NEW

YOKOGAWA ◆

GREEN SERIES

US1000

Digital Indicating Controller

Easy to use!

High Reliability!

Reduced cost!

CE

CSA
LR67174C

CSA
LR81741C
CLI, DIV2,
GR ABCD;T4

FM
APPROVED
CLI, DIV2,
GR ABCD;T4
CLI, ZN2, GPIIC

Easy-to-see Front Panel

PV Display (5digit)

SV & MV Display (5digit) with MV indicator lamp

PV Bar Display (30seg.) with over/under scale segment

Light Loader Interface

MV Bar Display 10seg.with over/under scale segment
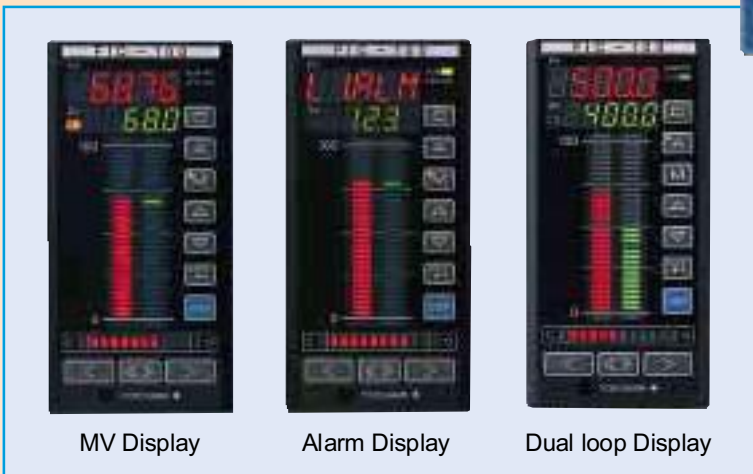
MV (Decrease, Fast, Increase) keys

ALM: Alarm indicator Lamp
LP2 : Loop2 status indicator

Operation mode
CAS, AUTO, MAN indicator lamp
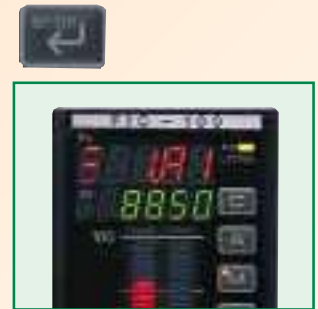
SV Bar Display (30seg.) with over/under scale segment

SV setting (Increase,Decrease) keys

FIC - 100

PV

85.00

SV

85.00

100

0

YOKOGAWA

(actual size)

DISP

MV Display

Alarm Display

Dual loop Display

Control mode selection
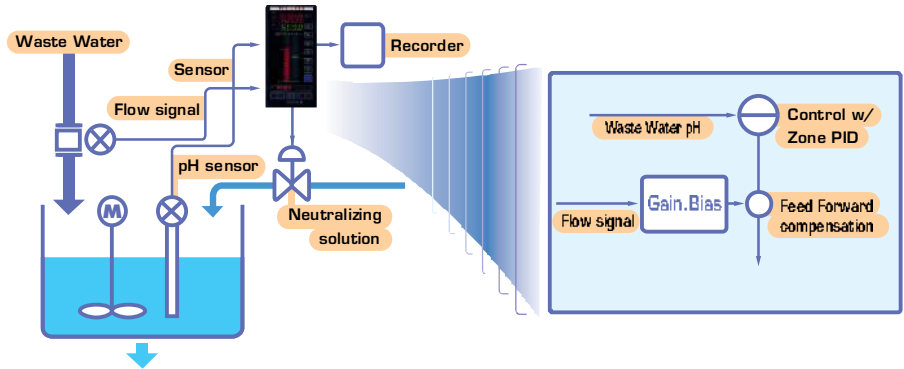
Set up mode selection

External Dimensions: W72* V144 *D150 mm

Cover a wide range of applications!

