

- **1 to 3 pen versions**
 - for all your recording requirements
- **Dedicated Flow version**
 - to record and totalize; one batched and one secure totalizer per channel
- **Universal process inputs**
 - THC, RTD, V, mV, and mA
- **0.25% measurement accuracy**
 - reliable recording
- **Clear vacuum fluorescent display**
 - with units of measure and channel identifier
- **Up to 6 alarm relays**
 - high/low process, 3-state or latching
- **2-wire transmitter power supply**
 - power for all inputs



C1492...the ideal solution for your recording needs

Model C1492 Circular Chart Recorder

The C1492 is available as a one-, two-, or three-channel recorder, offering up to 6 output relays, allocated to six set points, which can be used on any channel or channels.

24V DC power supply modules can be fitted for use with two-wire field transmitters.

Also available are isolated retransmission output modules which can be added to any channel without change of software.

The C1492 can be supplied for flow indication and recording with totalization available on all channels.



Displays and Controls

Displays and Controls

The display is a blue-filtered, 20-character, single-line 5 x 7 dot matrix, vacuum fluorescent type. In general use the input value and units of measurement are displayed sequentially for each channel.

During programming of the instrument the display provides easily read prompts, together with program variables. The clarity of these prompts reduces dependency on the instruction manual.

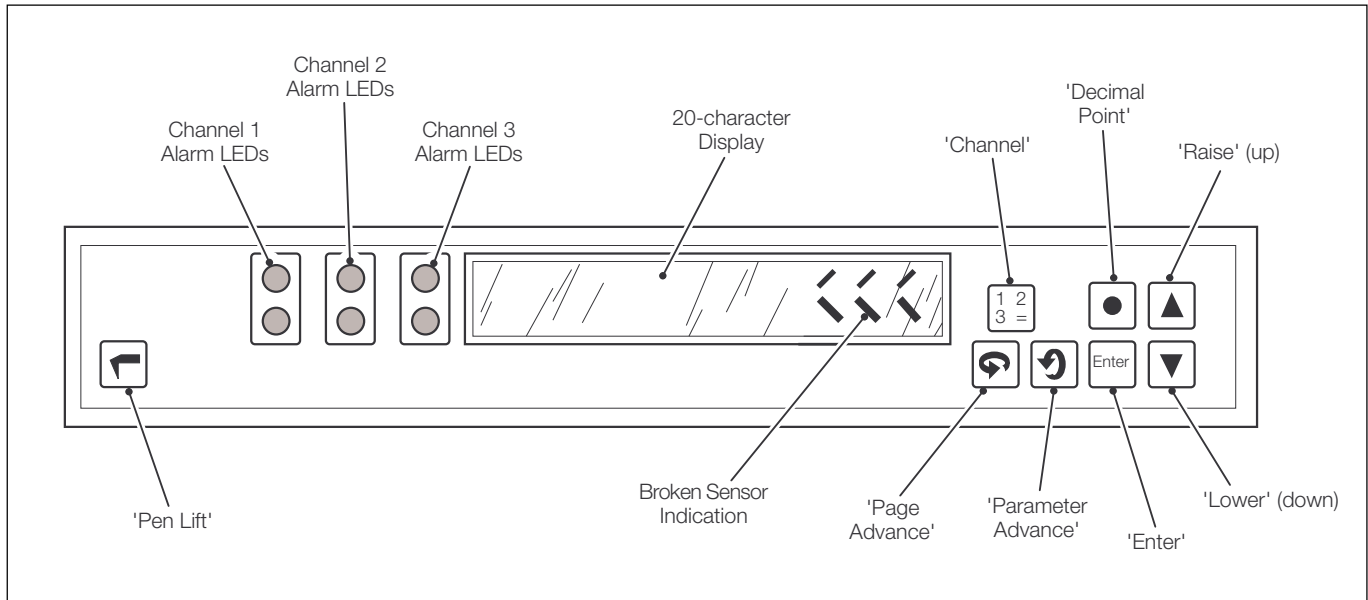
Alarm state is indicated by a red/green l.e.d. for each set point. These l.e.d.s are visible through the window in the door and can be programmed to indicate the required color when the input signal is above or below the set point.

All output relays can be programmed to be either energized or de-energized in the alarm condition in an on/off, latch or 3-state mode.

Units of Measure

In addition to the 156 standard units of measurement programmed into the recorder (e.g. °C, °F, l/h, pH), further units, up to six characters in length, may be entered into the program by the user.

Programming the instrument is carried out by the operation of a sequence of tactile membrane switches: three 'Scroll' switches in conjunction with 'Up', 'Down', 'Decimal Point' and 'Enter' switches. A further switch is used to raise & lower the pens for pen and chart replacement.



