Infrared Non-contact Temperature Measurement System With Graphical Analysis and Control Interface Option

MODEL OS-SYST-A
**£1795**
Basic System

- Recorder/Controller Interface
- Accuracy ±1% of Reading
- Models with Temperature Ranges Measuring up to 1370°C (2500°F)
- Laser Sight Optional
- °C/°F Keypad Selectable
- Local Backlit LCD Display Standard
- Dual Display Indicates Current plus Min, Max, Average or Differential Temperatures on Most Models
- Visual and Audible High/Low Alarm
- Emissivity Adjustable from 0.1 to 1.00 in 0.01 Steps Via the Programmable Keypad
- Complete Pre-Wired Ready to Operate System
- RS-232 Communication
- Memory Cards Available for Data Storage

Each OS-SYST Model Comes With a Remote OS550 Series Transmitter (above) that Interfaces with the Main Instrument Recorder Housing (above)

CLOSED LOOP CONTROL SYSTEM
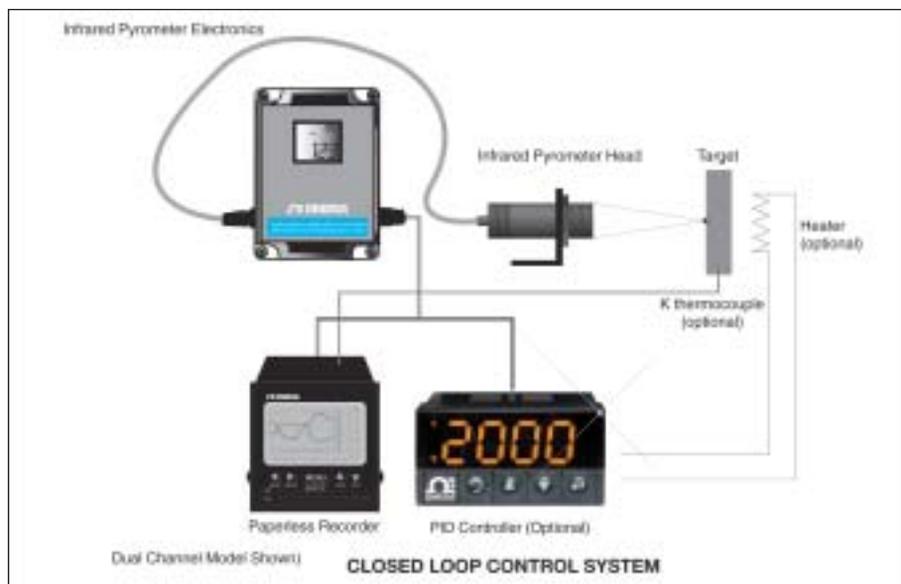
Infrared System consists of the Pyrometer Head, Electronics, Paperless Recorder and/or Controller.

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OS-SYST Series System Components

OS550 Series IR Thermometer with Remote Sensor Head

✔ **Accuracy ±1% of Reading**
✔ **Models with Temperature Ranges Measuring up to 2500°F(1370°C)**
✔ **Laser Sight Optional**
✔ **°C/°F Keypad Selectable**
✔ **Local Backlit LCD Display Standard**
✔ **Dual Display Indicates Current Plus Min, Max, Average or Differential Temperatures on Most Models**
✔ **Visual and Audible High/Low Alarm**
✔ **Emissivity Adjustable from 0.1 to 1.00 in 0.01 Steps Via the Programmable Keypad**
✔ **Fast 250 msec Response Time**
✔ **Complete IP65 System**
✔ **RS-232 Communication**

OMEGA's new OS550 Series industrial, high performance, economical thermometer/transmitters are designed to feed directly into panel meters, recorders, temperature/process controllers, dataloggers, data acquisition systems or other process instrumentation.

Since the OS550 Series infrared thermometers do not use chopper motors or vibrator mechanisms, they can be mounted in any position and in any hostile environment without suffering any loss in performance. This rugged design coupled with their relatively small dimensions make these sensors ideally suited for a wide variety of applications.

