistive, analogue, toughened touch-panel

Size and resolution

Model 5100V: 1/4VGA (320 x 240 pixels)

Model 5180V: SVGA (800 x 600 pixels)

Power requirements

Line voltage 47 to 63 Hz 85 to 265V

Power (Max) 60VA (Inrush current 36A)

Fuse type None

Ethernet communications

Electrical standard 10Mbps Ethernet. 10BaseT.

Transport protocol TCP/IP. Provision for File Transfer Protocol (FTP)

INSTALLATION CATEGORY II

The rated impulse voltage for equipment on nominal 230V mains is 2500V.

POLLUTION DEGREE 2

Normally, only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation shall be expected.

TECHNICAL SPECIFICATION (Input board)

General

Input types	dc Volts, dc millivolts, dc milliamps (with shunt), Thermocouple, 2 / 3-wire RTD Contact closure (not chan. 1) >60 ms
Input type mix	Freely configurable.
Maximum number of inputs	6 per board
Input ranges	See Table1 and Table 3 below.
Termination	Edge connector / terminal block
Noise rejection (48 to 62 Hz)	Common mode: >140dB (channel to channel and channel to ground). Series mode: >60dB.
Maximum common mode voltage	250 Volts continuous
Maximum series mode voltage	45 mV at lowest range; 12 Volts peak at highest range.
Isolation (dc to 65 Hz; BS EN61010)	Installation cat II; Pollution degree 2
Channel to channel:	300V RMS or dc (double insulation)
Channel to common electronics:	300V RMS or dc (double insulation)
Channel to ground:	300V RMS or dc (basic insulation)
Dielectric strength (BS EN61010)	(1 minute type tests)
Channel to channel	2300 Vac
Channel to ground	1350 Vac
Insulation resistance	>10 MΩ at 500 V dc
Input impedance	38mV, 150 mV, 1 V ranges: >10 MΩ; 10 V range: 68.8 kΩ
Over voltage protection	50 Volts peak (150V with attenuator)
Open circuit detection	± 57 nA max.
Recognition time	500 msec
Minimum break resistance	10 MΩ
Sample rate	125msec (each input with full complement of channels)
Archive rate	125msec (max) to internal flash memory/ disk/PC card

DC Input ranges

Shunt	Externally mounted resistor modules
Additional error due to shunt	0.1% of input
Additional error due to attenuator	0.2% of input
Performance	See table 1

Low Range	High Range	Resolution	Maximum error (Instrument at 20°C)	Worst case temperature performance
-8 mV	38mV	1.4µV	0.085% input + 0.073% range	80ppm of input per deg C
-30 mV	150mV	5.5µV	0.084% input + 0.053% range	80ppm of input per deg C
-0.2 Volt	1 Volt	37µV	0.084% input + 0.037% range	80ppm of input per deg C
-2 Volts	10 Volts	370µV	0.275% input + 0.040% range	272ppm of input per deg C

Table 1 DC performance

Relay outputs

Maximum switching power*	500VA or 60W
Maximum breaking current*	2 Amps within above power ratings
Maximum contact voltage*	250V within above power ratings
Isolation†	Contact to contact: 300V RMS or dc (double insulation) Contact to ground: 300V RMS or dc (basic insulation)
Estimated life*	30,000,000 operations

* With resistive loads. With inductive loads, derate according to the graph, in which:
Contact life = resistive life x F1 or F2 where
F1 = measured on representative examples and
F2 = typical values according to experience.

Input board specification (Cont.)

Thermocouple data

Temperature scale	ITS 90
Bias current	0.05 nA
Cold junction types	Off, internal, external, remote
CJ error	1°C max with inst. at 25°C
CJ rejection ratio	50:1 minimum
Remote CJ	Via any user-defined channel
Upscale / downscale drive	High, low or none selectable for each thermocouple channel
Types and ranges	See table 2

T/C Type	Overall range (°C)	Standard	Max linearisation error
B	0 to + 1820	IEC 584.1	0 to 400°C: 1.7°C 400 to 1820°C: 0.03°C
C	0 to + 2300	Hoskins	0.12°C
D	0 to + 2495	Hoskins	0.08°C
E	- 270 to + 1000	IEC 584.1	0.03°C
G2	0 to + 2315	Hoskins	0.07°C
J	- 210 to + 1200	IEC 584.1	0.02°C
K	- 270 to + 1372	IEC 584.1	0.04°C
L	- 200 to + 900	DIN43700:1985 (To IPTS68)	0.20°C
N	- 270 to + 1300	IEC 584.1	0.04°C
R	- 50 to + 1768	IEC 584.1	0.04°C
S	- 50 to + 1768	IEC 584.1	0.04°C
T	- 270 to + 400	IEC 584.1	0.02°C
U	- 200 to + 600	DIN 43710:1985	0.08°C
Ni/NiMo	0 to + 1406	Ipsen	0.14°C
Platinel	0 to + 1370	Engelhard	0.02°C

Table 2 Thermocouple types and ranges

Resistance inputs

Ranges (including lead resistance)	0 to 150 Ω, 0 to 600 Ω, 0 to 6k Ω
Influence of lead resistance	Error = negligible; Mismatch = 1 Ω/Ω
Temperature scale	ITS90
Accuracy and resolution	See table 3

Low Range	High Range	Resolution	Maximum error (Instrument at 20°C)	Worst case temperature performance
0Ω	150Ω	5mΩ	0.045% input + 0.110% range	35ppm of input per deg C
0Ω	600Ω	22mΩ	0.045% input + 0.065% range	35ppm of input per deg C
0Ω	6kΩ	148mΩ	0.049% input + 0.035% range	35ppm of input per deg C

Table 3 Resistance ranges - accuracy and resolution

RTD Type	Overall range (°C)	Standard	Max linearisation error
Cu10	-20 to + 400	General Electric Co.	0.02 °C
JPT100	-220 to + 630	JIS C1604:1989	0.01 °C
Ni100	- 60 to + 250	DIN43760:1987	0.01 °C
Ni120	-50 to + 170	DIN43760:1987	0.01 °C
Pt100	-200 to + 850	IEC 751	0.01 °C
Pt100A	-200 to + 600	Eurotherm Recorders SA	0.09 °C
Pt1000	-200 to + 850	IEC 751	0.01 °C

Table 4 RTD types and ranges