Control Panel Details

Flow Options

The C1492 is available for flow indication and recording with totalization on all channels. Input signals can be linear or square law analog.

$x^{3/2}$ or $x^{5/2}$ linearization is included in the standard software package. Any analog flow input channel may be changed from a totalizer to a standard version accepting analog signals for other measurements simply by programming the flow total to 'off'.

Secure Totals

Each flow channel has two totalizers, one of which can be used for a batch total, resettable from the front panel and displayed in sequence with flow rate. The other is used for display of a secure total, accessible only by operating the appropriate channel select buttons.

Both totals are protected in the memory for up to ten years in the event of power failure.

For applications requiring a remote counter, a relay module with volt-free contacts can be fitted.

The totalizers can be programmed to count either up or down. A 'wrap around' feature enables the totalizer to count to a predetermined value and then reset to a preset value. A relay, or relays, can be allocated to the 'wrap' feature, energizing for 1 second at the predetermined value.

Specification

Accuracy

Intrinsic error

±0.25% span max. for all zero-based ranges within reference conditions 68°F and 115V or 230V supply

Linearizer accuracy

±0.18°F typical

Electrical Limits

Input Type (Electrical Inputs)	Min. Start Value	Min. Span	Max. Span and Range Value
Millivolts	-999	5.00	1000
Volts	-20.0	0.50	20.0
Milliamps	-99.9	0.50	100.0
Resistance	-20.0	20.0	2000

Resolution

Measurement mV, V, mA, THC

≥0.1% span for all zero-based ranges within permitted limits

RTD

0.06Ω

Pen

≤0.1% full scale travel

Display

±1 digit (in -999 to 3300)

Pen response time

6s for 0 to 100% typical

Temperature Limits

Input (Temperature Inputs)	Type	Degrees Fahrenheit		
		Min. Start Temp.	Min. Span	Max. Temp.
Thermocouples				
Fe/Con and IEC 584	J	-148	180	1652
Fe/Con DIN 43710	L	-148	180	1652
NiCr/NiAl and IEC 584	K	-148	270	2372
Pt/PtRh and IEC 584	R & S	0	1080	3092
Cu/CuNi and IEC 584	T	-418	216(+ve) 306(-ve)	570
NiCr/CuNi and IEC 584	E	-148	180	1650
Pt30%Rh and IEC 584	B	0	1980	3272
NiCrSi/NiSi	N	-328	324(+ve)	2372
Resistance Thermometer	Pt100	-328	90	1112

...Specification

Analog Inputs

No. of inputs

1, 2 or 3

Broken sensor detection

Programmable, upscale or downscale drive or none

Linearization

Programmable for all inputs – linear, square root, power $^{3/2}$, $^{5/2}$ law, or type of thermocouple, or resistance thermometer

Filter Time

Programmable from 0 to 60s in 1s steps

Change of input mode

By repositioning plug-in link

Change of input range/span

Programmable via front panel

Program modification

By user-operated switches above chart

Floating inputs isolation

12.5V max. between channels
(upon removal of terminal block links)

Insulation inputs to earth

500V DC

Input Resistance

Millivolt inputs	>10M Ω
Voltage inputs	500k Ω min.
Current inputs	10 Ω

Displays and Records

Display

20-character, alpha-numeric, dot-matrix, vacuum fluorescent with blue filter 5mm (0.196 in. characters)

Programming

Up, down and 'scroll' switches above chart

Chart – 250mm (10 in.)

Circular with linear graduations. Specify the chart rotation time, graduations and chart number if known.

Chart speed

1 rev. per hour up to 1 rev. per week (168h) programmable in 1 hour steps

Pens

Red, channel 1. Green, channel 2. Blue, channel 3

Environmental Data

Operating temperature limits

32 to 131°F

Operating humidity limits

0 to 80% RH (paper and ink system)

0 to 95% RH (electronics)

Error due to ambient temperature variation

$\pm 0.01\%$ span/°F typical (unsuppressed ranges)

Protection rating

NEMA 3

EMC and Safety

Emissions

Meets requirements of EN 50081-2

Immunity

Meets requirements of EN 50082-2

Design and Manufacturing Standard

CE mark
CSA General Safety Approved
UL General Safety Approved

Electrical Safety

EN 61010-1

Power Supplies

Voltage requirement

110V AC (93V min. 127V max.) 50/60Hz

230V AC (195V min. 265V max.) 50/60Hz

Alternatively, 10 to 30V DC

Power requirement

<28VA

Error due to power supply voltage variation

$\pm 0.1\%$ span for $\pm 15\%$ variation in supply

Line interruption

<110ms loss, no effect,
>110ms loss, instrument returns to operation after automatic reset

Common mode

<1% span error max. for 250V RMS 50Hz

Series mode

<1% span error for 200% span, 50Hz

Transmitter Power Supply

Output voltage

25V $\pm 0.5V$ at 0 or 60mA (loaded with 3 transmitters)

Output ripple

100mV peak-to-peak max.

