

The DIGIREC A and B are the low cost, high functionality 100 mm chart-width microprocessor-based recorders which has been designed for general purpose applications worldwide. Its design meets the requirements of quality, ruggedness, flexibility, ease of use and optimum price/functionality combination.

The two versions are:

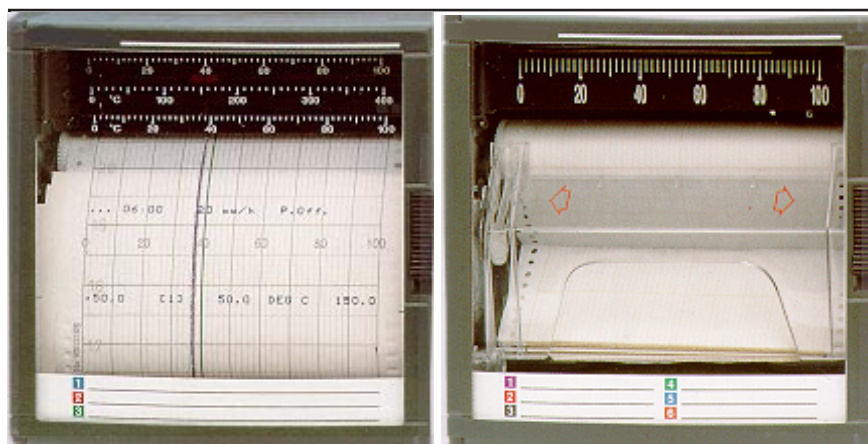
- DIGIREC A: a 1 to 3 continuous pen recorder;
- DIGIREC B: a 1 to 6 channel multipoint recorder.

These recorders has been designed for applications in the metal, glass, ceramics and utilities industries, as well as for the new and fast growing markets related to:

- environmental monitoring
- health and sanitation
- food processing
- pilot plants and laboratories

## MAIN FEATURERS

- Microprocessor-based
- 1, 2 or 3 pens, or 1 to 6 channels multipoint
- 100 mm chart-width (DIN 16230)
- 0.25% accuracy full-scale (IEC 873)
- Analogue displays with a wide selection of ranges and scales
- Fully configurable universal inputs (T/C, RTD, High level)
- Roll or fan fold chart paper
- Chart documented with date, time, range, engineering unit, chart speed, identification number, alarm setpoints and events
- Up to 6 alarm relay outputs (Pen: 2 alarm set-points per pen, Mpt: 1 alarm set-point per channel)
- Up to 2 optional logic inputs for event recording, print inhibit and change speed
- Non-volatile memory
- 2 configurable chart speeds (Pen: 10 to 6000 mm/h; Mpt: 10 to 1500 mm/h)
- Simplified product configuration with prompts printed on the chart
- Full product configuration by PC software connected by a front jack connector
- Product calibration to certify input sensor: zero, span adjustments per channel
- Universal power supply: 85 to 264 VAC 50/60 Hz, 24 or 48 VAC/DC
- Permanent operation up to 50°C (120°F)



- Rugged construction for industrial applications
- IP 54 front protection (IEC 529)
- Compact dimensions: 144 x 144 mm (DIN 43700/43718), depth 245 mm (9.7") behind panel

## OPTIONS

- Illuminated chart
- Key lock
- Rear terminal cover
- 24 VDC 75 mA max. to supply 3 transmitters
- Operating temperature up to 60°C (140°F)
- Pen offset compensation
- 2 logic inputs
- 2, or 6 alarms output
- Portable unit
- Abrasion-resistant plastic window

## FUNCTIONAL SPECIFICATIONS

### Technical data

#### Analogue inputs

##### DIGIREC A pen recorder

1, 2 or 3 continuous traces. Pen 1 also prints all chart documentation.

##### DIGIREC B multipoint recorder

1 up to 6 channels. Inputs are scanned by relays, galvanically isolated and individually configurable to any listed actuation.

#### Signal source

Thermocouple with individual cold junction compensation.  
Line resistance up to 1000 ohms T/C, mV, mA, Volt  
RTD Pt 100 3-wire connections, lead resistance per wire 40 Ω balanced.

