Advanced Digital Indicating Controller

UT75A UTAdvanced®

UTAdvanced
CONTROL · COMMUNICATIONS · SIMPLICITY · RELIABILITY

NEW

The Best of the UTAdvanced Series

- Enhancing Productivity by Managing a Variety of Recipes
- Reducing Engineering Costs and Peripheral Devices
- Protecting Knowledge of Users
- Inheriting and Enhancing the UT750
- Reducing Downtime

CSA C22.2 61010-1
172608

UL61010-1

CE

😊 Reliability and Durability

3-year peace of mind warranty [Note 1] / RoHS and WEEE compliant
IP66/NEMA4 [Note 2] compliant dust and water proof front panel

Note 1: The warranty period is 36 months after delivery from our factory.   Note 2: Water proof test only

Bulletin 05P01B41-01EN

vigilantplant.®
The clear path to operational excellence

YOKOGAWA ◆

The Enhanced Performance, Usability, and Flexibility Meet the Advanced Control Needs in a Wide Variety of Applications.
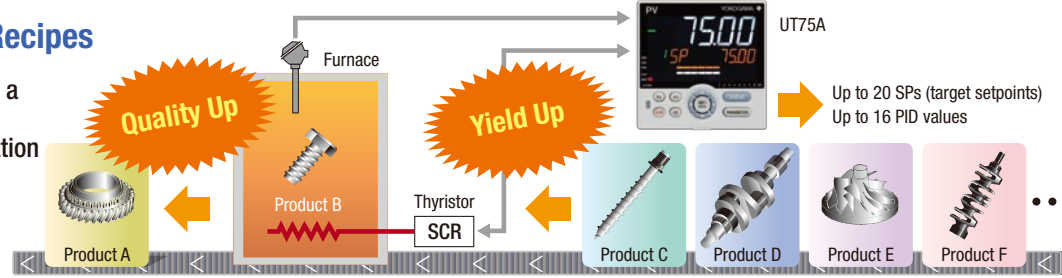
UTAdvanced® UT75A
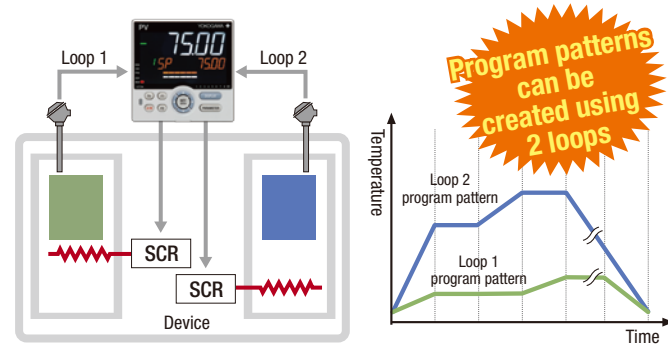
● Enhancing Productivity by Managing a Variety of Recipes

Switching between 20 Recipes

- Increasing yield by managing a variety of recipes
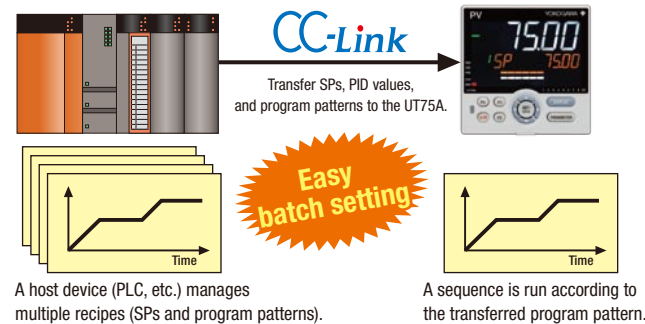- Increasing quality in combination with 16 PID values

Quality Up
Yield Up

Furnace
Product B
Thyristor
SCR
Product A

UT75A
Up to 20 SPs (target setpoints)
Up to 16 PID values

Product C Product D Product E Product F ...

Program pattern operation

- Program pattern consists of up to 20 segments
- 2-loop program pattern can be operated

Program patterns can be created using 2 loops

Loop 1 Loop 2
SCR
SCR
Device

Temperature

Loop 2 program pattern
Loop 1 program pattern
Time

Easy to switch between recipes with a PLC

- Since CC-Link, Profibus, and DeviceNet are supported, it is easy to link to a PLC that manages recipes

CC-Link
Transfer SPs, PID values, and program patterns to the UT75A.

Easy batch setting

Time   Time

A host device (PLC, etc.) manages multiple recipes (SPs and program patterns).

