YS1000 Series
Single Loop Controller
The Next Evolution of the YS Series Loop Controller
32 Years of Reliable Control!

The new YS1000 Series of single-loop controllers is the successor to the Yokogawa YS100 and YS80 single loop controllers. The YS1000 Series offers improved connectivity with supervisory systems and incorporates new, enhanced features that help operators work more efficiently. The YS1000 will work efficiently in petrochemical, chemical, power, pulp and paper, boiler and combustion control applications.

Adding value for the customer

We are continuing to offer the YS1000, embodying the quality and reliability we have cultivated over the decades.

Incredibly easy to read display

TFT LCD makes it even easier to read.
- Even wider viewing angle (at least 1.5 times wider than our previous model)
- LED back light for brighter performance (at least 2.5 times brighter than our previous model)
- Greater contrast (at least 20 times greater than our previous model)

High reliability

Dual CPU and manual control ensure high reliability. Improved maintainability

Easy to upgrade

With the YSS1000 setting software, you can convert your SLPC and YS170 programs with YS1700 programs. YS100 and YS80 compatible models also available.

A YS beyond....
Color LCD that’s easy to see and easier to use.

**Meter display**
- Digital values displayed side-by-side with an intuitive analog meter makes the YS1000 the perfect replacement for YS80 or obsolete “moving coil” controllers.

**Event Display**
- Displays when events are occurring; messages can be displayed in English, Chinese, Japanese and other languages.

**TREND Display**
- Your selection of up to 4 analog inputs or outputs can be displayed as trends.

**ALARM Display**
- Color LCD alarm display makes it easy to identify and review alarm activity.

**LOOP Display**
- Loops color-coded for easy identification

**DUAL Display**
- Ideal for 2-element control such as cascade or selector control

**TREND Display**
- Uses a TFT LCD + LED back light display
- Maintains good visibility, even on panels subject to direct morning and evening sunlight.

**ALARM Display**
- Note: Avoid constant exposure to sunlight as this can shorten the lifespan of the LCD display.

**Designed with a lightweight, compact case**
- YS1000 250 mm, 1.6 kg
- YS100 320 mm, 3.4 kg
- YS80 480 mm, 6 kg

Provides for greater freedom of instrumentation design
- Compact, lightweight design allows the use of smaller and less expensive panel. Moreover, it allows attachment to doors which was previously difficult.
YS1000 Configuration and Programming Software

Your Choice of Programming Style: Graphical or Text Based

New Graphic Programming Tool

Programming is easier with our intuitive function block programming. The online module monitoring function allows you to confirm the performance while programming.

Three connection modes

Connection modes: USB, Ethernet or RS485
When connecting via RS485 or Ethernet, a communication option is required on the main unit.

Password protection function

Passwords can be assigned to user programs to prevent unauthorized access to proprietary programs. A password on the main unit prevents unexpected changes in the engineering parameters.

Program capacity

Supports 400 Blocks

Original Text Based Programming

Backwards compatible with existing programs. Increased programming capacity allows you to create more sophisticated control schemes.

Full set of computation functions

- Supports parameter setting for all YS1000 models
- Support for YS1700 custom programming.
- Calculations done using Engineering units and Floating point math.
- Includes over one-hundred computation modules for exponents, logarithms, temperature/pressure correction, and other operations.
- Function blocks (sub-programs) can be saved and reused.

Calibration tool

Following the YS1000’s online calibration instructions makes calibration easy. Calibration records and data can be saved on the YS1000, allowing you to load or print past calibration data as needed.

Password protection function

Three connection modes

Connections: USB, Ethernet or RS485
When connecting via RS485 or Ethernet, a communication option is required on the main unit.

Program capacity

Supports 400 Blocks

YS1000 Series
High reliability

Control output backup function

The control output backup function comes standard with YS1000 series controllers (YS1700 and YS1500) and the Manual Station for MV Setting (YS1360).

