

Specification DataFile

- **1, 2, 3 or 6 traces**
 - on a common time base

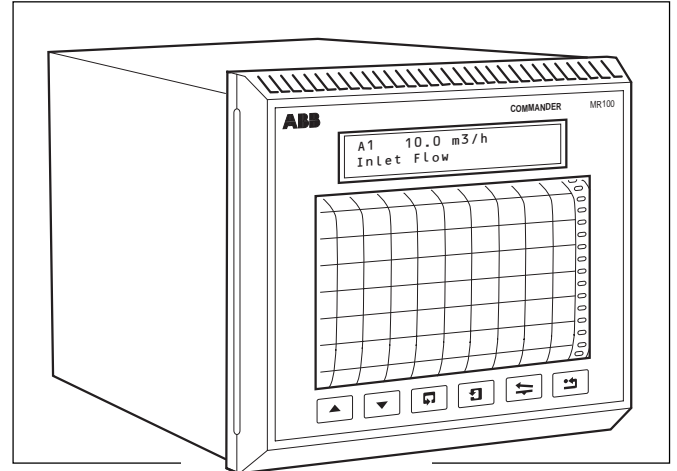
- **High clarity display**
 - of process value, units and channel tag

- **Available preconfigured to your requirements**
 - make connections and it's ready to go!

- **2-wire Transmitter power supply as standard**
 - for up to three loop-powered devices

- **Rugged design IP65/NEMA 3 protection**
 - reliability in the harshest environments

- **Six relay outputs**
 - for high/low process alarms



*MR100 – dependable recording
of your process*

COMMANDER MR100

The COMMANDER MR100 provides accurate and reliable recording of 1, 2, 3 or 6 process signals on a 100mm wide chart. In-built **text printing** capabilities give clear annotation on the chart of time, date, scales and channel identifiers.

A clear view of process status is provided by the LCD display and up-to-the-minute recording can be quickly examined by means of the Easy View facility. The recorder is designed for panel mounting and provides complete dust and water protection on the front face, making it suitable for use in harsh environments.

The MR100 can be **supplied preconfigured** for the signal types and ranges you specify when ordering. All configurations can be adjusted on site by means of the front panel keys.

High Clarity Recording

The COMMANDER MR100's high-speed printing system updates all 6 traces in under a second. This system produces continuous lines on the chart for speeds of up to 500mm/hr, with no 'pen-offset' between channels.

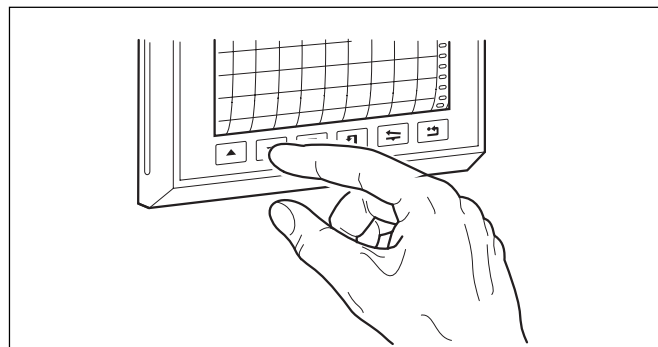
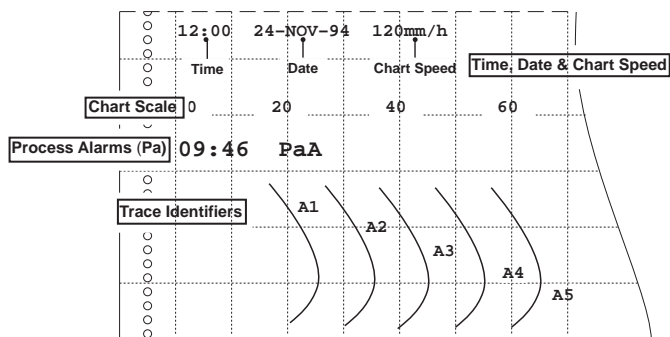
The MR100 supports full text printing to provide detailed annotation on the chart. In addition to the time, date, channel identity and chart speed, the recorder can print scales for each channel and alarm tags.

Straightforward Operation

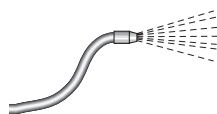
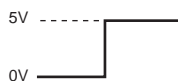
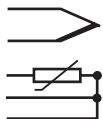
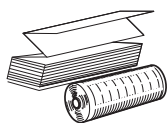
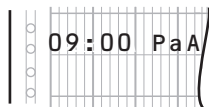
During normal operation the display cycles through each channel in sequence, showing the measured value, engineering units, description and channel identifier.