Solution 1
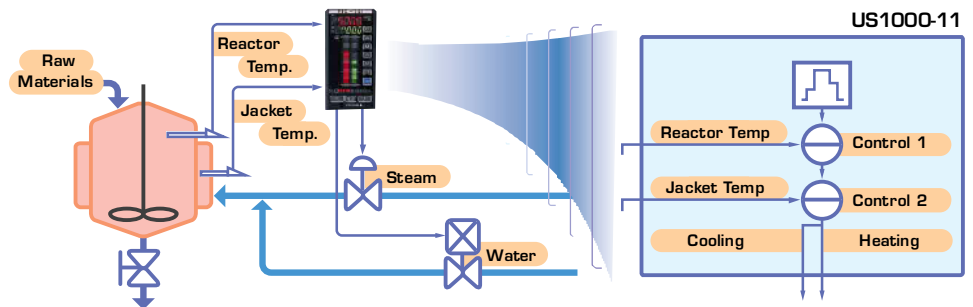
Single loop control with Feed forward Signal

- Easy to minimize the deviation of tank pH,by measuring the waste water flow and compensation.
- F.F. compensation
  —Gain,Bias
  —First order lag

Waste Water

Sensor

Flow signal

Recorder

pH sensor

Neutralizing solution

M

Waste Water pH

Flow signal

Gain.Bias

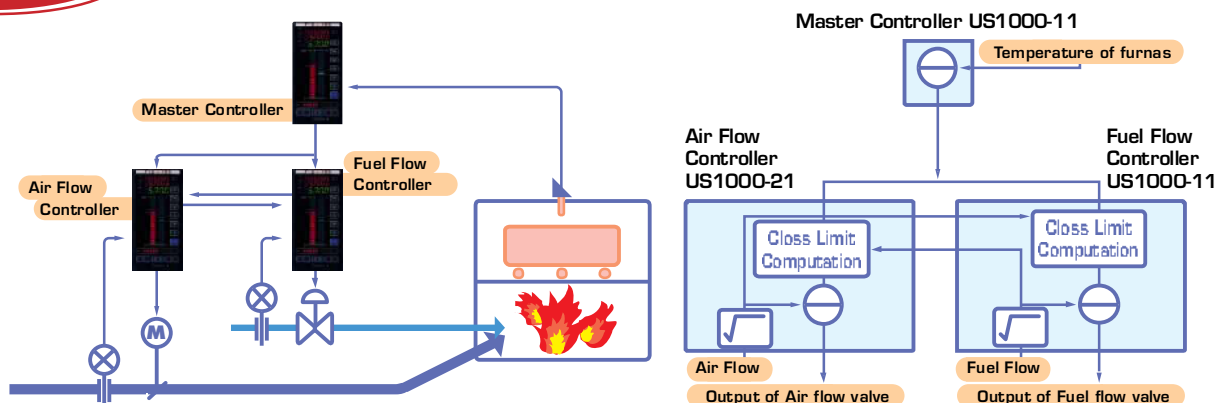Control w/ Zone PID

Feed Forward compensation

Solution 2

Cascade Control

- Performs cascade loop heat and cool control with a single controller.
- Two temperature PVs can be input.
- US1000 can display both loops simultaneously.
  Left Bar : Primary loop
  Right Bar : Secondary loop

Raw Materials

Reactor Temp.

Jacket Temp.