Dual CPU

With dual-CPU construction (main CPU and display CPU), manual control capability and display continues even if an abnormality occurs on one of the CPUs. If controller self-diagnostics detects a control circuit failure, the controller can suspend analog/digital output, switch to manual mode and allow manual control by operator.

Battery free memory backup

Nonvolatile memory is used for memory backup. Service life is improved because no batteries, backup capacitors, or other components are used.

Improved basic control performance

The YS1000 series achieves higher performance than previous models (YS100 series).
- I/O accuracy
  Voltage input accuracy: ±0.2% → ±0.1%
  Voltage output accuracy: ±0.3% → ±0.1%
  Current output accuracy: ±1.0% → ±0.2%
- Internal data resolution of the I/O signal: 1/1000 → 1/10000
- Internal computation resolution of PID and other computations: 1/4096 → 1/65536

AC/DC power supply resists powerline fluctuations.

The AC/DC (100V/24V) power supply powers the instrument to provide consistent performance. Also accepts DC power regardless of polarity (specify 220 V power supply when ordering).

Controller online replacement function (portable manual station)

Use the YS110 portable manual station when exchanging or performing maintenance on a controller. You can switch to the spare controller without interrupting the control output.

Manual operation — “Hard manual”

Independent manual override is built into the control circuits, ensuring that control output can continue even when a control circuit including the CPU experiences a problem.

Replace the display while retaining output.

The display unit is replaced by Yokogawa service personnel. Recommended LCD replacement period: 8 years
**High reliability**

Ensuring that control output can continue even when a control circuit or CPU experiences a problem.

Independent manual override is built into the control circuits, allowing for continued operation in the event of control circuit failure. The controller can suspend analog/digital signals if controller self-diagnostics detects a failure on one of the CPUs. If a spare controller is available, it can take over control, ensuring that the system remains operational.

**Series controllers (YS1700 and YS1500) and the Manual Station for MV operation**

PV Control algorithms can be stopped, and display for PV and SV can be set to N/A. The Main CPU fails functions such as hard manual operation wheel and key input. These controls allow for manual operation even if all CPUs fail. Additionally, a hard converter is available for MV operation at fail conditions. At normal condition, the Main CPU's process is displayed, and the Display CPU's process is updated.

**Internal data resolution of the I/O signal**

- ±1/1000 ±1.0%
- Voltage output accuracy: ±0.1% ±0.3%
- Voltage input accuracy: ±0.2%

**I/O accuracy**

- ±1/4096 ±1/65536

**Improved basic control performance**

Dual CPU (portable manual station) provides consistent performance. The instrument can operate on AC/DC power supply and resist powerline fluctuations. It supports Ethernet (Modbus/TCP) and RS485 communication functions. No programming is necessary to exchange data between the instrument and the FA-M3. The YS1000 can also be connected to PLCs of various manufacturers via the Modbus communication protocol.

**Expandable I/O**

Additional I/O can be added by selecting the YS1700 basic model (with Expandable I/O). The total number of input/output points with the main unit and expandable I/O are 8 analog inputs, 4 analog outputs, and 14 DI/DO.

- External AI: 3 inputs
- External AO: 1 outputs
- External DI: 4 points
- External DO: 4 points

Note: An interface for the additional expandable I/O cannot be added after delivery. If there is a possibility that extra input/outputs will be needed, we recommend that you start with the basic model (with expansion I/O).

**Ethernet support**

The instrument can be easily connected to SMARTDAC+, general-purpose SCADA, and OPC servers via Ethernet (Modbus/TCP). Measured data from the YS1000 can be recorded on the GX. Note: The GX requires the communication channel function option (MC).

**Communication with PLC**

Connections are enabled using the FA-M3's UT link module and the RS485 communication function. No programming is necessary to exchange data between the instrument and the FA-M3.

**Peer-to-peer communication function**

With peer-to-peer communication, up to 32 YS1700 can be connected interchangeably. Four of the connected instruments can each output 4 points of analog data and 16 points of status data. This makes data exchange and I/O sharing possible since all instruments under peer-to-peer communications can read all data (16 analog and 64 status data).