#### Field calibration

A channel field calibration 0 % and

100 % span, may be made to certify input sensor loop.

#### Burnout

T/C, mV, Volt; factory set fo upscale (configurable to downscale or none)  
RTD: inherent upscale.  
mA: inherent downscale

#### Scanning time

#### Pen:

**Chart Speed**  
at 10-60 mm/h  
at 60-300 mm/h  
at > 300 mm/h

Inputs	
mV, V, mA	T/C, RTD
330 ms	2 sec
330 ms	1 sec
330 ms	330 ms

**Mpt:** 5 seconds for 6 channels.

#### Input impedance

10 Mohm for T/C, mV inputs.  
>1 Mohm for volt inputs

#### Stray rejection

Series mode ≥ 60 db.  
Common mode at 250 VAC ≥ 130 db

#### Logic inputs (option)

Up to 2-dry contact inputs (1.5 mA - 12 VDC).

#### Actions

Change chart speed 1 to speed 2.  
Print inhibit.  
Event marking:

Pen: Pen 1 used as operation marker on the right side of the chart.

Multipoint: 2 traces maximum on the right side of the chart. (L<sub>1</sub> = purple, L<sub>2</sub> = red).

#### Scales

##### Pen

1 analogue scale per pen in accordance with the input range configuration.

##### Multipoint

1 analogue scale, 0 to 100 linear.

## Recording span

### Scaling

Per input, an analogue scale is printed on the chart with the engineering unit. Each input can be configured differently.

### Pen offset

Distance between pen: 2 mm.  
Chart definition: 1 step = 0.2 mm.

### Pen carriage speed

1 second full scale

### Chart length

Fan fold 18 m. (as DIN 16230)  
Roll 24 m

### Pen trace

#### Pen

1400 m per pen

#### Multipoint

250 m per colour

### Chart speed

1 or 2 chart speeds, fully configurable, selected by a logic input.

Speed 1: fully adjustable per step of 1 mm/h, within limit

Speed 2: choice as per the model selection guide.

### Speed setting

Pen: 10 to 6000 mm/h (.5 to 240"/h).

Mpt: 10 to 1500 mm/h (.5 to 60"/h).

### Stepping chart motor

Resolution 0.12 mm.

### Alarms (option)

**Pen** 1,2,3 or Mpt 3 CH

2 alarm set-points per channel, (factory set\* 1 low, 1 high).

**Mpt** (6 CH)

1 alarm set-point per channel, (factory set\* high).

### Hysteresis

0.5% to 99% of Scale (Factory Set at 0.5%).

### Outputs

Up to 6 alarm relays output contacts.

1 SPST normally closed contact (may be configured into normally open contact).

### Rating contact

2 A, 250 VAC on resistive loads.

\* other selections configured by PC

### Power supply

85 to 264 VAC, 50/60 Hz or 24 or 48 VAC/DC (+10 -15% nominal)

### To transmitters

24 VDC, 50 mA max (optional).

### Power consumption

3 pens: 30 VA max.

Multipoint : 30 VA max.

## Clock timer

### Format

Year, month, hour, minute can be set.

### Power interruption

Battery back-up time of 10 years with 3 years off power.

### Accuracy

$\pm 10^{-5}$

## Packaging

### Weight

Pen: 3.5 kg

Multipoint: 3.5 kg

### Front face

144 x 144 mm according to DIN 43718

### Depth

245 mm /9.7" behind panel, including terminals and line protection cover

**Front window** Acrylic

**Front protection** IP 54 (IEC 529)

### Lock

Latch or key (DIN 43832-N)

**Cut out** DIN 138 x 138 mm.

**Construction** Silicon-free

### Optional

Chart illumination.

Rear terminal cover.

## Mounting

Panel mounting  $\pm 30^\circ$  from horizontal (DIN 43834).

## Wiring

Rear screw terminals.