A sequence is run according to the transferred program pattern.
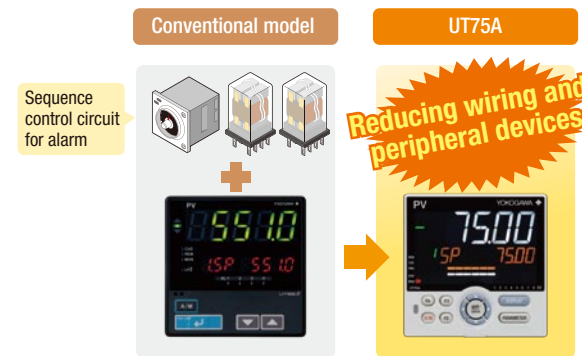
● Reducing Engineering Costs and Peripheral Devices

Simplifying ladder programs

- Multi-line ladder programs such as numerical calculation can be turned into a single line using a custom ladder instruction.
  - This simplifies the ladder programs and facilitates easy engineering and maintenance.
  - Created custom ladder instructions can be saved in a file.
  - Custom ladder instructions saved in a file can be used by another UT75A controller.
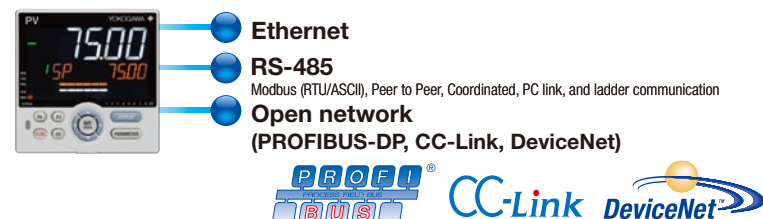
More simple

Communication with a PLC is possible without using any program

- CC-Link, Profibus, and DeviceNet are supported (optional)
  - Since communication with the PLC without using any program is possible, engineering costs can reduced.

External calculators and sequence control circuits (relay, timer, etc.) can be reduced

- Complex I/O offset calculation and alarm sequence control can be accomplished using a ladder program
  - Engineering costs such as wiring and initial setup can be reduced significantly.
  - A sequence over 2 loops can be created for 2-loop control

Conventional model   UT75A

Sequence control circuit for alarm

Reducing wiring and peripheral devices

Ethernet
RS-485
Modbus (RTU/ASCII), Peer to Peer, Coordinated, PC link, and ladder communication
Open network
(PROFIBUS-DP, CC-Link, DeviceNet)

PROFIBUS   CC-Link   DeviceNet

● Protecting Knowledge of Users

Custom arithmetic expressions can be created using a ladder program

- Multi-line ladder programs such as numerical calculation can be simplified into a single line using a custom ladder program
- Custom ladder programs are securely managed using passwords

Protecting knowledge

- Custom arithmetic expressions can be made inaccessible to protect the knowledge of users

(Example) User-created arithmetic expression

Arithmetic expression
$DAT01=((PV\_L1+K01)*K02)/K03$

Argument
$PV\_L1, K01, K02, K03$

Calculation instructions can be made inaccessible.
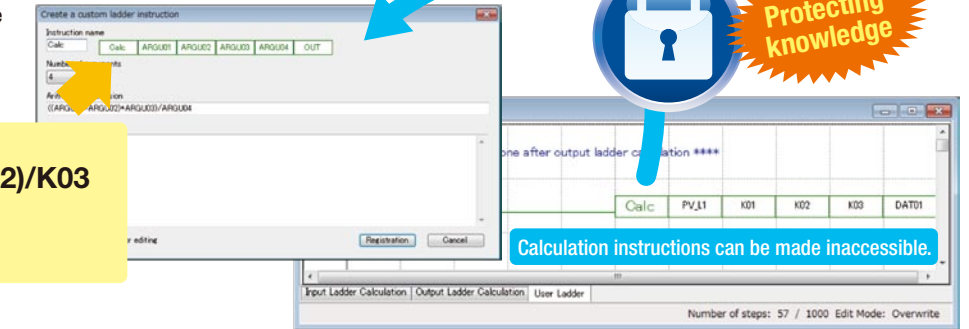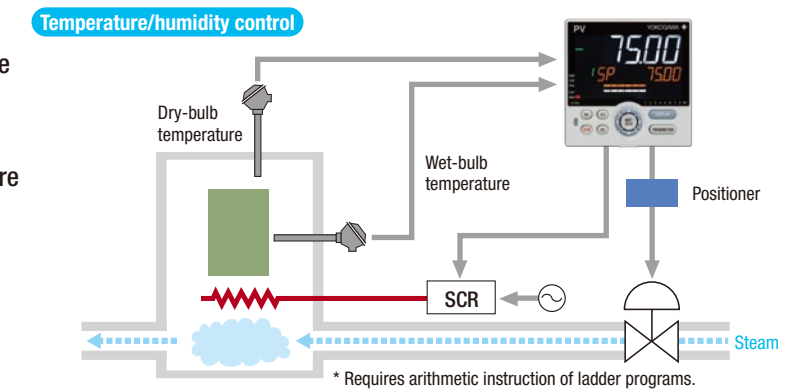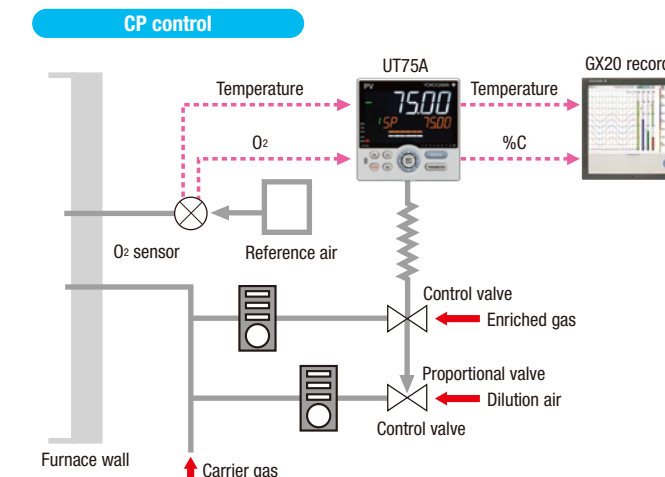
● Inheriting and Enhancing the UT750

