

Highly accurate and fast, comes in a rugged housing to provide high operational safety in harsh industrial environments



Smartrack 10

Powder coatings have a four-stage fundamental curing process (cure schedule):

- Melt the powder.
- Flow out the powder.
- Crosslink and cure the powder.
- Achieve adequate crosslinking.



Temperature, time at temperature, and, in some situations, the pace of temperature change all have a significant impact on these stages. These phases govern the majority of powder coating final qualities and are hence temperature sensitive. The disadvantage of the conventional approach of temperature monitoring of paint ovens and other furnaces is that the product temperature is approximated from the oven temperature. Thus, the impacts of the variables such as track speed, substrate thickness, and thermal uniformity of the oven on component heating rate are ignored.

The temperature of the product is frequently overstated due to such calculations. Another disadvantage is that temperature data is only delivered at specific points in the process, such as where the sensors are positioned. Reliable validation of the cure schedule may not be achievable without an entire temperature history of the product.

Smartrack 10

Technical Specifications



The rugged, inherently safe SmarTrack 10 channel data logger has been explicitly developed to temperature profile paint procedures to optimize the operation of the process, pinpoint procedure issues and prove the cure quality. Cold junction compensation with feedback error detection and noise reduction guarantees accurate and reliable data. SmartTrack 10 enables you to preprogram the logger according to your process pass/fail criteria, based on either value, Time at Temperature, or Maximum Temperature. The Clever SmarTrack-10 data logger will indicate if your process is out of control just after the process completion.

Specifications	Smartrack 10
No. of Channel	10
Thermocouple Type	Universal (K, E, J, T, N, R, S, B)
Accuracy	±0.5°C (for sampling interval ≤ 1sec.)
Resolution	0.1°C
Reference Junction Compensation	Internal
Memory Size	50000 readings per channel with date & Time
Sample Interval	100 msec to 1 hour
Communications	USB 2.0
Max. Operating Temperature	70°C (Rechargeable) 100°C (Non-Rechargeable)
Battery	Rechargeable : NiMH (3 nos, AA size) Non-Rechargeable : Lithium (3 nos, AA size)
Weight	500 gm
Parameterising via Software	Type selection, no of channel selection, Sampling interval, date and time setting etc.
LED Indications	Charging, low Battery, Communication, Start, Stop etc.

Thermal Barrier Box (TBB) for Temperature Data Logger

Data logger and thermal barriers together make a temperature profiling system. Thermal barriers provide essential protection for the data logger electronics against the high and low temperatures in the furnaces.

At Tempsens Instruments, We have designed and developed thermal barriers made with durable stainless steel for long and robust usage. Thermocouple exits with replaceable wear-strips to extend thermal barrier life and minimize maintenance cost.

The design of thermal barriers consists of majorly layer of insulated porous material, glass wool and a layer of phase change material (PCM). The main objective of micro porous insulated layer is to slowdown the heat conduction. The PCM maintains the internal temperature. While designing the thermal barrier optimum thickness of the layers has been considered

such that maximum temperature drop can be obtained. The thermal barrier box should have rounded edges to account thermal stresses.

It is essential to consider your ACTUAL time and temperature values when specifying a barrier. customer can select the type of barrier needed according to the requirements from the table given in the table 01 and 02.



Table 01

Compatible With Smartrack 10 (198mm*95mm*21mm)					
Thermal Barrier	Length including handles	Width	Height	Weight	Heat Sink
TBB-45(RO)	260mm	160mm	45mm	5kg	No
TBB-135	350mm	260mm	135mm	15kg	Yes
TBB-180	500mm	260mm	180mm	25kg	Yes

*The maximum inside temperature of the thermal barrier box is 80°C.

*If heat sinks are used then place them in refrigerator before use for better performance of thermal barriers.

*RO -Reflow oven barrier.

Table 02

Thermal Duration(Cycle Time)			
Thermal Barrier	200°C	250°C	300°C
TBB-45(RO)	20 Min.	15 Min.	9 Min.
TBB-135	2.5 hrs.	110 Min.	80 Min.
TBB-180	9 hrs.	6 hrs.	4 hrs.

*Customized size barriers are available on request depending on max. temperature and time duration.

*Size and dimension of barriers may change depending on application without notice.

Thermocouples

We provide you a wide range of thermocouples according to the application. Whether it can be magnetic surface sensor for ferrous materials, Clamp sensors for sheet metal parts and air probes. From PTFE to glass fiber thermocouples are available depending upon the temperature range.



(a) Magnetic Clamp Sensor



(b) Mini-Mag Sensor



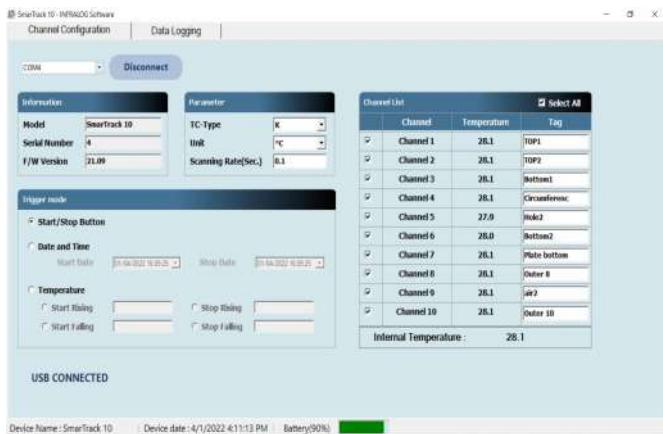
(b) Sheet Clamp Sensor

Features

- Maximum temperature can be reached upto 950°C.
- Stainless steel casing(SS310) which provides resistance to oxidation at high temperatures.
- Smartrack 10 can store upto 50,000 data per channel.
- Provision of rechargeable & non rechargeable batteries according to customer need and temperature range.

Infraclog software helps not only to collect data but also transforms it to information. This information allows you to analyze your data efficiently and optimize your

- Compare data of multiple runs.
- Export & Import data in excel format.
- One page PDF report.
- Calibration.



process. For better analysis a variety of functions are provided where user can change the parameters according to their need.

- Battery health.
- Multiple triggering modes.
- In-Built product manuals.



Application

- Paint and powder coating suppliers.
- High temperature coating.
- Automotive assembly (OEM)/ BIW.
- Reflow Ovens for soldering & various processes.
- Aluminium powder coatings.
- Metal Packaging.
- Oven suppliers.
- Textile and wood coatings.

Customer Benefits

- **Quality:** Demonstrate that your oven has the right cure schedule for the physical and aesthetic attributes you need. Prevent downtime, costly rejections or redo, and product recalls by avoiding under cure or over cure difficulties.
- **Validation:** Generate a profile report to demonstrate that your process is under control to any customer or regulatory agency. The one-page report has the potential to land you the next project.
- **Optimization:** Increase line speed to increase output without jeopardizing product quality. Make modifications to the oven's temperature set-points to save energy. Consider how much money you may save on electricity over a long run!