Steam

Water

US1000-11

Reactor Temp

Jacket Temp

Cooling

Control 1

Control 2

Heating

Solution 3

Combustion Control Cross Limit method

Master Controller

Air Flow Controller

Fuel Flow Controller

M

Master Controller US1000-11

Temperature of furnas

Air Flow Controller US1000-21

Fuel Flow Controller US1000-11

Closs Limit Computation

Closs Limit Computation

Air Flow

Output of Air flow valve

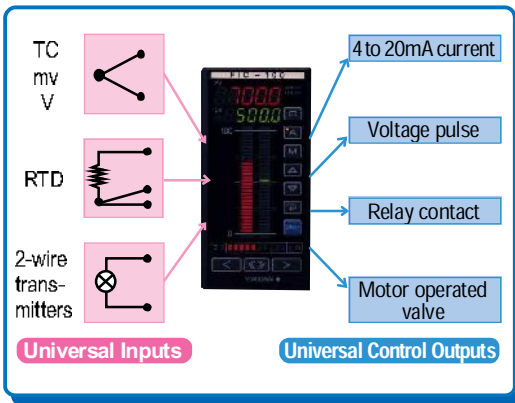Fuel Flow

Output of Fuel flow valve

Reduce the Total instrumentation cost!

The US1000 Digital Indicating Controller has bright LED bar displays, and a variety of control and computation functions.
Operations and setting changes can be easily carried out using the front panel keys.

It's provides you
NOT ONLY ADVANCED CONTROL FUNCTIONS, BUT LOW COST!

Minimun Cost!

Universal Inputs and Outputs

TC mv V
RTD
2-wire trans-mitters

Universal Inputs

4 to 20mA current
Voltage pulse
Relay contact
Motor operated valve

Universal Control Outputs

■ **Universal Inputs**
· It is possible to connect many types of thermocouples RTDs and mV signal for universal input.
· US1000 has 25.5VDC power supply function to connect one or two 2-wire transmitters directly.

■ **Universal Control Outputs**
· It is possible to select 3 types of signals for control outputs.
· 4 to 20mA current Voltage pulse and Relay contact.

■ **Input and Output types and ranges can be set by front key operation**

■ **Lowered inventory costs**

Reliable Construction!

IP65 Dust and Water Protection

■ **The front of US1000 has dust and water protection(in compliance with IP65).**
Dust & Water protection are effective only for installing single unit.
IP code : IEC529 Degrees of protection provided by enclosures

Wide Application!

Control Computation and MV Signals

■ **Control and MV signals**

Continuous PID	Current 4 to 20mA
	Time proportional Pulse
ON/OFF control	Relay
Heat/Cool PID control	Combination of Current and Relay.
Position Proportional PID	Relay Dir. COM-Rev.

■ **PID control Functions**

PID control
Zone PID (Non-linear PID)
PID with Output Tracking
PID with Feed Forward Signal
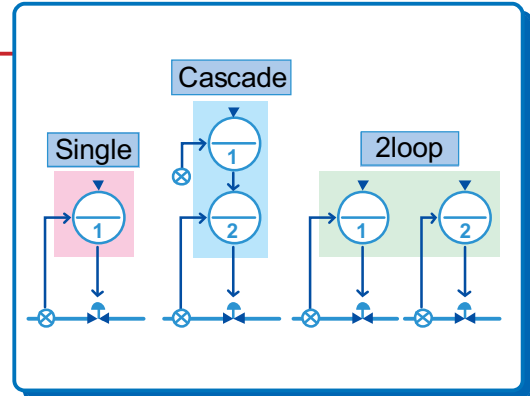
## Easy Configuration!

Create a Custom Computation Function
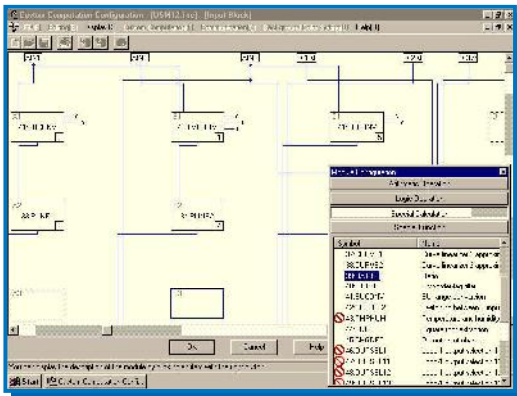
■ Design how input and output computation is to be changed and what computation modules are to be connected.