Regulation

$\pm 0.1V$ for output change 4 to 20mA

Output voltage variation with supply voltage

<0.1V for $\pm 15\%$ supply voltage

Alarms and Retransmission

Alarms

No. of set points

Up to 2 per channel

Trip point adjustment

Programmable

No. of relays

Up to 2 per channel

Relay contacts

Single pole changeover

Rating

250V AC 5A (non-inductive) 1250VA

250V DC 5A (non-inductive) 50W

Retransmission

Outputs

Output modules are isolated. The maximum isolation voltage is 1000V between input and output

Programmable min. (zero) and max. (full scale) values from 0 to 20.0mA in 0.1mA steps. Max. load 1k Ω

Mechanical Data

Mounting

Wall or panel by 3 brackets, supplied as standard kit

Optional accessories	Part No.
Door seal moisture shield	PX105/0111
Carrying stand assembly (complete with cover)	P105M/0340

Overall dimensions

14.56 in. wide x 14.17 in. high x 6.7 in. deep

Panel cutout

13.7^{+0.04}₋₀ in. x 13.46^{+0.04}₋₀ in.

Panel space requirement

16.14 in. wide x 15.74 in. high, 5.90 in. deep from panel face

Case and door

Sheet steel case with hinged chart plate. Foam-moulded door with glass window (or polycarbonate to special order)

Weight

23 lb approx.

Specification for Flow Input Versions

General

Flow total

Programmable ON or OFF

Count rate zero

Programmable from 0 to 0.999 in 0.001 pps steps then 1.00 to 9.99 in 0.01 pps steps

Count rate full scale

Programmable from 0.001 to 0.999 then 1.00 to 10.00 pps

Count rate cut off

Totalization can be stopped if flow rate falls below preset value. Preset value adjustable over full span, programmable in 1% steps

Count

Increase or decrease

Wrap

Programmable predetermined and preset values

Analog Inputs

Mathematical linearizer accuracy

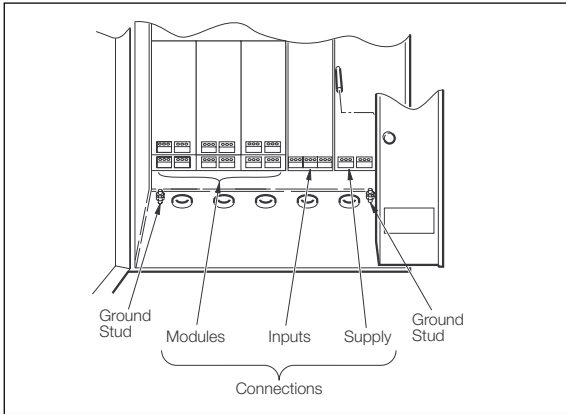
\sqrt{x} – 0 to 100% 0.1% of reading

$x^{3/2}$ – 7 to 100% 0.2% of reading

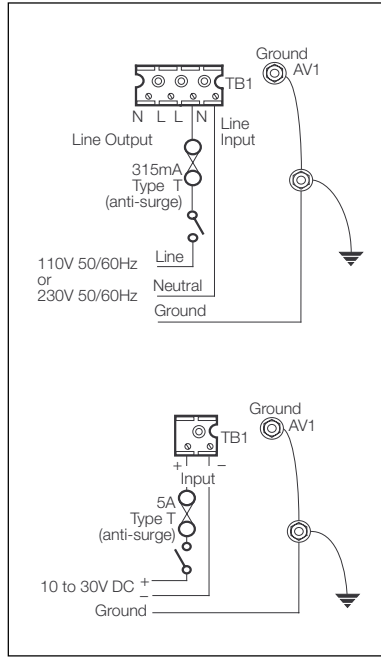
$x^{5/2}$ – 18 to 100% 0.3% of reading

Below these values the error increases asymptotically as the input approaches zero