Maximum no. of connections: 32
- No. of receiving units: 32
- No. of transmitting units: 4
- Transmitted data: 4 analog and 16 status data per transmitting YS1700
- Communication interval: 200 ms average (not synchronized to the control computation interval)

This is optimal for multi-loop control such as with boiler instrumentation.

**Communication with CENTUM**

As with previous models, communication with Yokogawa’s DCS (CENTUM) is supported. This is ideal for DCS backup in chemical plants and other applications requiring extremely high reliability.

Applicable Models: YS1700, YS1500, YS1350, and YS1360

**A sample of System Construction**

Inter-lock system

Field instruments

YS1700

YS1360

YS1350

YS1500

YS1310

YS1000 Series

Communication

Field wiring

Signal in the panel

Upper system

ALR121

Centum VP

HIS

Control bus

Note: Direct communication (RS-485 communication) to directly communicate with the CENTUM.

Please specify the communication options (A31 (RS-485 communication) to directly communicate with the CENTUM.

Additional I/O can be added by selecting the YS1700 basic model (with Expandable I/O). The total number of input/output points with the main unit and expandable I/O are 8 analog inputs, 4 analog outputs, and 14 DI/DO.

- External AI: 3 inputs
- External AO: 1 outputs
- External DI: 4 points
- External DO: 4 points

Note: An interface for the additional expandable I/O cannot be added after delivery. If there is a possibility that extra input/outputs will be needed, we recommend that you start with the basic model (with expansion I/O).

**Compatible**

Ethernet (Modbus/TCP)

RS485

**Corresponding Models**

YS1700 YS1500 YS1350 YS1360

Connect the YS1000 to the CENTUM via Ethernet (Modbus/TCP) or RS485, including peer-to-peer communications. With peer-to-peer communication, up to 32 YS1700 can be connected interchangeably. Four of the connected instruments can each output 4 points of analog data and 16 points of status data. This makes data exchange and I/O sharing possible since all instruments under peer-to-peer communications can read all data (16 analog and 64 status data).

Maximum no. of connections: 32
- No. of receiving units: 32
- No. of transmitting units: 4
- Transmitted data: 4 analog and 16 status data per transmitting YS1700
- Communication interval: 200 ms average (not synchronized to the control computation interval)

This is optimal for multi-loop control such as with boiler instrumentation.

**Note:** Does not support the YS100 series peer-to-peer communication network (YS-net).
Cases and housing for replacing old models

Indispensable for lasting, stable operations at the plant when replacing instrumentation. Case and housing are available for replacement of older-model SLCs by Yokogawa Electric Corp. (the EBS, I, EK, and HOMAC series) allowing you to exchange instruments without modifying existing instrumentation panels. Moreover, front panel design with analog-like meters lets you update to new instruments without losing the familiarity of the old interface.

*1: Compatibility is established by inserting the YS1000's internal circuitry of the appropriate compatible type into the existing case.
*2: Compatibility is established by inserting the entire YS1000 unit of the appropriate compatible type into the existing controller housing. Order the housing separately as needed.

Self-tuning (STC)

Simplifies tuning when starting up or changing the process unit under control.

Setpoint filter (SVF)

Can optimize tracking with changes in set-points. Also can maintain optimum responsiveness to disturbances.

Flexible DI/DO

The YS1700/YS1500's six DI/DO terminals can be used for both input and output.

Programmable function key

With a user program, the program function key (PF key) on the instrument’s front panel can be used as an ON/OFF switch for self-tuning, or as a Start button for sequence operation.

Direct input function*

An optional signal conversion function can be added for 1 channel. Current, voltage pulse, thermocouples, RTDs, mV and potentiometers signals from differential pressure gauges, manometers, and flow meters can be connected directly to the controller. The direct input employs highly noise resistant, isolated inputs.

* Options available for suffix code “2”, “4”, “5” of “Type”.

Applications

Models and Suffix Codes (See General Specification Sheets for the ordering information in the detail.)

