Technical Information

Digital Indicating Controllers
Replacement Guide

UTAdvanced NEW GREEN SERIES

TI 05A03A01-01EN

List of instruments to be replaced Be sure to see the reference page concerned.

Model	Product Name	Discontinuation Date	Recommended Model	Reference Page
UT10	Digital indicating controller	March 1993	UT32A	3
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UT101	Digital temperature indicator	March 1988	UM330/UM331	10
UT102	Digital temperature indicating alarm unit	March 1988	UM330/UM331	10
UT103	Digital indicating alarm unit	March 1993	UM330/UM331	11
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UT350	Digital indicating controller	Sept. 2010 (planned)	UT35A	14
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UP25	Program controller	Sept. 1997	UP550	19
UP27	Program controller	Sept. 1997	UP550	20
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UP40	Program controller	March 1997	UP750	22
UM04	Digital indicating alarm unit	June 1997	UM330/UM331	23
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* A Discontinuation Date in the future may be changed without notice.

For other instruments, see the page below.

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TI 05A03A01-01EN

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Model	Product Name	Discontinuation Date	Recommended Model
EI108	Indicating controller	Sept. 1991	UT55A
ER181/182	Recording controller (built-in type)	June 1994	CX2000
M500	Temperature controller	Feb., 1993	UT32A/UT35A UM330/UM331/UM350/UM351
M502	Temperature controller without indication	June 1997	UT35A
M1□4□	Temperature indicating controller	Sept. 1985	UT35A
M1□7□	Temperature controller	Sept. 1985	UT35A
M1□9□	Temperature controller	June 1997	UT35A
M2091	Digital indicating controller	June 1997	UT55A
M2092	Digital indicating controller	June 1997	UT55A
M2093	Digital indicator	June 1997	UM350/UM351
M2094	Digital indicator	June 1997	UM330/UM331
M2095	Digital cryogenic temperature indicator	June 1997	UT55A
OF120	Controller without indication	Sept. 1988	UT35A
OF121	Full-scale indicating controller	June 1997	UT35A
OF122	Deviation indicating controller	July 1986	UT35A
OF128	Digital indicating controller	Sept. 1988	UT55A
OF131	Indicating controller	Sept. 1988	UT35A
PC181	Program setting unit/controller	Sept. 1992	UP550
PC182	Program setting unit/controller	Sept. 1992	UP750
PG181/182	Program setting unit	Sept. 1991	UP550
PC200	Program setting unit/controller	Sept. 1988	UP550
PS200	Program setting unit	Sept. 1988	UP550
PC300	Program setting unit/controller	Sept. 1988	UP550
UT04	Digital indicating controller	Jan. 2001	UT150
UT07J	Digital indicating controller	Jan. 2001	UT150
Y/40	Indicating/recording controller	Dec. 1993	UT55A

UT10 ⇨ UT32A

UT10 Digital Indicating Controller

External dimensions: 48×96×100 mm
Measurement accuracy: ±0.3%
Control period: 500 ms
Burn-out: specifiable
Anti-reset windup provided with auto tuning
Two alarm points available (with standby)
A/M switching function not provided

Model	Suffix Code					Description	Recommended Model
UT10						Digital indicating controller	UT32A-000-10-00
Control action	-1					PID action	With auto tuning
	-2					PID action with auto tuning	
Input		K				Thermocouple type K	Universal input
		J				Thermocouple type J	
		R				Thermocouple type R	
		S				Thermocouple type S	
		B				Thermocouple type B	
		E				Thermocouple type E	
		N				Thermocouple type N	
		T				Thermocouple type T	
		D				RTD Pt100	
		P				RTD JPt100	
		V				DC voltage	
		A				DC current: 4 – 20 mA DC	
Manipulated output			-1			Relay output	Universal output
			-2			Voltage pulse output: 0 – 12 V DC	
			-3			Current output: 4 – 20 mA DC	
Alarm output				N		No alarm	Standard
				1		High-limit deviation alarm	
				2		Low-limit deviation alarm	
				3		High- and low-limit deviation alarm	
Supply voltage					-1	100/110 and 200/220 V AC	Free power supply
					-2	110/120 and 220/240 V AC	
Style code					*A	Style A	

