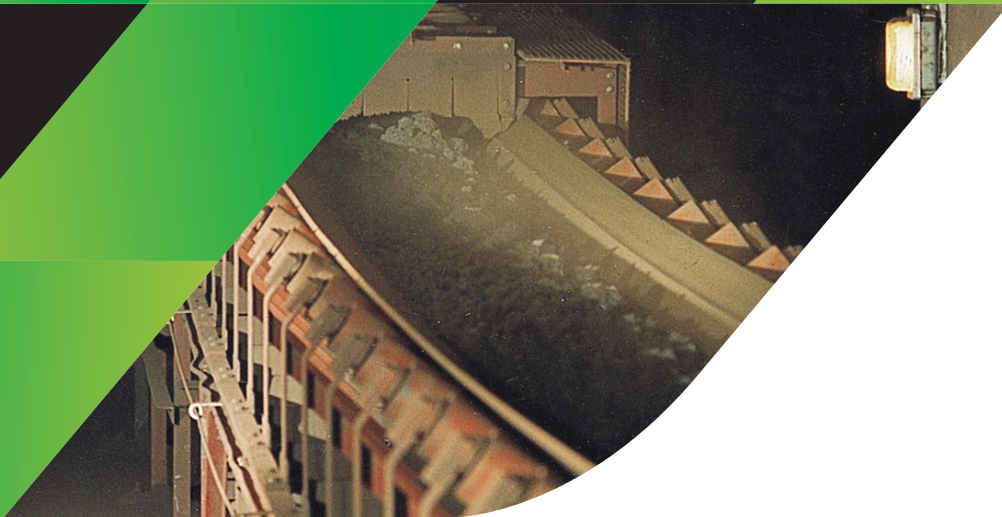# SOLONET

INTELLIGENT COMPACT
DIGITAL THERMOMETER

ⓘ 200 °C to 1750 °C / 392 °F to 3182 °F

LAND
AMETEK®

QUALITY CUSTOMER SOLUTIONS

AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH APPLICATIONS ACROSS DIVERSE INDUSTRIES SUCH AS STEEL AND GLASS MAKING, POWER GENERATION AND CEMENT MANUFACTURE.

As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

A compact digital infrared thermometer, the cutting-edge SOLOnet series offer users versatility and value in a wide range of temperature monitoring applications.

Suitable for stand-alone, single-point or multi-point installations, SOLOnet is easily customised to meet precise measurement and control requirements that help improve product quality, maximise process efficiency and reduce operational costs. SOLOnet's compact design and assortment of protective mountings make it ideal for many tight space requirement applications.

SOLOnet thermometers display live temperature data on a PC, or with direct messaging via Ethernet or RS485, for easy configuration and responsive control. SOLOnet also features industry standard 0-20 or 4-20mA outputs that can be scaled to any span within the overall temperature range of the thermometer.

Easy to install, easy to monitor, SOLOnet infrared thermometers are suitable for a wide range of manufacturing and processing industries, including Aluminium, Glass, Industrial Processing, Minerals and Steel.

SPECIFICATION & DESIGN

1: OUT OF THE BOX FLEXIBILITY
SOLOnet offers OEMs, system builders and end users virtually limitless flexibility of choice making system integration simpler and easier than before.

2: VARIED CONTROL
An optional DIN-rail mounted SOLONet Ethernet Interface Unit provides the user with a wide choice of configuration, interconnection, system monitoring and maintenance options.

2: CHANGEABLE OPTICS
Field changeable optics are offered without need to recalibrate or any additional parts

3: RESULTS YOU CAN TRUST
With cost-effective, reliable measurements, SOLOnet offers the choice of built-in peak picker, track and hold, or average signal processing functions for the accurate monitoring of difficult or complex processes.

4: LOW MAINTENANCE
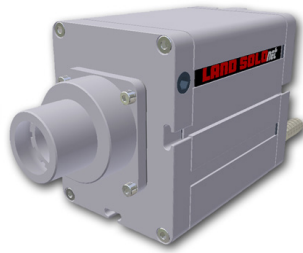A sapphire window is standard on all models

5: TRACEABILITY
Calibrated to National Standards offering peace of mind temperature accuracy.
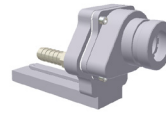
THERMOMETER MOUNTINGS AND ACCESSORIES

Air cooled protection jacket with air purge.