Password protection prevents unauthorized access to the recorder's configuration.

Quickly-fitted pen cartridges and an easily-removable chart cassette ensure simple and efficient pen and chart replacement.



SUMMARY SPECIFICATION



The recorder prints **time**, **date** and **chart speed** automatically at regular intervals. Channel scales and batch identifiers can also be printed on the chart.

Roll, or **Fanfold**, **charts** with a recording width of 100mm are available with 30, 40, 50, 60, 70 and 75 divisions. Chart speed is fully adjustable between 1 and 1500mm/hour.

Universal process inputs support all standard types of thermocouple, RTD, 4 – 20mA signals and V, or mV, signals. Transmitter power supplies are fitted as standard for up to 3 loop-powered devices.

Up to **12 process alarms** can be set up within the recorder. Alarm status can be printed on the chart and the alarms used to operate any of the 6 relay outputs.

A **digital input** is provided as standard for remote changing of chart speed.

The **IP65** front face and door seals protect panel-mounted recorders against dust and water jets from most cleaning hoses.

SPECIFICATION

Summary

1, 2, 3 or 6 traces
100mm wide roll or fanfold chart
Supplied preconfigured or site programmable
IP65 protection

OPERATION

Display:

2 x 20-character long-life backlit L.C.D.
Display range: -9999 to +9999.

Configuration:

Recorder can be supplied with inputs preconfigured
All configurations adjustable via front panel keys

CHART

Colors:

Single trace - Red
Two traces - Pen 1 = Red, Pen 2 = Green
Three traces - Pen 1 = Red, Pen 2 = Green, Pen 3 = Blue
Six traces - per DIN standard

Chart:

12m Fanfold or 25m Roll
Standard chart graduation: 50 divisions
30, 40, 60, 70, 75 divisions also available

Chart Speed:

Configurable in 1mm steps between 1mm and 1500mm/hr
Remote chart On/Off

Pen:

Resolution: 0.2% of span

Trace Response:

800ms for update of six traces

Input Electrical Limits

Input Type	Min. Value	Max. Value	Min. Span	Accuracy % of reading
Millivolts	-2000	2000	2.5	±0.1% or ±10μV
Volts	-20	20	0.25	±0.2% or ±2mV
Milliamps	-100	100	0.25	±0.2% or ±2μA
Resistance	0	8000	10	±0.2% or ±0.08Ω

Input Temperature Limits

THC/RTD Type	°C				°F			
	Min.	Max.	Min. Span	Accu- racy	Min.	Max.	Min. Span	Accu- racy
Type B	-18	1800	710	±2.0 *	0	3272	1278	±3.6 *
Type E	-100	900	45	±0.5	-148	1652	81	±0.9
Type J	-100	900	50	±0.5	-148	1652	90	±0.9
Type K	-100	1300	65	±0.5	-148	2372	117	±0.9
Type L	-100	900	50	±0.5	-148	1652	90	±0.9
Type N	-200	1300	90	±0.5	-328	2372	162	±0.9
Types R & S	-18	1700	320	±1.0 *	0	3092	576	±1.8 *
Type T	-250	300	60	±0.5	-418	572	108	±0.9

* For thermocouple Types B, R and S performance accuracy cannot be guaranteed below 300°C (572°F)

RTD**	-200	600	25	±0.5 ***	-328	1112	45	±0.9 ***
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** Inputs to IEC 751 and DIN 43760

*** Note. For temperatures between 300° and 600°C (575° and 1112°F) accuracy is ±1.0 (±1.8)

ENVIRONMENTAL

Operating limits:

0 to 50°C (32° to 122°F), 95%RH non-condensing
80%RH for chart

ANALOG INPUTS

Number:

1, 2, 3 or 6 Analog Inputs
Type RTD, thermocouple, mA, mV, V or Ω

Linearizer Functions:

Programmable for all inputs including: $\sqrt{\quad}$, $x^{3/2}$, $x^{5/2}$.
THC types B, E, J, K, R, S, T, L, N or Pt100

Broken Sensor Detection:

Programmable UP/DOWN scale or NONE

Cold Junction Compensation:

Automatic CJC incorporated as standard
CJC: < 0.05°C/°C change in ambient.

