

TT210 Chart Recorder Technical Specifications

Case:

In shock resistant plastic.
Transparent lid in polycarbonate, can be sealed or locked.
Base in polyurethane.
Splash proof from front and top with good air circulation.
Rust proof materials.
Size: 154 × 86 × 215 mm (6 × 3.4 × 8.5 inch).

Measuring element:

Pt100 DIN Class 0.5
Sensor 100 3mm diameter (4 × 3/8 inch)
Stainless steel, pointed, watertight.
1.5 meter (6 foot) cable with gold plated connector.
* Special sensors - please enquire *

Chart:

100 mm diameter (4 inch).
Battery operated quartz clock movement.

Pen:

Disposable, easy replaceable pen. One pen lasts normally for 4-12 months. With pen lifting mechanism for easy replacement of charts.

Guarantee:

One year. (Parts and labour)

Electronics:

Thick film hybrids incorporating bipolar and Locmos devices.

Ambient:

Operation and Storage:
-30 + 60°C (-22 + 140°F)
5-95% Relative Humidity

Accuracy

Better than ±1% of Range

Battery for Chart Drive:

1 battery type AA, 1.5V
Expected lifetime: 12-18 months

Battery for Measuring and Recording system:

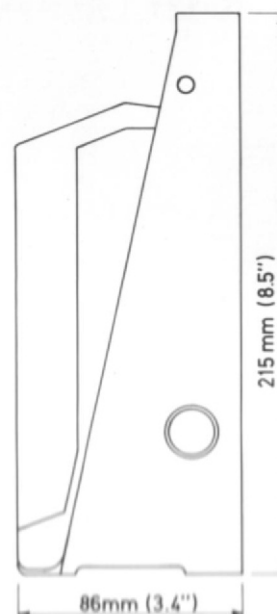
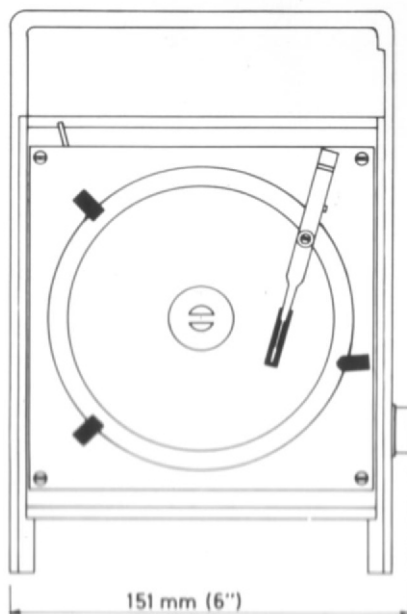
1 battery type IFC-F22, 9V
Expected lifetime: Depends on actual use of recorder, normally 1- 4 months.

Measuring ranges:

See reverse
* Special ranges - please enquire *

Accessories

Wall hanger in stainless steel.
Extension cable.



TT210 Temperature Recorder

Special Features

- Distant reading
- Interchangeable sensors
- Compact and fully portable
- Battery operated with long battery life
- High accuracy
- Fast response
- Many specialised ranges from -100 to + 300°C (-150 to + 572°F)

* 2 Ranges on each recorder

Battery Operated and fully portable, the electronic distant reading recorder TT210 offers a highly accurate, reliable recording over time of the sensor temperature. It is a unique instrument with applications in service, industry and research.

The standard temperature sensor is encapsulated in 3mm stainless steel tube and connected to the instrument with a flexible electrical cord with connector. The sensing element is a Platinum resistance element (Class 0.5 DIN) which secures the interchangeability of all sensors without any re-calibration of the instrument.

The response is fast and will show temperature variations clearly. The accuracy is better than $\pm 1\%$ of the range.

Recorder TT210 can be supplied for ranges according to the wanted use: Temperatures in ambient, freezers, refrigerators, air conditioning, heating, ovens, and more.

