

Thermtip Instrument

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Thermtip™

Arrdy Thermtip™ is a state of the art digital instrument for measurement of molten metal temperatures by immersion thermocouple technique. The highly reliable microprocessor based instrument has an exceptionally low power rating and runs on 3.5 V DC current. It is internally isolated from AC current thereby making it highly robust and long lasting. The instrument also comes with an 3.7V LiPo battery pack built into the device as an optional feature to have emergency battery backup for upto 3 hours. The all aluminium, small footprint enclosure construction makes the instrument very light and portable and also ensures high EMI screening.

The Thermtip™ instrument has advanced features and algorithms to analyze thermocouple input signals and determine the equilibrium measurement by a moving window standard deviation convergence technique. The analog signals from different types of thermocouples such as type S , R, B or K after they are immersed into molten metal are analyzed and indicated on the 50mm 7 segment LED display.

Thermtip™ instrument can also store a maximum of 50000 readings on its solid state drive and this data can be accessed via the mini USB port. All parameter changes can be done through an app which accesses the device via its USB port. As an option, we can provide storage for traces of measurements viewed through the app for post-measurement error analysis.

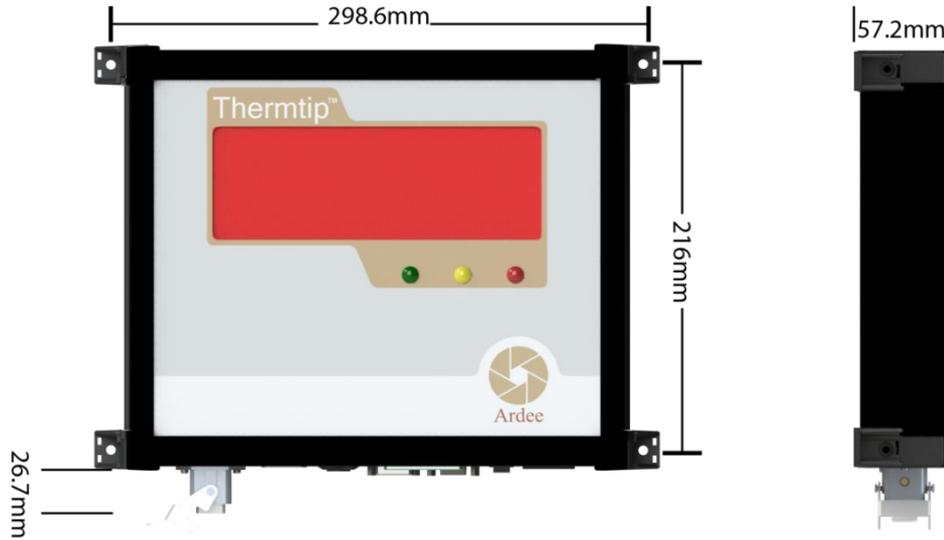
The instrument operates on 110-240/50-60Hz VAC. The optional onboard battery pack is charged when the instrument is powered on the AC mains.

The instrument is primarily made for measuring the molten metal temperature by immersion thermocouples. The following combinations of outputs are possible with each instrument:

	TTL 20mA	RS232	Modbus	Profibus	4-20mA
TTL 20mA		Red	Yellow	Yellow	Green
RS232	Red		Yellow	Yellow	Green
Modbus	Yellow	Yellow		Red	Green
Profibus	Yellow	Yellow	Red		Red
4-20mA	Yellow	Yellow	Green	Red	

In the above table, red = combination not possible, green = combination possible, yellow = only one of the outputs in yellow can provided in combination with the selected output. Ethernet is provided by default in all instruments. Optionally, Modbus TCP output instead of regular Ethernet IP can be provided on request.

Instrument dimensions



Technical specifications

Measurement	Temperature measurement – immersion type
Units	°C or °F
Input	1 Analog input
Sampling rate	10-20samples/sec adjustable
Input range	Type S: 200°C - 1765°C adjustable (default 1100 - 1750°C) Type R: 200°C - 1765°C adjustable (default 1100 - 1750°C) Type B: 600°C - 1820°C adjustable (default 1100 - 1800°C) All thermocouple measurements based on ITS90
Accuracy	Class 2 thermocouple measurement (0.25% of temperature measured)
Display	4 digit 7-segment display with 2.3" digit height
Features	Automatic thermocouple insertion detection, automatic thermocouple break detection
Signalization	LED displays of instrument to detect probe insertion – “READY” – green LED, measurement in progress – yellow LED and measurement completed – red. Simultaneous optically isolated solid state relay outputs provided for signalization
Resolution	1°C or 1°F
Housing	Aluminium housing for EMI protection. Optional IP65.
Power	110-230VAC, 50Hz/60Hz. Continuous consumption <30VA
Latching principle	Moving window standard deviation convergence
Measurement time	4-20s adjustable
Offset adjustment	-10°C to 10°C
Outputs	TTL 20mA current loop/RS232/MODBUS, 4-20mA analog output/PROFIBUS, Ethernet TCP/IP or ModbusTCP
Operating temperature	-35 °C to 50°C