RD820 Series Paperless Recorder

✔ **Full Graphic LCD Display**
✔ **Memory Cards for Data Storage Available**
✔ **Rugged, Compact 1/4 DIN Construction**
✔ **High/Low Alarm Relays**
✔ **.5% of Span Accuracy**
✔ **Zoom, Recall, Scroll, Rewind and Replay Features**
✔ **RS-232 Communications**

The RD820 Series paperless recorder provides real-time graphic display, recording and digital display in engineering units of your measurements. The 160 x 80 pixel LCD display offers exceptional clarity with zoom, recall, scroll, rewind and replay capability. You can compress data in time, scroll and zoom data in amplitude and search for data by alarm functions. You can view real time, average, trend or historical data.

The RD820 offers the ability to use data cards, up to 1Mbyte in size, for storing data, as well as recorder configurations. Through an optional card reader or the RS-232 port, data may be downloaded to a PC for additional analysis, storage or hard copy printouts. The RD820, with just five simple buttons on the membrane keypad, is easy to use. It provides versatile, reliable, low cost display and storage of data in a rugged, compact 1/4 DIN panel mount enclosure.


✔ **High Quality**
✔ **5-Year Warranty**
✔ **High Accuracy ±0.5°C (0.9°F), 0.03% Reading**
✔ **First ¹⁄₁₆ DIN Controller with Totally Programmable Colour Displays (Standard)**
✔ **User-friendly, Simple to Configure**
✔ **Free Software**
✔ **Full Autotune PID Control**
✔ **Universal Inputs: Thermocouple, RTD, Process Voltage/Current, Strain**
✔ **Embedded Ethernet connectivity**
✔ **First ¹⁄₁₆ DIN Controller Offering Both RS-232 and RS-485 Serial Communications in One Instrument (Optional)**
✔ **First ¹⁄₁₆ DIN Controller with Built-in Excitation, 24 Vdc, Standard**
✔ **First ¹⁄₁₆ DIN Instrument with Analogue Output Selectable as a Control Output or as a Calibrated Retransmission of Process Variable**
✔ **IP65 Front Bezel**
✔ **2 Control or Alarm Outputs (Optional) dc Pulse Solid State Relays (SSR's) Mechanical Relays Analogue Voltage & Current**
✔ **±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C (77°F)**
✔ **Front Removable and Plug Connectors**

The OMEGA® DPi16/CNi16 is the popular ¹⁄₁₆ DIN size (48mm square) meter or controller. The meter (model "DPi16") displays the process value and has no control outputs. The controller is available with a single (model "CNi16") or dual display (model "CNi16D") that displays a set point along with the process value. The DPi16/CNi16 display can be programmed to change colour at any set point or alarm point. The CNi16 is the first 1/16 DIN controller with the option of both RS-232 and RS-485 in one instrument with both MODBUS serial protocol and the straightforward OMEGA® ASCII protocol. And of course the CNi16 is the first 1/16 DIN Controller that can connect directly to an ethernet network and features an embedded web server. OMEGA® provides free configuration and data acquisition software for the **iSeries** on CD-ROM and for download off the Web.
The DPi16/CNi16 enclosure has an IP65 rated front bezel. The electronics are removable from the front panel.

sales@omega.co.uk ✉ **sales@omega.co.uk**   📠Fax **+44 (0)161 777 6622**   **H-46**