A wall hanger in stainless steel can be supplied for permanent mounting.

Technical Description

Operation:

TT210 is a potentiometric recorder with a complete high-quality servo-system. A stepper-motor will position the pen-arm as well as the moving contact of the feedback potentiometer. An internal signal is created by the potentiometer and compared with the amplified and linearised signal from the input. When there is a difference between the two signals, the hybrid electronic circuit in the recorder will re-position the contact on the potentiometer and the pen arm to a position where the difference in the signals is null. This is the position of the pen arm which corresponds to the actual input signal. The motor is controlled with the pulses and will stop after receiving the last pulse, so there is no overshooting.

Components and maintenance

The mechanism does not need special maintenance. Bearings are of sintered bronze and do not need lubrication. The stepper motor has no brushes or moving contacts. The feedback potentiometer is based on plastic film which combines an excellent wear resistance with high stability. Electronics are based on low power Locmos circuits mounted in a special hybrid.

Batteries

The power consumption is extremely low. The chart mechanism is driven by a single 1.5 V battery with an expected lifetime of 12-18 months. Electronics for measurement and pen movement are driven by a 9V battery. The lifetime of the battery depends on the actual use of the recorder, but one battery will secure continuous recording for at least one month, and often up to four months continuous use.

TT210 Chart Recorder Temperature Ranges

Range Choice

Ranges are shown with the temperature at the inside (close to the centre) first and the temperature at the outside of the charts last.

The chart range -15.+30 means that -15 is at the inside and +30 at the outside. This range is suitable for measuring of many ambient temperatures. +15.-30 means that +15 is at the inside and -30 at the outside of the chart. This range is well suited to measuring in freezers.

For circular recorders the timescale is easiest read closest to the outer edge of the chart. A recorder where the normal temperature in use will be closest to the outer edge than to the centre of the chart is the best choice.

Temperature Ranges:

All TT 210 Recorders are fitted with the extra benefit of two temperature ranges. Most types do require a change of charts (R4-C and A4-C can use the same chart, one range reversed), when switching range.

Celsius and Fahrenheit charts are interchangeable for F, R and H models.

Chart Rotation:

All TT 210 Recorder are available with either 24 hour or 7 day periods. Please indicate by suffix -24 or -7.

How to Order:

To identify the required type, please order as follows:

Model No. - C/F -24/7

Example: R4-F-24 indicates a Temperature recorder with the ranges -22 +60°C and +4 +86°F and chart rotation in 24 hours.

Model No	Celsius		Fahrenheit		
	Ranges °C	Chart No	Ranges °F	Chart No.	
F2	-40 -85	40.85	-40 -122	40.122	
	0 -45	0.45	32 -50	32.50	
R6	0 -45	0.45	32 -50	32.50	
	-15 30	15.30	4 86	4.86	
R5	0 -45	0.45	32 -50	32.50	
	0 45	0.45	32 114	32.114	
R4	15 -30	15.30	60 -22	60.22	
	-15 30	15.30	4 86	4.86	
R2	15 -30	15.30	60 -22	60.22	
	0 45	0.45	32 114	32.114	
A2	0 -25	0.25			
	20 -5	20.5			
A3	0 -25	0.25			
	25 0	25.0			
A3X	0 -25	0.25			
	0 25	0.25			
A4	-25 0	25.0			
	25 0	25.0			
A6	-15 15	15.15			
	0 30	0.30			
A6X	0 -30	0.30			
	0 30	0.30			
A8	-10 50	10.5			
H2	0 45	0.45	32 114	32.114	
	40 85	40.85	103 185	103.185	
H4	20 65	20.65	68 150	68.15	
	55 100	55.1	130 212	130.212	
H6	20 110	20.11	70 230	70.23	
	110 200	110.2	230 390	230.39	
H7	50 140	50.14			
	110 200	110.2			
H8	110 200	110.2	230 390	230.39	
	190 280	190.28	370 530	370.53	