Terminal modules are plugged on the instrument

## Writing

### Pen

1 cartridge per pen, fibre tip, 1400 m of trace per colour (blue, red, green)

### Multipoint

1 print wheel, 6 colours, 250 m of trace per colour (purple, red, black, green, blue, brown)

## Noise immunity

Meets or exceeds:

IEC 801-2: electrostatic discharge:

meets level 3

IEC 801-3: radiated electrostatic field:

meets level 3

IEC 801-4: electrical fast transients:

meets level 3

IEC 801-5: line voltage surge: meets

level 3

VDE 871 radio EMI interference

(EN55022 class B): meets level B

## Safety protection

Complies with 414, 348 and 1010-1

installation category 2 for personal protection

Designed to meet UL and CSA C22.2, N142 standard (CSA approved)

## Electrical insulation

### Input to input

Test voltage 350 VAC for 1 min (except for RTD input) or 280 VAC with option State Relay.

### Input to ground

Test voltage 1.5 kVAC for 1 min.

### Input to line voltage

Test voltage 2.3 kVAC for 1 min.

### Line voltage to ground

Test voltage 2.3 kVAC for 1 min.

### Alarm relay to ground

Test voltage 2.3 kVAC for 1 min.

### Logic input to ground

Test voltage 350 VAC for 1 min.

## Temperature

### Ambient

0 to 50°C (32 to 120°F)

Optionally 0 to 60°C (32 to 140°F)

### Storage

-40 to +70°C (0 to +160°F)

10 to 90 % RH non condensing

## Humidity

**Roll** 10 to 90% RH non-condensing

### Fan-fold

15 to 80% RH non-condensing

## Vibrations

Frequency

10 to 60 Hz - Amplitude 0.07 mm

60 to 150 Hz - Acceleration 1 g

## Accuracy

### Reference conditions

#### Temperature

20°C  $\pm 2^\circ\text{C}$  (68°F  $\pm 3^\circ\text{F}$ )

**Humidity** 65% RH  $\pm 5\%$  RH

**Line voltage nominal**  $\pm 1\%$

**Source resistance** 0  $\Omega$

**Series mode** 0 V

**Common mode** 0 V

**Frequency nominal**  $\pm 1\%$

### Accuracy

0.25% of total range (IEC 873).

## Extreme conditions

### Operating

#### Temperature

0 to +60 °C (0 to 140 °F).

#### Humidity

10 to 90 % RH non-condensing.

### Storage

#### Temperature

-40 to +70 °C (-40 to 160 °F).

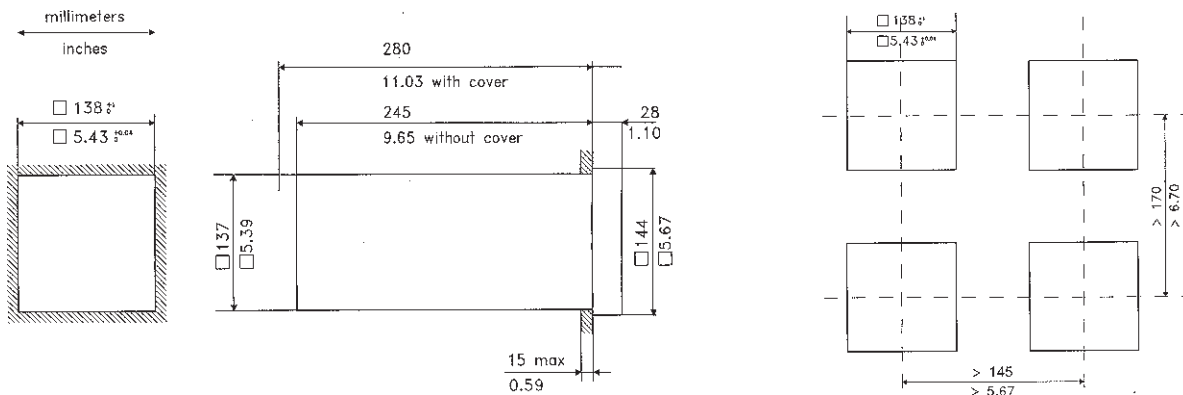
#### Humidity

5 to 95 % RH non-condensing.