Automatic Boiler Control

- Feedforward (FF) control: The main steam pressure and feed water level are controlled quickly in response to changes in the main steam flow.
- Cross limiting control calculation: Air and fuel flow are calculated so that air flow always exceeds fuel flow to prevent incomplete combustion and explosion.

Communication

Direct input

<table>
<thead>
<tr>
<th>Model</th>
<th>Product name</th>
</tr>
</thead>
<tbody>
<tr>
<td>YS1350</td>
<td>SHUP-000</td>
</tr>
<tr>
<td>YS1700</td>
<td>SHUP-420</td>
</tr>
<tr>
<td>YS1500</td>
<td>SHUP-420</td>
</tr>
</tbody>
</table>

Accessories (sold separately)

- DCS-LCS communication
- RS485 communication (Peer-to-peer)
- Frequency input
- 2-wire transmitter input (isolated)
- Potentiometer input
- RTD input
- mV input

Total cost reduction

- Setting software for YS1000 series
- FM nonincendive approved (FM Class I, div 2) *1
- Ethernet communication (Modbus/TCP) *1
- DCS-LCS communication *5

Input types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV</td>
<td>Shunt resistor 120Ω</td>
</tr>
<tr>
<td>TAGTAGTAG</td>
<td>Accuracy: 0.2%</td>
</tr>
<tr>
<td>STC-ON</td>
<td>Range: 0 to 20mA, 4 to 20mA</td>
</tr>
<tr>
<td>FF</td>
<td>Options available for suffix code “2”, “4”, “5” of “Type”.</td>
</tr>
</tbody>
</table>

*1: Compatibility is established by inserting the YS1000’s internal circuitry of the appropriate compatible type into the existing case.
*2: Compatibility is established by inserting the entire YS1000 unit of the appropriate compatible type into the existing controller housing. Order the housing separately as needed.
Applications

Automatic Boiler Control
An appropriate distribution of control functionality enables safe and stable automatic boiler control.

- Cascade Primary Direct (PRD) control: Enables stable level control when the boiler is started.
- Cross-limiting control: Air and fuel flow are calculated so that air flow always exceeds fuel flow to prevent incomplete combustion and explosion.
- Feedforward (FF) control: Main steam pressure and feed water level are controlled quickly in response to changes in the main steam flow.

Residual Chlorine Control
With the 2-loop control function, you can control hypochlorous flow control and residual chlorine.

Loop 1: Hypochlorous flow control
- Calculates hypochlorous infusion from the flow, infusion rate, concentration, and specific gravity, and controls the flow.

Loop 2: Controls residual chlorine
- Control is achieved by receiving signals from a residual chlorine analyzer.
- The infusion rate from loop 1 is corrected by this control output.

Models and Suffix Codes (See General Specification Sheets for the ordering information in the detail.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YS1700</td>
<td>—</td>
<td>—</td>
<td>Programmable Indicating controller</td>
</tr>
<tr>
<td>YS1500</td>
<td>—</td>
<td>—</td>
<td>Indicating controller</td>
</tr>
<tr>
<td>YS1310</td>
<td>—</td>
<td>—</td>
<td>Indicator with alarm</td>
</tr>
<tr>
<td>YS1300</td>
<td>—</td>
<td>—</td>
<td>Manual setter for MV setting</td>
</tr>
<tr>
<td>YS1360</td>
<td>—</td>
<td>—</td>
<td>Manual setter for MV setting</td>
</tr>
</tbody>
</table>

Use

-1 In case of YS1700, YS1500 and YS1360: With hard manual unit
-2 Without hard manual unit

Type

2 Basic type
1 Basic type with expandable I/O
3 Compatible type for YS100 (with YS100 case)
5 Compatible type for YS100 internal unit. Compatible type for EBS, I, EK and HOMAC
6 Compatible type for YS80 (Compatible case for YS80 with YS100 terminal)

Power supply

100V-240VAC, 50/60Hz

Direct input

- mV input
- Thermistor input
- RTD input
- Potentiometer input
- 2 – Wire input (optional)
- 4 – Wire input (non-received)
- Frequency input