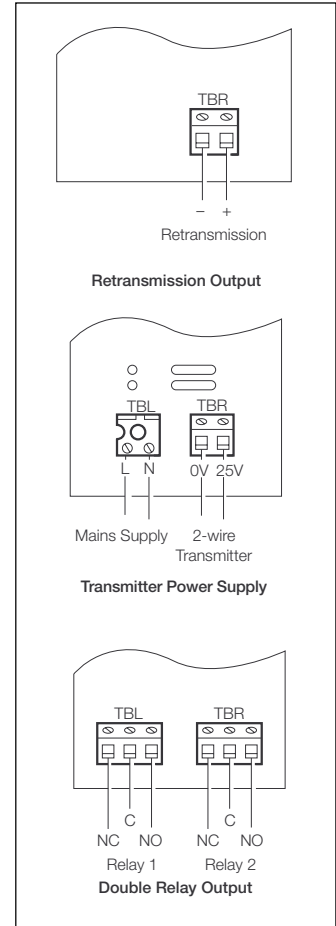
Electrical Connections



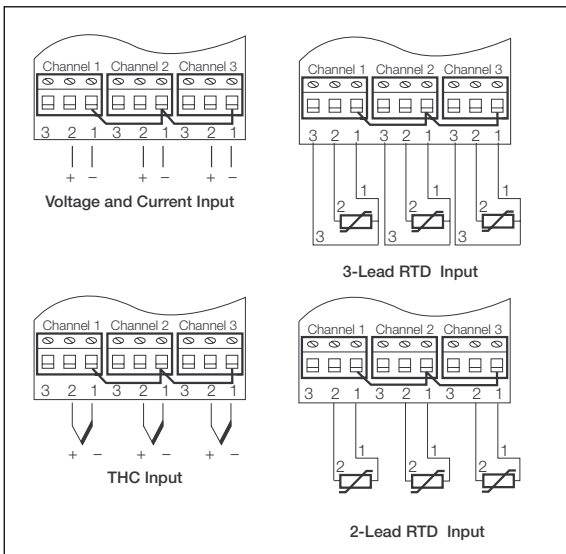
Terminal Connections



Process Input Connections



Module Connections



Supply Connections

Chart Examples

24 Hour Rotation					7 Day Rotation				
Range	Chart No.	Range	Chart No.	Range	Chart No.	Range	Chart No.	Range	Chart No.
-100 to +100	1246	0 to 10	537	0 to 800	256	0 to 10	601	-100 to +100	1210
-50 to +50	1255	0 to 14	1361	0 to 1000	542	0 to 14	1353	-50 to +50	1258
-50 to +100	1439	0 to 15	1309	0 to 1200	355	0 to 20	1390	-50 to +150	1357
-25 to +25	604	0 to 20	1153	0 to 2000	304	0 to 25	1355	-25 to +25	1302
-15 to +15	565	0 to 25	522	0 to 2500	1484	0 to 30	357		
		0 to 30	531	0 to 3000	658	0 to 40	402		
		0 to 40	630	0 to 4000	621	0 to 50	405		
		0 to 50	514	0 to 10000	670	0 to 60	606		
		0 to 60	597	20 to 100	633	0 to 80	1461		
		0 to 80	545	20 to 120	211	0 to 100	410		
		0 to 100	510	50 to 150	262	0 to 200	620		
		0 to 120	515			0 to 250	625		
		0 to 150	564			0 to 300	1123		
		0 to 200	1145			0 to 400	434		
		0 to 250	525			0 to 600	1316		
		0 to 300	585			0 to 800	479		
		0 to 400	540			0 to 1000	1317		
		0 to 500	550			20 to 100	923		
		0 to 600	640			20 to 120	1134		

Ordering Information

Circular Chart Recorder Model C1492	/X	X	X	1	X	000	1	X	X	X	00X	0X	X	X
No. of Channels														
One	1													
Two	2													
Three	3													
Operating Voltage														
110/120V AC		1												
220/240V AC		3												
24V DC		6												
Input Type														
Universal V, mV, THC, RTD, mA			1											
Input Isolation														
12.5V between channels				1										
Output Relays														
None					0									
Two (1 card)					2									
Four (2 cards)					4									
Six (3 cards)					6									
Case and Mounting														
NEMA 3						000								
Door Lock														
(Standard)							1							
Transmitter Power Supply *														
None								0						
3 channels (1 card)								1						
6 channels (2 cards)								2						
Totalizer (Integration) **														
None									0					
One									1					
Two									2					
Three									3					
Totalizer Counter Outputs *														
None										0				
One (1 card)										1				
Two (2 cards)										2				
Three (3 cards)										3				
Analog Retransmission *														
None											000			
One (1 card)											001			
Two (2 cards)											002			
Three (3 cards)											003			
Window														
Glass													00	
Acrylic													01	
Factory Configuration														
None														0
Basic (Channel, Instrument. & Alarm menu)														1
With options														2
Approvals														
CSA approval														
UL approval														

* Max. of 3 card positions are available.