OS-SYST Series Optical Field of View Diagrams

OS550 Range 1

OS550 Range 2

OS550 Range 3

OS550 Range 4

OS550 Range 5

OS550 Range 6
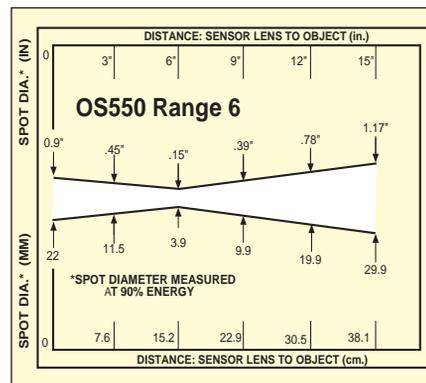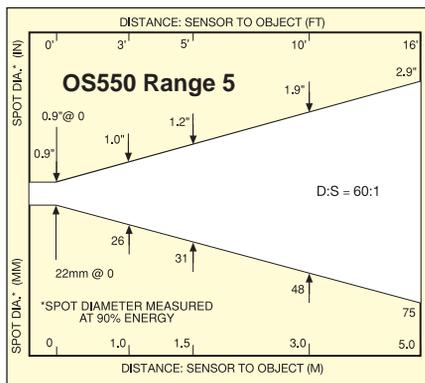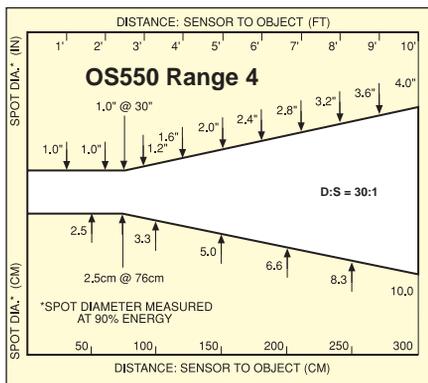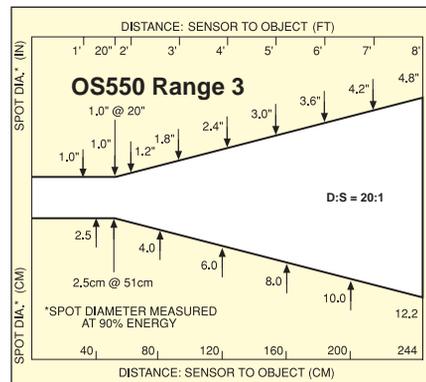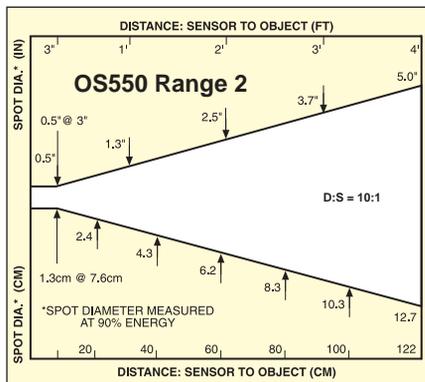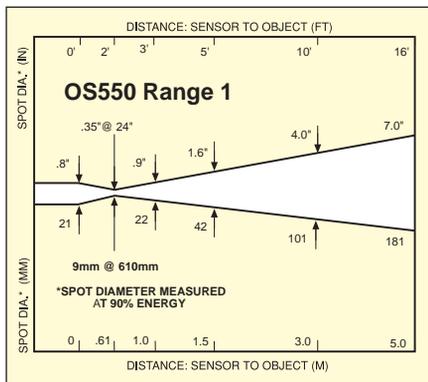
Specifications OS550 Series

Accuracy: ±1% of reading @ 25°C ambient or 3°F, whichever is greater
Repeatability: ±1% rdg ±1 digit
Spectral Response: 8-14 microns
Emissivity Range: 0.10 to 1.00
Field of View (FOV): See Diagrams
Display: Backlit LCD
Environmental Ratings: IP65 water tight and dust tight for sensing head and electronics enclosure
Ambient Operating Range:
sensing head -18 to 85°C
(0 to 185°F) with OS550-WC;
0 to 50°C without OS550-WC
electronics, 0 to 50°C (32 to 122°F)
Connection: 4.5 m (15 ft.)
Head and Power Cable Included
Dimensions:
   Sensing Head: 10.9 x 4.1 cm
   (4.30 x 1.63"),1$1/2$-20 thread
   Electronics: 13.3 x 9.1 cm
   (5.25 x 3.62")
Weight:
   Sensing Head: 0.45 kg (12 oz)
   Electronics Mounted in IP65
   Enclosure: 1.2 kg (2.6 lb)

Specifications RD820 Series

Overall Accuracy: 0.5% of span, 8 bits resolution

Time: Internal battery backed clock tracks year, month, day, hours, minutes, seconds.

Memory: Internal data buffer of 16k RAM, enables memory card to be removed without loss of data. Data storage direct to memory card.

Memory Card: PCMCIA 2.0 Compatible. Available in 128K to 1024K bytes (equivalent to 1,000,000 readings @ 8 bits). Unit automatically detects card size. Multiple files per memory card. User can select files from memory card for replay.