Communication

RF-485 communication (PC-Link, Modbus, YS protocol, Peer-to-peer) *3 *5
DCS-LCS communication *6
Ethernet communication (Modbus/UDP) *7

Certification

FM FM-nominal approval (RV Class 1, div 21) *1
CSA CSA safety and nonincendive approved (Class I, Division 2) *1

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>option code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YS1000</td>
<td>—</td>
<td>—</td>
<td>Setting software for YS1000 series</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Always 0</td>
</tr>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Always 0</td>
</tr>
</tbody>
</table>

Accessories (sold separately)

<table>
<thead>
<tr>
<th>Product name</th>
<th>Model</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHUP standard housing</td>
<td>SHUP-200</td>
<td>Available for YS1300-235 (Replace for YS100 series)</td>
</tr>
<tr>
<td>SHUP lifting housing</td>
<td>SHUP-200</td>
<td>Available for YS1300-235 (Replace for YS100 series)</td>
</tr>
<tr>
<td>SHUP EK/HOMAC housing</td>
<td>SHUP-200</td>
<td>Available for YS1300-235 (Replace for EK or HOMAC series)</td>
</tr>
<tr>
<td>100 Line pneumatic instrument replace housing</td>
<td>YS006</td>
<td>Available for YS100-325 (Replace for 100 Line pneumatic instrument)</td>
</tr>
<tr>
<td>120 u terminating resistor</td>
<td>YS020</td>
<td>For RF-485 communication</td>
</tr>
<tr>
<td>250 u shunt resistor</td>
<td>YS021</td>
<td>For a built-in 24 V transmitter power supply</td>
</tr>
</tbody>
</table>

Option

<table>
<thead>
<tr>
<th>Option</th>
<th>YS1700</th>
<th>YS1500</th>
<th>YS1310</th>
<th>YS1350</th>
<th>YS1360</th>
</tr>
</thead>
<tbody>
<tr>
<td>User programming</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Expansion I/O</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Ethernet communication</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>RS485 communication (PC-Link, Modbus, YS protocol)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>RS485 communication (Peer-to-peer)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>DCS-LCS communication</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

* Can be added only for basic type (when selecting type “0” or “1”).
*2 Can be added only for compatible type for YS100 (when selecting type “2”, “4” and “5”). Multiple selections are not possible.
*3 Cannot be combined with type “5” and “6” (only when selecting type “1”). An expansion I/O terminal (model: YS100) and expansion I/O cable (model: YS200) are included.
*4 (0A) and (0K) cannot be specified together. Please specify the communication options (0A, RS-485 communication) to directly communicate with the CENTUM CS3000/VP. Please specify the communication options (0A, DCS-LCS communication) to communicate with the CENTUM through the SCIU.
*5 N/A
*6 This option can be combined only with option code (0A) or (0K) option code (DF) is specified. Fahrenheit temperature range can be available for direct input ranges in addition to Centigrade temperature range. In case of specifying Fahrenheit temperature range for direct input, option code (DF) is required. When the direct input temperature range may be changed to Fahrenheit temperature range after shipment, also specify option code (DF).

YS1000 Series 8
YS1700 Programmable Indicating Controller

A programmable controller in which control and computational functions are combined by the user with the YS1500/YS1700 programming tool. Each YS1700 can run two PID control calculations simultaneously and output the respective 4-20 mA output signals. The YS1700 can also be used as a multi-function controller without programming, in the same way as the Model YS1500.