For use in ambient temperatures exceeding 60°C/140°F or where radiant heat levels are high.

Water cooled protection jacket with air purge.

Mounting plate with air purge for use in ambient temperatures up to 60°C/140°F.

Dual and single axis mounting brackets for adjustable sighting.

CONNECTIVITY

SOLOnet thermometers utilise addressable RS485 communications. With this, a thermometer can communicate either directly with an external customer device or with the optional Land SOLOnet Interface Unit SN-W/E.

SN-W/E manages and converts the thermometer's RS485 messaging so that the user can:

- Assign the SN-W/E an IP address, integrate it within the organisational network and communicate with it via Ethernet messaging
- Change the position of the front-panel mounted switch and communicate 'straight through' with addressable RS485

Current and contact-closure I/O is also fitted to each SOLOnet thermometer as standard and this can be accessed directly or via the SN-W/E customer terminals

FEATURES ▼

- Flexible communications
- Set measurement in °C or °F
- Set sub-temperature span within the thermometer range (minimum span 50 °C/90 °F)
- Extended operating range up to 50 °C/90 °F lower than the thermometer specified range
- Command input to control time functions
- Provide alarm indications, via two hardware relay outputs and digital interface
- Set emissivity or non-greyness value
- Temperature output via both digital serial RS485 interface and current 0 or 4 to 20 mA output
- Trigger alignment laser
- Monitor internal ambient temperature
- Provides diagnostic information – input, output and alarm states can be monitored
- User Calibration facility permits the user to apply a correction to the temperature measurement without disturbing the original factory calibration
- SOLOnet configuration software can be downloaded from www.ametek-land.com/software
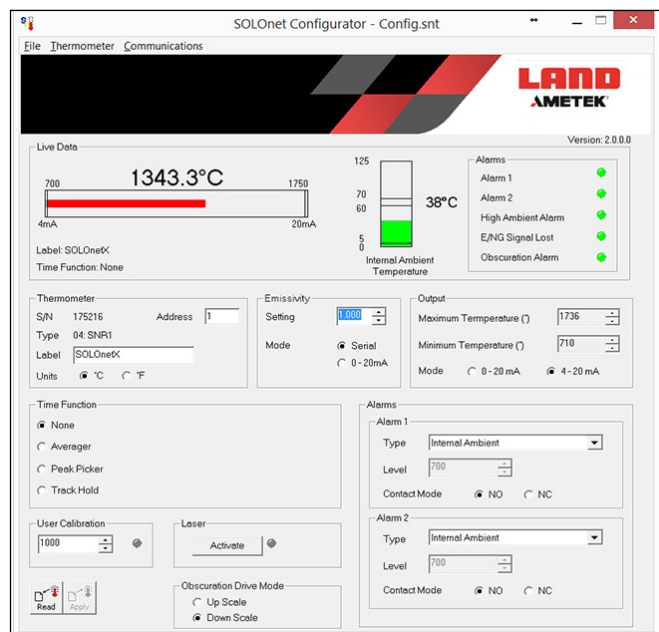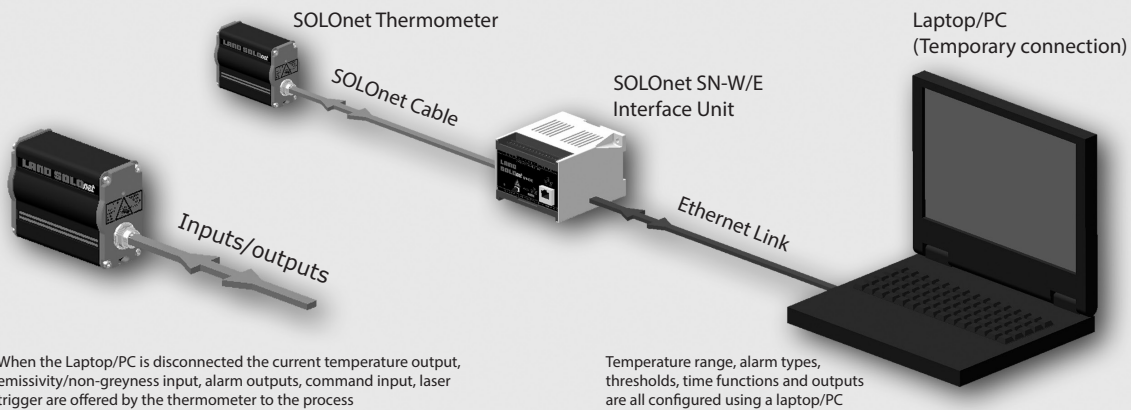
SPECIFICATIONS ▼