Non-Volatile Memory: All settings are stored in non-volatile memory. Unit remembers setup even if all power is removed.

Triggered Speed: Alarm setpoint can be used to change sampling speed. Two individual sample speeds can be set, one for normal and one for alarm condition. For example, under normal conditions, record slowly, on alarm increase recording speed for better definition of problem period.

Triggered Record: Alarm setpoint can be used to start and stop recording. Monitor continually, but only record when threshold exceeded

Dual Cursor Mode: Use to display delta time (time differences) between events.

RECORDING

Sample Rate: User selectable to 100 samples/sec. (10msec)

Recording Method: user selectable - Averaging, Peak, Valley, Normal.

Recording Time: up to 1,000,000 x recording interval (at 8 bits) Equivalent to 200+ hours at 1 sample/sec. (1 Mbyte Memory Card)

DISPLAY

Display Type: Twisted Nematic LCD Dot Matrix panel 160 x 80 pixels,Viewing area; 74 x 38mm Backlighting standard. Graph Direction: right to left, Vertical Zoom Scroll

Viewing Modes: Normal, Zoom, Compressed, SUM and Difference.
Viewing Control: Real Time Data, Historic Data, Rewind, Forward, Search, Cursor Identification

Customisation: User can customise display by selecting line patterns, grid, time/date stamp, and layout

INPUT

Input Display: 4 digit (-999 to 9999) plus 3 characters for engineering units (e.g.: RPM, PSI)

Input Scaling: $y = mx + c$, linearisation for TC and RTD

OUTPUT

Relays: Optional 2 user programmable alarms (high or low, latching or not). SPDT outputs rated at 3A.
Serial Port: RS-232 option.

MISCELLANEOUS

Operating Temp:
-10 to 50°C (14 to 120°F)
Weight: approx. 1.4 kg (3.1 lb)

ACCESSORIES

Card Reader: Allows data cards to be read into IBM PC compatible computer
Software: Supplied at no charge with card reader. Professional graphics package. Enables data to be archived on disk, displayed and analysed on screen, exported to spreadsheets or word processors. Multiple graphs can be superimposed on one screen. Output to printer. IBM PC compatible DOS 3.1 or greater.

Specifications

Accuracy: ±0.5°C temp; 0.03% reading process
Resolution: 1°/0.1°; 10 μV process
Temperature Stability: 1) RTD: 0.04°C/°C;
2) TC @ 25°C (77°F): 0.05°C/°C-Cold Junction Compensation
3) Process: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Display: 4-digit 9-segment LED
10.2 mm (0.40"): i32, i16, i16D, i8DV
21 mm (0.83"): i8
10.2 mm (0.40") and 21 mm (0.83"):i8DH red, green and amber programmable colors for process variable, set point and temperature units

Control

Action: Reverse (heat) or direct (cool)
Modes: Time and Amplitude Proportional Control Modes; selectable Manual or Auto PID, Proportional, Proportional with Integral, Proportional with Derivative with Anti-reset Windup and ON/OFF
Rate: 0 to 399.9 seconds
Reset: 0 to 3999 seconds
Cycle Time: 1 to 199 seconds; set to 0 for ON/OFF operation
Gain: 0.5 to 100% of span; Setpoints 1 or 2
Damping: 0000 to 0008
Soak: 00.00 to 99.59 (HH:MM), or OFF
Ramp to Setpoint: 00.00 to 99.59 (HH:MM), or OFF
Auto Tune: Operator initiated from front panel

Control Output 1 & 2

Relay: 250 Vac or 30 Vdc @ 3 A (Resistive Load); configurable for on/off, PID and Ramp and Soak
Output 1: SPDT type, can be configured as Alarm 1 output
Output 2: SPDT type, can be configured as Alarm 2 output
SSR: 20-265 Vac @ 0.05 - 0.5 A (Resistive Load); continuous
DC Pulse: Non-Isolated; 10 Vdc @ 20 mA
Analogue Output (Output 1 only)**:**
Non-Isolated, Proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max