Controller mode: Programmable, Multi-function mode (single-loop, cascade and auto-selector)
Control type: Basic PID control (built-in nonlinear control function), proportional control (built-in nonlinear control function), and batch PID control
Control period: 0.05, 0.1 and 0.2 sec (programmable mode), 0.1 sec (multi-function mode)
Additional control function: Adjustable setpoint filter (SVF), Self-tuning (STC), Non-linear PID control, PID control with reset bias function, output limiter, external cascade-control setpoint signal
Extended control function: Input/output compensation, Variable gain, Square-root, 10-line-segment characterizer, ratio
Auxiliary control function: Feed-forward control, output tracking, preset MV output, PV/SV tracking, operation mode change, input filter, Square-root, 10-line-segment characterizer, ratio
Analog input: 1 to 5 V DC (5 channels or 8 channels with with expansion IO)
Alarm function: High/low/high-low limits, deviation limit, and velocity alarm
Retransmission output: PV, SV1, SV2, and other analog inputs
Input computation: Square-root with low signal cut off, 10-line-segment characterizer, first-order lag calculation, scaling of external cascade-control setpoint signal, feed-forward signal calculation
Output computation: Output high/low limiting
Computation modules: Four arithmetic operations, square-root, absolute, selector, limiter, ten segment characterizer, alarm, first-order lag, differentiation, dead time, velocity computations, moving average, timer, program setting, counter, pulse output, temperature/pressure compressions, power, logarithmic, logic computations, comparison, branching, switching, sub-program and register manipulation
Program method: Function block or text (use YS1500 configuration and programming software)
Program capacity: 400 modules (function block), 1000 steps (text)
Security: Protection by password
Communication: Modbus/TCP, RS-485 (modbus, peer-to-peer), and DCS-LCS
Hardmanual: Yes/No

YS1500 Indicating Controller

Incorporates fundamental control functions required for PID control. Necessary functions can be selected in accordance with the user’s purpose. The available functions include those necessary for input signal processing, such as square root extraction and linear segment conversion, and feed-forward calculation. Cascade and auto-selector control is also possible.

Controller mode: Single-loop, cascade and auto-selector
Control type: Basic PID control (built-in nonlinear control function), proportional control (built-in nonlinear control function), and batch PID control (built-in sampling PI control function)
Control period: 0.05, 0.1 and 0.2 sec (programmable mode), 0.1 sec (multi-function mode)
Additional control function: Adjustable setpoint filter (SVF), Self-tuning (STC), Non-linear PID control, PID control with reset bias function, output limiter, external cascade-control setpoint signal
Auxiliary control function: Feed-forward control, output tracking, preset MV output, PV/SV tracking, operation mode change, input filter, Square-root, 10-line-segment characterizer, ratio
Analog input: 1 to 5 V DC (1 channel) and 1 to 5 V DC (2 channels)
Alarm function: High/low/high-low limits, deviation limit, and velocity alarm
Digital signal: Six channels (each being common to both input and output)
Retransmission output: PV1, PV2, SV1, SV2, and other analog inputs
Input computation: Square-root with low signal cut off, 10-line-segment characterizer, first-order lag calculation, scaling of external cascade-control setpoint signal, feed-forward signal calculation
Output computation: Output high/low limiting
Security: Protection by password
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS
Hardmanual: Yes/No

YS110 Portable Manual Station

When a YS1700, YS1500 or YS1360 requires maintenance, the YS110 Portable Manual Station can be used to output a 4 - 20 mA signal to the final control element. Simply swing up the front panel of the controller, connect this unit to the controller, and replace the internal assembly while keeping the existing manipulated output active.

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Six outputs (with one for digital input as backlit off) and one FAIL contact
Alarm functions: High/low/high-low-low limits
Input: Square-root with low signal cut off, first-order lag calculation
Security: Protection by password
Trend display: PV1, PV2
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Two inputs, three outputs and one FAIL contact
Alarm functions: High/low limits
Input computation: Square-root with low signal cut off
Security: Protection by password
Trend display: PV1, SV1, SV2, and other analog inputs
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Two inputs, three outputs and one FAIL contact
Alarm functions: High/low limits
Input computation: Square-root with low signal cut off
Security: Protection by password
Trend display: PV1, SV1, SV2, and other analog inputs
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

Input signal: 1 to 5 V DC (1 channel)
Input/manipulation signal meters: Moving-coil method
Range: 0 to 100%
Scaling: 20 equal divisions
Output manipulation: Manual using the front-panel dials
I/Os are coupled with the controller on the case using a dedicated cable.
Models to be backed up: YS1700, YS1500, YS1360

YS1310 Indicator with Alarm

Indicating alarm monitor with two inputs for simultaneous monitoring of two loops. High-high, high, low, and low-low alarms can be detected for each of the two inputs, and logical ANDs or ORs of arbitrary alarms can be set. From among these, a total of six alarms can be assigned to alarm output contacts.