Advantages of replacement

1. Input/output not required to be specified (universal input/output)
2. Four sets of setpoints and PID are settable
3. A/M-switching dedicated key
4. Hunting-suppressing function
5. Three alarm points provided as standard
6. Transmission output provided as standard
7. RS-485 communication (optional installation)
8. High-speed and high precision (200 msec, ±0.1%)

UT14 • UT15 ⇨ UT32A • UT35A

UT14 and UT15 Digital Indicating Controllers

External dimensions: 48×96×100 mm (UT14)
96×96×100 mm (UT15)
Measurement accuracy: ±0.1%
Control period: 500 ms
Universal input/output
Auto tuning built in
A/M software switching function

Model	Suffix Code		Description	Recommended Model
UT14			Digital indicating controller	UT32A-000-10-00
Style code	*A		Style A	
Option code	————		There are no optional specifications.	

Model	Suffix Code		Description	Recommended Model
UT15			Digital indicating controller	UT35A-000-10-00
Style code	*A		Style A	
Option code		/RET	Transmission output	Standard
		/RS422	RS-422A interface	UT35A-001-10-00 Note ①

Note!
① RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires software (program) change on the equipment to which this model is connected.

Advantages of replacement

1. Four sets of setpoints and PID are settable
2. Hunting-suppressing function
3. A/M-switching dedicated key
4. Transmission output provided as standard
5. Output value can be displayed
6. Three alarm points provided as standard
7. Heater burn-out alarm (optional specifications)
8. Two external contact inputs provided as standard (such as setpoint switching and A/M switching)
9. RS-485 communication (optional specifications)
10. Heating/cooling control type can be specified
11. 24-V DC sensor power can be supplied (optional specifications)
12. Parameter setting tool
13. Active display

UT20 ⇨ UT55A

UT20 Digital Indicating Controller

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.3%
Control period: 500 ms
Burn-out: specifiable
Anti-reset windup provided with auto tuning
Two alarm points available (with standby)
A/M switching function not provided
Remote setting input provided as standard

Model	Suffix Code	Description	Recommended Model
UT20		Digital indicating controller	
Control action	-1	PID action	UT55A-040-10-00
	-2	PID action with auto tuning	
	-3	Heating/cooling PID action	UT55A-240-10-00
	-4	Heating/cooling PID action with auto tuning	
	-5	Position proportional PID action (relay output)	UT55A-140-10-00
	-6	Position proportional PID action with auto tuning (relay output)	
Input	K	Thermocouple type K	Universal input
	J	Thermocouple type J	
	R	Thermocouple type R	
	S	Thermocouple type S	
	B	Thermocouple type B	
	E	Thermocouple type E	
	N	Thermocouple type N	
	T	Thermocouple type T	
	D	RTD Pt100	
	P	RTD JPt100	
	V	DC voltage	
	A	DC current: 4 – 20 mA DC	
Manipulated output (Heating side)	-1	Relay output	Universal output: standard Note ①
	-2	Voltage pulse output: 0 – 12 V DC	
	-3	Current output: 4 – 20 mA DC	
	-4	Continuous voltage output: 1 – 5 V DC	
Manipulated output (Cooling side)	N	No function	Universal output: standard Note ①
	1	Relay output	
	2	Voltage pulse output: 0 – 12 V DC	
	3	Current output: 4 – 20 mA DC	
	4	Continuous voltage output: 1 – 5 V DC	
Alarm output	N	No alarm	Standard
	1	High-limit deviation alarm	
	2	Low-limit deviation alarm	
	3	High- and low-limit deviation alarm	
Supply voltage	-1	100/110 and 200/220 V AC	Free power supply
	-2	110/120 and 220/240 V AC	
Style code	*A	Style A	
Option code	/RS422	RS-422A communication function (unavailable if position proportional type is specified)	UT55A-* 41-10-00, etc. Note ②
	/RET	Analog output (unavailable if heating/cooling type is specified)	Standard
	/RL	Remote/local switching (unavailable if position proportional type is specified or when in combination with /RS-422)	Standard