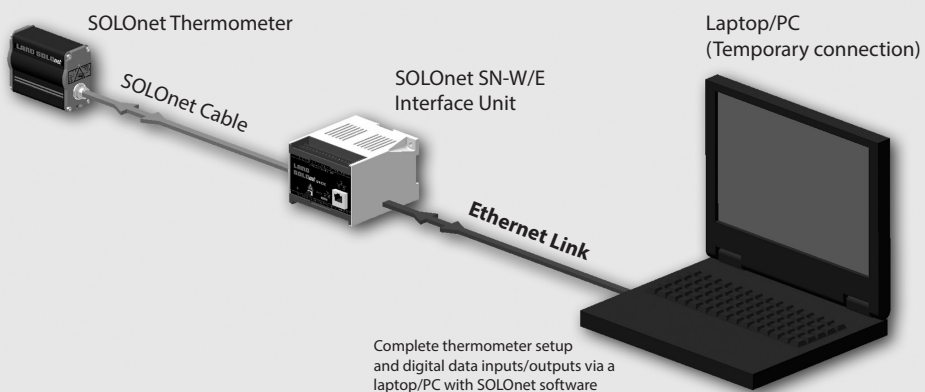|	
Mounting:	DIN-rail
Dimensions:	100 x 75mm x 110mm/ 3.94 x 2.95 x 4.33in
Power requirement:	24V d.c. nominal
Ambient operating range:	0 to 70°C/32 to 158°F
Sealing:	IP20/NEMA 1
EMC:	EN 61326:1999

CONFIGURATIONS

The following diagrams are only intended to give a range of examples illustrating the flexibility of SOLOnet connectivity.

If your application differs from those illustrated please contact us for information on how SOLOnet can be configured to suit your specific requirements.

SIMPLE STAND ALONE SYSTEM

SOLOnet Thermometer
SOLOnet Cable
SOLOnet SN-W/E Interface Unit
Laptop/PC (Temporary connection)
Ethernet Link
Inputs/outputs

When the Laptop/PC is disconnected the current temperature output, emissivity/non-greyness input, alarm outputs, command input, laser trigger are offered by the thermometer to the process

Temperature range, alarm types, thresholds, time functions and outputs are all configured using a laptop/PC

SINGLE THERMOMETER SYSTEM FOR PROCESS MONITORING

SOLOnet Thermometer
SOLOnet Cable
SOLOnet SN-W/E Interface Unit
Laptop/PC (Temporary connection)
Ethernet Link

Complete thermometer setup and digital data inputs/outputs via a laptop/PC with SOLOnet software

MULTI POINT SYSTEM FOR PROCESS MONITORING

SOLOnet SN-W/E Interface Units
SOLOnet Thermometers
SOLOnet Cables
Ethernet Links
Ethernet network switch
Laptop/PC

Each SOLOnet SN-W/E Interface Unit individually identified by IP address
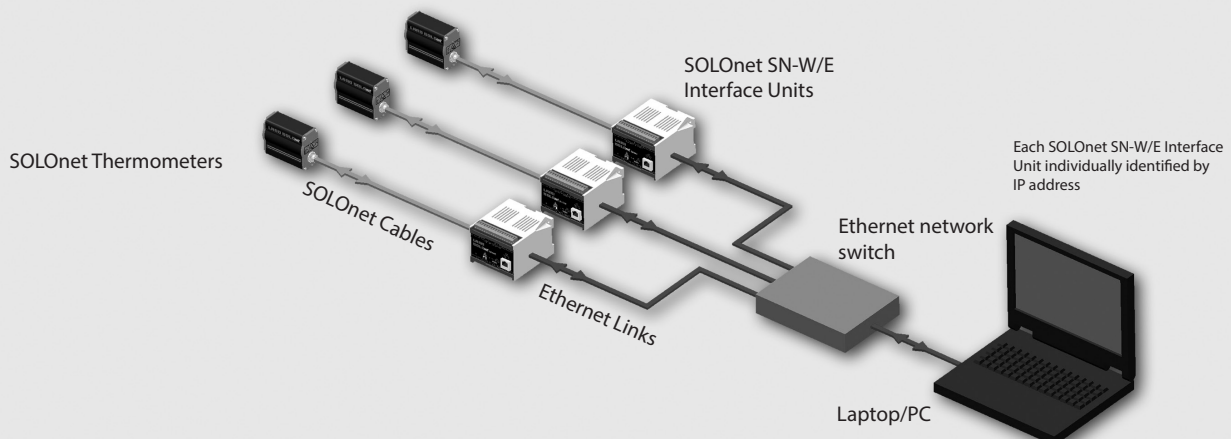
MULTI POINT SYSTEM FOR PROCESS CONTROL - PERMANENT MONITORING BY PC