Network and Communications

Ethernet: Standards Compliance IEEE 802.3 10Base-T
Supported Protocols: TCP/IP, ARP, HTTPGET
RS-232/RS-422/RS-485: selectable from menu; both ASCII and Modbus protocol selectable from menu. Programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS-485: Addressable from 0 to 199
Connection: Screw terminals
Alarm 1 & 2 (programmable)
Type: Same as Output 1 & 2
Operation: High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations
Analogue Output (programmable):
Non-Isolated, Retransmission
0 to 10 Vdc or 0 to 20 mA, 500 Ω max (Output 1 only).
Accuracy is ± 1% of FS when following conditions are satisfied.
1) Input is not scaled below 1% of Input FS.
2) Analogue Output is not scaled below 3% of Output FS.

OS550-MN
Mounting Nut £12.25

Available Accessories

OS550-MF
Mounting Frame, £53.00

OS550-AP
Air Purge Collar, £53.00

OS550-WC
Air/Water Cooling Jacket, £160.00

OS550-MB
Mounting Bracket, £28.50

2 YEAR WARRANTY

OMEGA ENGINEERING, INC. STAMFORD, CT 06907-0047
LASER SIGHT MODULE **DANGER**
LASER RADIATION - AVOID DIRECT EYE EXPOSURE
MAX. OUTPUT < 5mW, WAVE LENGTH 670 nm
CLASS IIIa LASER PRODUCT
COMPLIES WITH 21 CFR CHAPTER 1, SUBCHAPTER J.
AVOID EXPOSURE LASER RADIATION IS EMITTED FROM THIS APERTURE

Optical Table*

Optical Range Code	Field of View (FOV)
1	9 mm @ 610 mm
2	13 mm @ 76 mm
3	2.5 cm @ 510 mm
4	2.5 cm @ 76 cm
5	2.5 cm @ 1.5 m
6	3.9 mm @ 152 mm

Accessories for Remote Sensor Head

Model Number	Price	Description
OS550-AP	£53.00	Air purge collar
OS550-WC	160.00	Air/water cooling jacket
OS550-MF	53.00	Mounting frame
OS550-MB	28.50	Right-angle mounting bracket
OS550-MN	12.25	Mounting nut
OS550-LS**	160.00	Laser sight accessory (not shown)

One unit suitable for aligning many heads.

Accessories for RD820 Paperless Recorder

Model Number	Price	Description
RD820-SW	£81.00	Software
RD820-CR	245.00	Memory card reader and software
RD820-MC128	81.00	Memory card, 128K
RD820-MC256	122.00	Memory card, 256K
RD820-MC512	163.00	Memory card, 512K
RD820-MC1024	245.00	Memory card, 1024K

We make running changes when technical advances allow.
Check at time of ordering for additional features.

To Order *(Specify Model Number)*

Model Number	OS-SYST-A-(*)	OS-SYST-B-(*)	OS-SYST-C-(*)	OS-SYST-D-(*)
Price	£1795	£2040	£1960	£2205
Temperature Range	-18 to 538°C (0 to 1000°F)	-18 to 538°C (0 to 1000°F)	-18 to 1370°C (0 to 2500°F)	-18 to 1370°C (0 to 2500°F)
Emissivity	Adjustable .1 to 1.00 in .01 steps	Adjustable .1 to 1.00 in .01 steps	Adjustable .1 to 1.00 in .01 steps	Adjustable .1 to 1.00 in .01 steps
Backlit Dual Display	Standard	Standard	Standard	Standard
Paperless Recorder with Graphic Display and Data Storage	Standard	Standard	Standard	Standard
Temperature Controller with Dual Output	–	Standard	–	Standard

Ordering Example: OS-SYST-B-3, complete infrared measurement system with graphical recorder and control interface, 25mm @ 500mm field of view, £2040. *OS550-MB,* right angle mounting bracket, £28.50, *OS550-MM,* mounting nut, £12.25, *RD820-SW,* recorder software, £81. £2040 + 28.50 + 12.25 + 81 = **£2161.75**

OMEGACARE^SM extended warranty programme is available for models shown on this page. Ask your sales representative for full details when placing an order. *OCW-1 OMEGACARE^SM extends standard 2-year warranty to a total of 3 years (£204), £2040 + 204 = **£2244.***