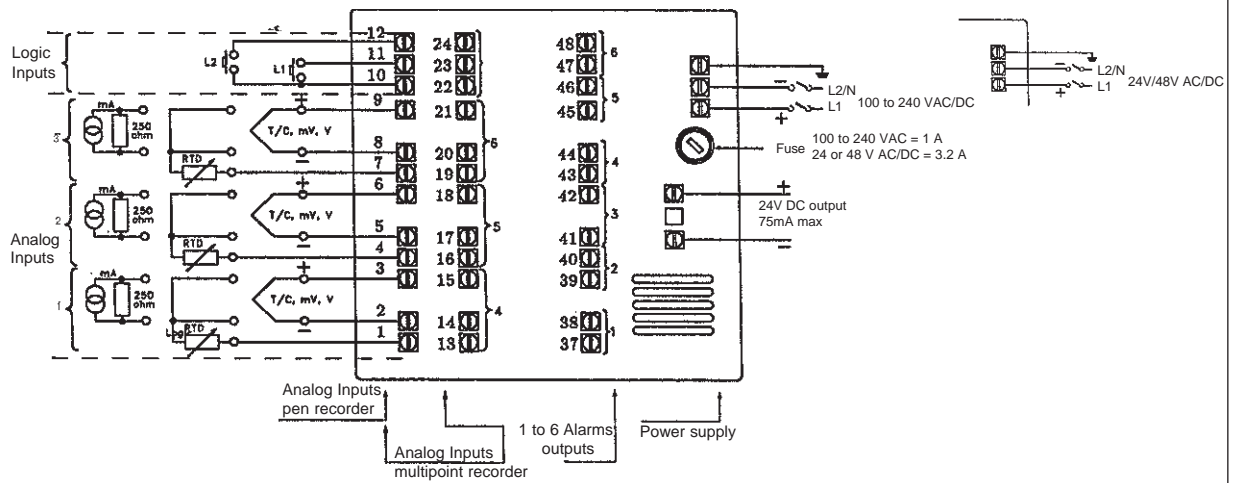
Rated limits and associated drifts		
Parameter	Rated limits	Influence on accuracy
Temperature	0 to 50°C (32 to 120°F)	0.1 % per 10°C Cold junction 0.3°C/10°C
Supply voltage	85 to 264 V	No influence
Source resistance	T/C, mV	6μV per 100 Ω of line resistance 1000 Ω max
	RTD	0.1 °C per Ω in each wire balanced leads, 40 Ω max.
Humidity	10 to 90% RH at 25°C	0.1 % max.
Long-term stability		0.1 % per year
Vibrations	2.5 mm at 0 to 14 Hz 1 g at 14 to 250 Hz	

Available ranges				
<b>Thermocouples</b>		°C	°F	
	J	-50 to +150 0 to 400 0 to 800	-100, 0, 300 0 to 800 0 to 1500	
	K	0 to 400 0 to 800 0 to 1200 0 to 1400	0 to 800 0 to 1500 0 to 2400 0 to 2500	
	Nicrosil-Nisil (N)	0 to 400 0 to 800 0 to 1200 0 to 1400	0 to 800 0 to 1500 0 to 2400 0 to 2500	
	S	0 to 1600	0 to 3000	
	R	0 to 1600	0 to 3000	
	T	-100 to +200 0 to 150 50 to 150	-150 to +400 0 to 300 100 to 300	
	Note: (Provision to accept T/C input for remote compensation box at fixed temperature of 50°C or 60°C).			
	<b>RTD's</b>		°C	°F
		Pt 100	-50 to + 50°C -50 to +150	-60 to +140° F 100, 0, +300
(Alpha = 0.00385)		0 to 100 -200 to +200 0 to 400	0 to 200 -300 to +400 0 to 800	
<b>mV and Volt</b>	0 to 10 mV		0 to 1 V	
	0 to 20 mV		0 to 5 V	
	0 to 50 mV		1 to 5 V	
	10 to 50 mV		0 to 10 V	
	0 to 100 mV			
<b>mA</b>	0 to 20 mA or 4 to 20 mA linear 4 to 20 mA SQRT input resistor 250 ohms required			

## Dimensions



## Connections



We reserve the right for technical changes without prior notice.