SOLOnet Thermometers

SOLOnet Cables

SOLOnet SN-W/E
Interface Units

Laptop (temporary connection)

When the Laptop/PC is
disconnected the SOLOnet
SN-W/E Interface Unit continues
to send signals to run the process

Command Input
Emissivity or NG Input
Laser Trigger (contacts)
Alarm Outputs (contacts)
Analog Temperature Output

Ethernet
Links

Ethernet
network
switch

PC
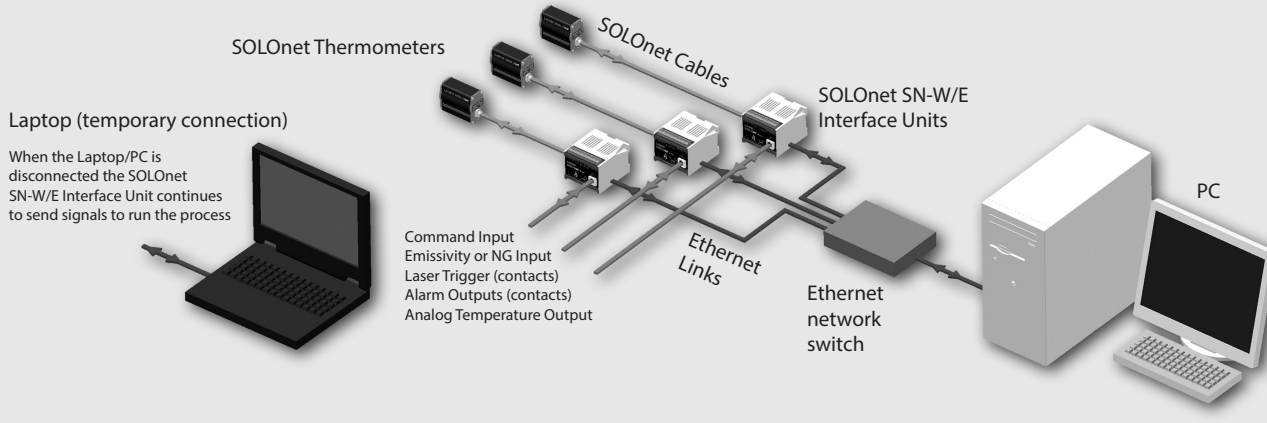
MULTI POINT SYSTEM USING DIGITAL PLC OR DATA ACQUISITION SYSTEM

SOLOnet Thermometers

SOLOnet Cables

Customer terminal array

RS485 Link

PLC RS485 Port

PLC with serial port
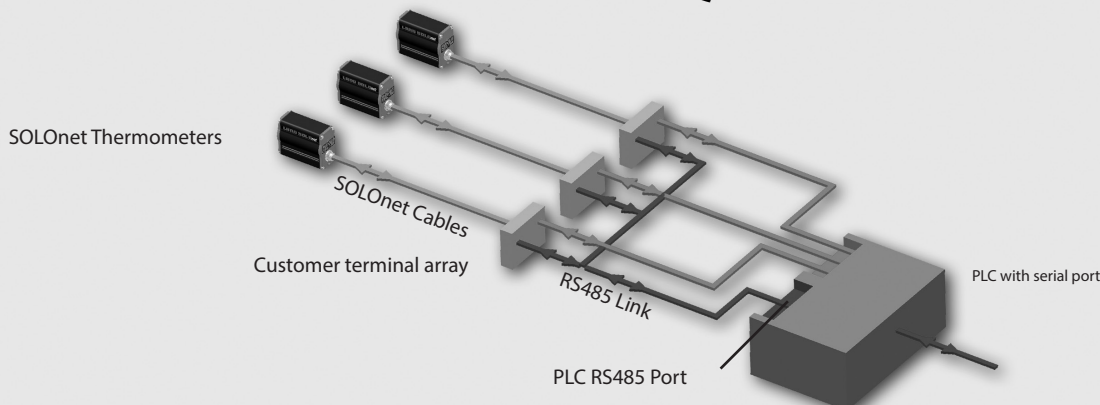
MULTI POINT SYSTEM USING DIGITAL AND ANALOG PLC