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Six outputs (with one for digital input as backlit off) and one FAIL contact
Alarm functions: High/low/high-high-low-low limits
Input: Square-root with low signal cut off, first-order lag calculation
Security: Protection by password
Trend display: PV1, PV2
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

YS1350 Manual Setter for SV Setting

This manual loader allows an operator to send a setpoint to a remote controller. Its operation mode is switched by the mode keys (C and M) or a status input. A status identification output is provided as standard.

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Two inputs, three outputs and one FAIL contact
Alarm functions: High/low limits
Input computation: Square-root with low signal cut off
Security: Protection by password
Trend display: PV1, SV1, MV1, and other analog inputs
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

YS1360 Manual Setter for BV Setting

This manual loader allows an operator to interrupt a control signal to a final control device and manually control its operation temporarily. Its operation mode is switched by the mode keys (C and M) or a status input. A status identification output is provided as standard.

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Two inputs, three outputs and one FAIL contact
Alarm functions: High/low limits
Input computation: Square-root with low signal cut off
Security: Protection by password
Trend display: PV1, SV1, MV1, and other analog inputs
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

YS110 Portable Manual Station

When a YS1700, YS1500 or YS1360 requires maintenance, the YS110 Portable Manual Station can be used to output a 4 - 20 mA signal to the final control element. Simply swing up the front panel of the controller, connect this unit to the controller, and replace the internal assembly while keeping the existing manipulated output active.

Analog input: 1 to 5 V DC (2 channels)
Digital signal: Six outputs (with one for digital input as backlit off) and one FAIL contact
Alarm functions: High/low/high-high-low-low limits
Input: Square-root with low signal cut off, first-order lag calculation
Security: Protection by password
Trend display: PV1, PV2
Communication: Modbus/TCP, RS-485 (modbus), and DCS-LCS

Hardmanual: Yes/No
YS1000 Series Line-up

- Communication
- Alarm functions
- Analog input
- Program method
- Input computation
- Retransmission output
- Digital signal
- Control period
- Control type

YS1310/YS1350/YS1360 Terminal Arrangements

- Communication
- Trend display
- Input computation
- Analog input
- Manual Setter
- Manipulation signal
- Input/manipulation
- Output

YS1000 Series (Basic Type) Terminal Block

YS010 Expandable I/O Terminal Arrangements

- Power supply
- Ground (GND)
- Power supply
- Ground (GND)
- Power supply
- Ground (GND)
- Power supply
- Ground (GND)

YS1000 Series 10
Dimensions

Main Unit Dimensions
(YS1000 Basic Type)
(YS1000 Basic Type
with Expandable I/O)

Expandable I/O Terminal Dimensions

Expandable I/O Cable Dimensions

Panel Cutout Width

Panel Cutout Width for
Side-by-side Mounting

Note 1: If a nameplate, etc., is installed within 60 mm above the instrument, the height of the nameplate, etc., must be 30 mm or less from the panel surface.

Note 2: When installing the expandable I/O cable, secure the wiring space of at least 60 mm for a minimum curvature radius of the cable in addition to the mounting bracket space of 72 mm from the terminal cover face of the main unit.

Synaptic Business Automation creates sustainable value by connecting everything in our customers’ organization. To realize this, Yokogawa integrates its business and domain knowledge with digital automation technologies, and co-innovates with customers to drive their business process transformation.

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YOKOGAWA ELECTRIC CORPORATION
Control Instruments Business Division
E-mail: ns@cs.jp.yokogawa.com

YOKOGAWA CORPORATION OF AMERICA
http://www.yokogawa.com/us/

YOKOGAWA EUROPE B.V.
http://www.yokogawa.com/eu/

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http://www.yokogawa.com/sg/

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