■ Create a custom computation function with Model LL1200 Windows-Based Custom Computation Building Tool.

■ Write custom computation data to US1000 and confirm the functions.

Open Communication!

Communication with a PC or PLC

■ **US1000** can communicate with a
PC or PLC by MODBUS communication Protocol.

■ **MODBUS**

RTU (Binary) mode, ASCII mode
MODBUS is very popular in US and European countries.

■ **PC-Link**

Can be used with Yokogawa Green series controllers.
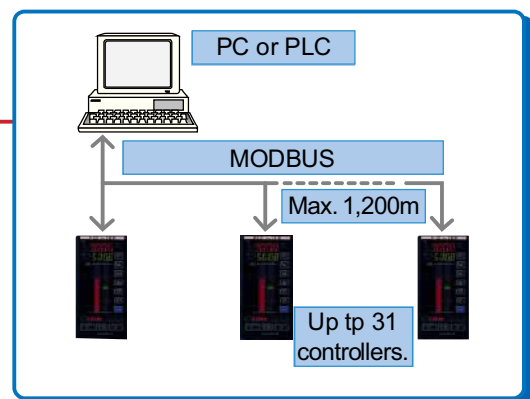
■ Model and I/O Signals

Model	Suffix Codes	Description	Analog Input		LPS	MV		RET	Contact	
			Universal	1-5V or 0-10Vdc	24Vdc	Current or Pulse	Relay	1-5V or 0-5Vdc	IN	OUT
US1000	-00	Basic type	1	1	1	1	0	1	2	3
	-11	Enhanced type*	2	1	2	2	2	1	7	7
	-21	Enhanced model* with Position Propo. PID	2	1+1**	2	1	1 set	1	7	7
Option	/A10	RS-485 communicator								

Note : * Enhanced type has Custom Computation Function.
　　　** US1000-21 has one voltage input and one Slide wire input for Valve position feedback.
　　　LPS : Loop power supply for transmitter.
　　　RET : Retransmission Output for other controller or recorder.

■ Specifications

Control functions	Single-loop control, Cascade control, Dual-loop control
Control Computational functions	Time proportional PID, continuous PID, ON/OFF control, heating/cooling, and position proportional PID computations, etc.
Other functions	Auto-tuning SUPER (An overshoot suppressing) function
Output Points	Current, Voltage, Replay, Loop power supply for transmitter
Signal Computation	Bias, Filter, PV tracking, Square root extraction, Ten-segment linearizer, etc.
Custom Computation	58 Sorts
Alarm functions	29 Sorts (high/low, deviation, etc.)
Control Period	50,100ms 200,500ms (with custom computation)
Communication Functions	RS485 (Optional code:/A10)
Communication Protocol	PC-link communication, MODBUS
Communication distance, Number of connectable units	Maximum of 1200m, Maximum of 31 units
Terminal assignment	M3.5 screws
Power supply	100V to 240VAC ±10%, 50/60Hz
Ambient Temperature Ambient humidity	0 to 50°C (40°C or less for close side-by-side mounting) 5 to 95% (no condensation)

■ Model and Specification codes

Model	Suffix codes	Option codes	Description
US1000	-00		Basic type
	-11		Enhanced type (with custom computation)
	-21		Position proportional type (with custom computation)
		/A10	RS-485 communication

Accessories: ● A pair of mounting brackets　● Tag, unit, and numeral labels
　　　　　　 ● Terminal cover　　　　　　● Operation manual
　　　　　　 ● Function manual