SOLOnet Cables

SOLOnet Thermometers

Analog Temperature Output
Alarm Outputs (contacts)
Laser Trigger (contacts)
Emissivity or NG Input
Command Input

PLC analog/digital I/O

Customer terminal array

RS485 Link

PLC with serial port,
analog and digital input
and output modules

Thermometers are setup via a PLC serial
port interface. Data is returned to PLC via its
analog/digital inputs and outputs

PLC RS485 Port

SOLONET APPLICATIONS

The SOLOnet series of thermometers are suitable for a wide range of manufacturing and processing industries such as:
ferrous and non-ferrous metals, glass, minerals, ceramics, chemicals, electronics and research and development.

Model	Temperature	Typical applications
SN11	550 to 1750°C/ 1022 to 3182°F	Heat treatment, forging, welding, induction heating, soldering, hardening, chain annealing, ceramics, glass gobs, sub surface glass
SN21	250 to 1300°C/ 482 to 2372°F	Heat treatment, preheating, induction heating, welding, hardening, annealing, non ferrous metals moulding, aluminium welding, glass moulds
SN51	200 to 1100°C/ 392 to 2012°F	Toughening/tempering, annealing, automotive glass, architectural/decorative glass, glass containers, forming, stem/base seal, pinch seal, Sealex machine, phosphor coating, curing exit
SNR1	700 to 1750°C/ 1292 to 3182°F	Forging, welding, induction heating, soldering, hardening, chain annealing, heat treating, pipe bending, precious metals melting, automotive components, lamp wire draw and anneal, lamp black glass drop

SPECIFICATIONS

Model	SN11	SN21	SN51	SNR1
Operating range:	550 to 1750 °C / 1022 to 3182 °F	250 to 1300 °C / 482 to 2372 °F	200 to 1100 °C / 392 to 2012 °F	700 to 1750 °C / 1292 to 3182 °F
Specified range:	600 to 1750 °C / 1112 to 3182 °F	300 to 1300 °C / 572 to 2372 °F	250 to 1100 °C / 482 to 2012 °F	750 to 1750 °C / 1382 to 3182 °F
Spectral range:	1 µm	1.6 µm	5 µm	1 µm ratio
Field of View (95% Energy):	100:1	100:1	50:1	100:1
Focusing:	Fixed, user configurable focus: 250mm/9.8in, 500mm/19.7in, 1000mm/39.4in and infinity			
Output:	0 or 4 to 20mA user selectable (isolated 50V)			
Response Time (0 to 90%):	10 ms	10 ms	50 ms	10 ms
Emissivity:	0.10 to 1.00			
Non Greyness:	0.80 to 1.25			
Resolution (Mid Range):	<1 K			
Stability:	0.2 °/°	0.2 °/°	0.02 %K/K	0.05 K/K
Accuracy (Absolute):	0.3 %K	2 K	0.35 %K	0.6 %K
Time Functions:	Peak picker, track and hold, and averager			
Alarm Outputs:	Process high, process low, internal temperature, emissivity/NG signal lost, insufficient signal			
(SNR1 Only):	Rated to 50 V d.c., 0.1 A non-inductive, NO or NC – software selectable			
Optional Sighting:	Laser defining optical axis; class 2, 1 mW, 650 nm, 120s ON duration, automatic switch-off			
Ambient Limits:	5 to 60 °C/41 to 140 °F specified; 0 to 70 °C/32 to 158 °F operating			
EMC:	EN 61326:1999 (immunity and emission)			
Sealing:	IP65/NEMA 4X			
Vibration:	3g (10 to 300Hz)			
Power Supply:	18 to 30V d.c. (24V d.c. nominal)			
Optional Accessories:	Air cooled/purged jacket, water cooled/air purged jacket, air purge and mounting bracket, 1-axis and 2-axis adjustable mounting brackets, 3m, 15m, 25m prewired cable assemblies, Ethernet Interface Unit SN-W/E, d.c. power supply unit, temperature indicator unit LMi			

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