2-loop control with a single controller

- 2-loop synchronous and independent operation is available
  - The start and stop instructions can be run synchronously or independently.

- Program pattern operation and constant value operation are available for 2-loop control
  - A sequence can be run by combining the program pattern operation and fixed-point operation.
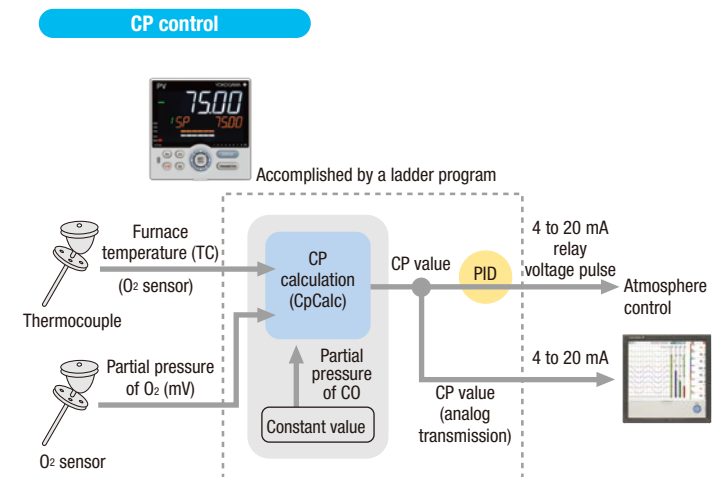
Temperature/humidity control

Dry-bulb temperature
Wet-bulb temperature
Positioner
SCR
Steam

* Requires arithmetic instruction of ladder programs.

A variety of arithmetic instructions and large capacity ladder programs

- 15 basic instructions and 111 application instructions
- Ladder program capacity up to 1,000 steps

CP control

Temperature   UT75A   Temperature   GX20 recorder
O_2 %C

O_2 sensor   Reference air
Control valve
Enriched gas
Proportional valve
Dilution air
Control valve
Furnace wall   Carrier gas

Advanced arithmetic instructions are available

- Square root, exponential, and logarithmic calculations are available
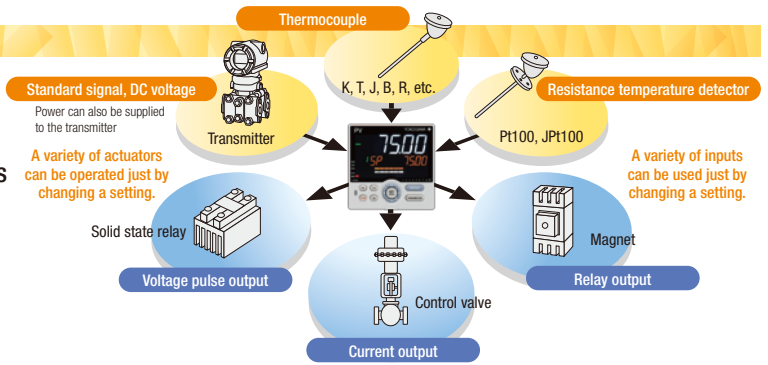- Temperature/humidity and CP calculations are available

CP control

Accomplished by a ladder program

Furnace temperature (TC) (O_2 sensor)
Thermocouple
Partial pressure of O_2 (mV)
O_2 sensor

CP calculation (CpCalc)
Partial pressure of CO
Constant value

CP value   PID
CP value (analog transmission)

4 to 20 mA relay voltage pulse
Atmosphere control
4 to 20 mA

Reducing Downtime

Universal input and output

- A single backup controller can be used for different control objects with different types of sensors and heaters/actuators

 - The UT75A can flexibly respond to a failure and sudden specification changes.