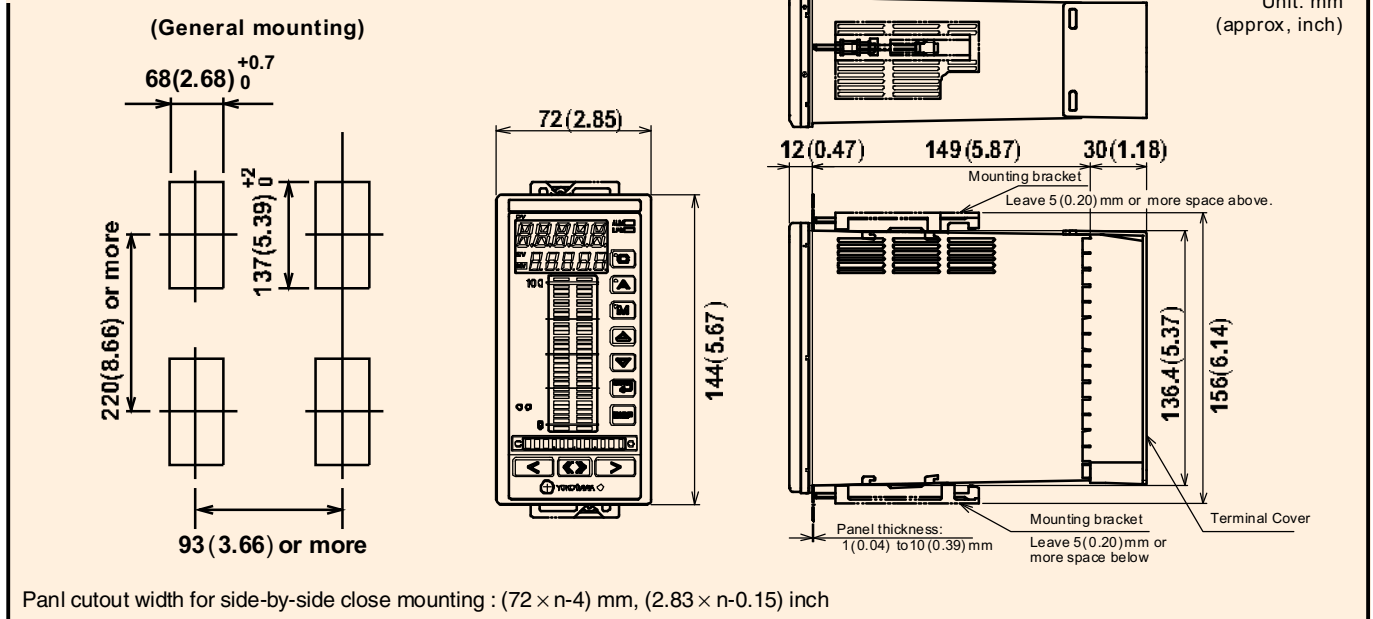| Model	Suffix codes	Option codes	Description
LL1100	-U10		PC-based Parameters Setting Tool
			Model for use with IBM PC/AT Compatible machine (Common to English and Japanese version) USB connection

Model	Suffix codes	Option codes	Description
LL1200	-U10		PC-based Custom Computation Building Tool*
			Model for use with IBM PC/AT Compatible machine (Common to English and Japanese version) USB connection

*The LL1200 PC-Based Custom Computation Building Tool includes the same parameter setting function as the LL1100 PC-Based Parameters Setting Tool.

■ Items to be Specified at Ordering

•Model and suffix codes, option codes

■ Dimensions & Panel Cutout

Unit: mm (approx, inch)

(General mounting)

68(2.68) +0.7 / 0

137(5.39) +2 / 0

220(8.66) or more

93(3.66) or more

72(2.85)

144(5.67)

12(0.47) 149(5.87) 30(1.18)

Mounting bracket
Leave 5 (0.20) mm or more space above.

136.4(5.37)

156(6.14)

Panel thickness: 1(0.04) to 10 (0.39) mm

Mounting bracket
Leave 5 (0.20) mm or more space below

Terminal Cover

Panl cutout width for side-by-side close mounting : (72 × n-4) mm, (2.83 × n-0.15) inch

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