Input impedance

Current: 10Ω
D.C. voltage: 500kΩ
mV & THC: >10MΩ

Isolation

Analog ch. to ch. isolation 12V (0V with RTDs)
Input to ground 500V d.c.

ELECTRICAL

Power supply:

85 to 265V a.c. 50/60Hz
24V d.c.

Electrical safety:

CE Marked instruments meet EU regulations

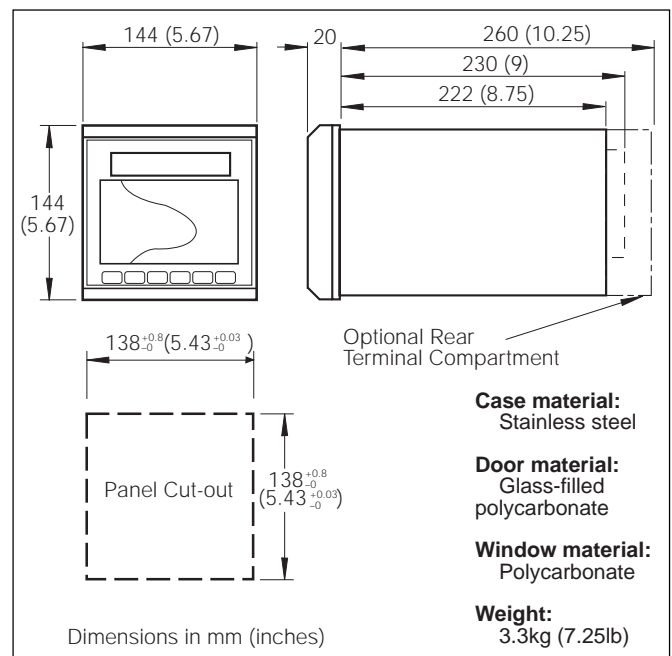
RELAY MODULE

Up to two modules can be fitted

Relay Output Module

Three relays per module
Type: single pole changeover
Rating: 250V a.c. 5A (non-inductive load)
30V d.c. 5A (non-inductive) 150W

Dimensions



COMMANDER Strip Chart Recorder		MR100	X	/X	X	/X	X	X	XX
Number of traces	One	1							
	Two	2							
	Three	3							
	Six	6							
Alarm Relays (Position B)	None Three		0R						
Alarm Relays (Position C)	None Three			0 R					
Terminal Cover	Not fitted					1			
	Fitted					2			
Chart Type	Roll						1		
	Fanfold						2		
Power Supply	85 to 265V a.c.							2	
	24V d.c.							3	
Channel Configuration	Customer specified – complete configuration table below Standard								CM ST

CONFIGURATION TABLE			THC and Pt100			mA, mV, V and Resistance				
Channel	Input Type	Linearization Type	Linearizer Range			Elec. Range		Display		
			Units °F/°C	Zero	Span	Zero	Span	Zero	Span	Units (6 digits max.)
1										
2										
3										
4										
5										
6										
Examples	mA	None	–	–	–	4	20	0	100	bar
	THC	R	C	0	1400	–	–	–	–	

If the recorder is required to be configured please complete this table and return with your order.
Default configuration: 0 to 1000°C Type K thermocouple.

Electrical Connections	Analog input		Relay output		AUX PWR		AC Power		DC Power	
	A		C		L		L		L	
	1	+	1	RL1 N/C	1		Line		+	ve
	2	– Analog I/P A1	2	RL1 N/O	2		Neutral		–	ve
	3	3rd lead RTD	3	RL1 C	3		Earth			Earth
	4	+	4	RL2 N/C	4		No connection			
	5	– Analog I/P A2	5	RL2 N/O	5		No connection			
	6	3rd lead RTD	6	RL2 C	6		No connection			
	7	+	7	RL3 N/C	7					
	8	– Analog I/P A3	8	RL3 N/O	8					
	9	3rd lead RTD	9	RL3 C	9					
	10	+	10	No connection	10					
	11	– Analog I/P A4	1	RL1 N/C	1					
	12	3rd lead RTD	2	RL1 N/O	2					
	13	+	3	RL1 C	3					
	14	– Analog I/P A5	4	RL2 N/C	4					
	15	3rd lead RTD	5	RL2 N/O	5					
	16	+	6	RL2 C	6					
	17	– Analog I/P A6	7	RL3 N/C	7					
	18	3rd lead RTD	8	RL3 N/O	8					
	19	Digital I/P	9	RL3 C	9					
	20	0V	10	No connection	10					



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