TC
mV
V
mA

RTD

2-wire transmitter

Universal input

4 to 20 mA current output

Voltage pulse output

Relay contact output

Valve control output

* The position proportional type is required.

Universal output

Thermocouple

Standard signal, DC voltage
Power can also be supplied to the transmitter

A variety of actuators can be operated just by changing a setting.

Transmitter

K, T, J, B, R, etc.

Resistance temperature detector

Pt100, JPt100

A variety of inputs can be used just by changing a setting.

Solid state relay

Voltage pulse output

Control valve

Current output

Magnet

Relay output

A variety of input types

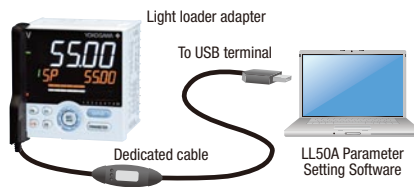|	
Thermocouple	K, J, T, B, S, R, N, E, L, U, W, PL-2, PR20 to 40, W97Re3 to W75Re25
Resistance temperature detector	Pt100, JPt100
DC voltage	0.4 to 2 V, 1 to 5 V, 0 to 2 V, 0 to 10 V, -10 to 20 mV, 0 to 100 mV
DC current	4 to 20 mA, 0 to 20 mA

Simple parameter setting and transition using an LL50A

- Parameters can be set on other controllers just by copying them
- Parameters can be set before mounting the controller to the panel
- Parameters can be set without power supply for the controller
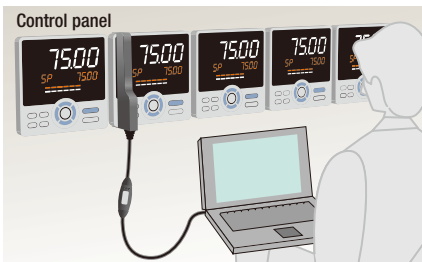
Control panel

Connection using a dedicated adapter

Parameters can be set on the controller mounted on the control panel.

Light loader adapter

To USB terminal

Dedicated cable

LL50A Parameter Setting Software

Connection using a dedicated cable

No power supply required

Parameters can be set and ladder programs can be written without power supply for the controller.

To USB terminal

Dedicated cable

LL50A Parameter Setting Software
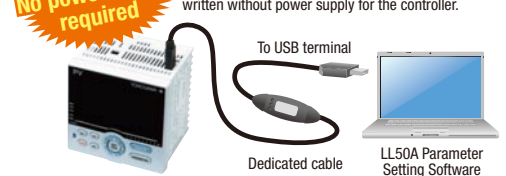
Model and Suffix Codes

Model	Suffix code	Optional suffix code	Description
UT75A			Digital Indicating Controller (provided with retransmission output or 15 V DC loop power supply, 3 DIs, and 3 DOs) (Power supply 100-240 V AC)
Basic control (*1)	-0		Standard type
	-1		Position proportional type
	-5		Dual-loop type
Functions (*1)	0		5 additional DIs and 5 additional Dos
	1		Remote (1 additional aux. analog) input, RS485 communication (Max.19.2 kbps, 2-wire), 1 additional DI, and 5 additional DOs
	2		Remote (2 additional aux. analog) inputs, RS485 communication (Max.19.2 kbps, 2-wire), 2 additional DIs
Open networks	0		None
	1		RS485 communication (Max.38.4 kbps, 2-wire/4-wire) and 5 additional DIs
	2		Ethernet communication (with serial gateway function)
	3		CC-Link communication (with Modbus master function)
	4		PROFIBUS-DP communication (with Modbus master function)
	5		DeviceNet communication (with Modbus master function)
Display language (*2)	-1		English
	-2		German
	-3		French
	-4		Spanish
Case color	0		White (Light gray)
	1		Black (Light charcoal gray)
Fixed code	-00		Always "-00"
Options		/DC	Power supply 24 V AC/DC
		/CT	Coating (without safety standard (UL/CSA) and CE markings)
		/CP	Carbon potential caluculation function (*3)

*1: When Basic control code is "-0" or "-1", "0" or "1" can be specified for Functions code.
*2: English, German, French, and Spanish can be displayed as the guide display.
*3: When Functions code is "1" or "2", The /CP option can be specified.

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The clear path to operational excellence

SEE CLEARLY **KNOW IN ADVANCE** **ACT WITH AGILITY**

VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

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