** Per channel

Overall Dimensions

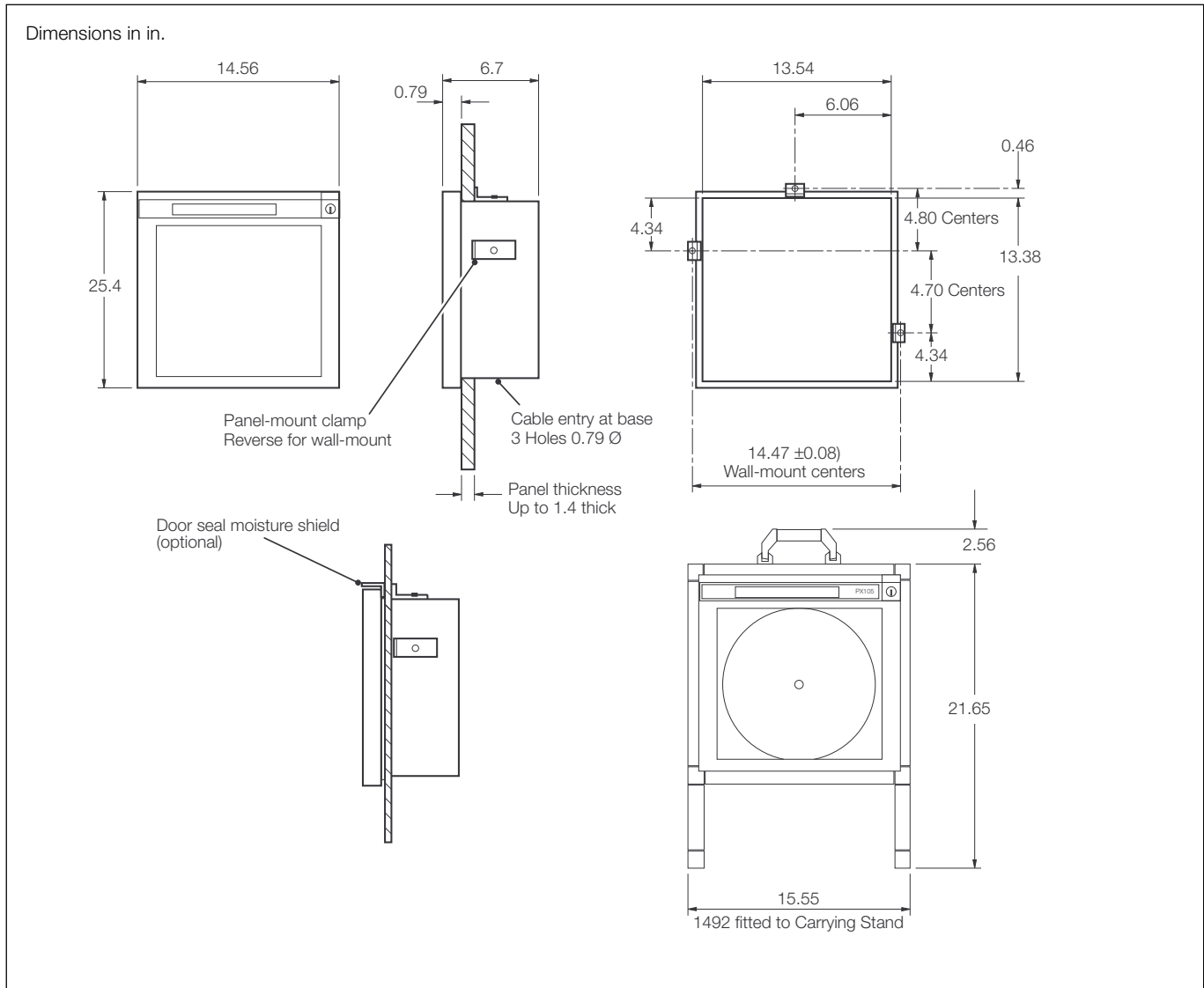


ABB has Sales & Customer Support expertise in over 100 countries worldwide

www.abb.com

The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

Printed in UK (04.03)

© ABB 2003



ABB Inc.
125 E. County Line Road
Warminster, PA 18974
USA

ABB Limited
Howard Road, St. Neots
Cambridgeshire, PE19 8EU
UK

Tel: +1 215 674 6000
Fax: +1 215 674 7183

Tel: +44 (0)1480 475321
Fax: +44 (0)1480 217948