Note!
① For continuous voltage output, use an external 250-Ω shunt resistor (X010-250-3).
② RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a program change.
③ Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions
7. Input/output not required to be specified (universal input/output)
8. Hunting-suppressing function
9. Eight groups of setpoint/PID are settable

UT30 ⇨ UT55A

UT30 Digital Indicating Controller

External dimensions: 96×96×180 mm
Measurement accuracy: ±0.3%
Control period: 250 ms
Multi-gain built in
Remote input provided as standard (ratio bias available)
Input square root extraction
Output bar graph display
Auto tuning built in
A/M switching function
RS-422 communication

Model	Suffix Code		Description	Recommended Model
UT30			Digital indicating controller	UT55A-040-10-00 Note ①
Input	-1		Thermocouple, mV, and 4 – 20 mA DC input	Universal input
	-2		RTD input	
Control action	1		Time proportional PID, relay output	Universal output Note ②
	2		Time proportional PID, voltage pulse output	
	3		Continuous output PID, 4 – 20 mA DC output	
	4		Continuous output PID, 1 – 5 V DC output	
	5		Position proportional PID action (relay output)	UT55A-140-10-00
Supply voltage	-1		100 V system (90 – 132 V AC)	Free power supply
	-5		200 V system (180 – 250 V AC)	
Style code	*B		Style B	
Option code		/DCV	DC voltage input (0 to 1, -1 to 1, 0 to 5, 1 to 5, 0 to 10 V DC)	Universal inputNote ③
		/F***	Specify the input type.	N/A
		/EX	Remote/Local external switching	Standard
		/RET	Transmission output	Standard
		/RS422	RS-422A communication interface	UT55A-010-10-00, etc. Note ④
		/RTSR	Ratio, bias, and square root extraction	Standard

Note!
① To use the multi-gain function, use the UT750's custom computation.
② For 1 – 5 V DC output, use an external 250-Ω shunt resistor (X010-250-3).
③ There is no range corresponding to -1 to 1 V DC. Use a signal converter.
④ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a program change.
⑤ Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions
7. Input/output not required to be specified (universal input/output)
8. Hunting-suppressing function
9. Three DO points provided as standard

UT35 ⇨ UT55A

UT35 Digital Indicating Controller

External dimensions: 96×96×180 mm
Measurement accuracy: ±0.2%
Control period: 200 ms
Multi-range
Auto tuning built in

General type ⇨ UT55A-000-10-00
Position proportional ⇨ UT55A-100-10-00

Model	Suffix Code	Description
UT35		Digital indicating controller
	-A	General type
Target setpoints that can be switched	1	1 setting
	4	4 settings
	8	8 settings
Measurement input	1	Thermocouple, DC voltage (mV)
	2	RTD
	3	DC current, DC voltage (V)
Control action	10	Time proportional PID (relay output)
	20	Time proportional PID (voltage pulse output)
	30	Continuous output PID (4 – 20 mA DC)
	40	Continuous output PID (1 – 5 V DC)
	50	Position proportional PID (relay output)
	60	Three positions (relay output)
Alarm output	N	No alarm
	1	With alarms
Style code	*A	Style A
Option code / /		Specify each option code.

Notes ①, ③
Three positions → Note ②

Heating/cooling type ⇨ UT55A-200-10-00

Model	Suffix Code	Description
UT35		Digital indicating controller
	-B	Heating/cooling type
Target setpoints that can be switched	1	1 setting
	4	4 settings
	8	8 settings
Measurement input	1	Thermocouple, DC voltage (mV)
	2	RTD
	3	DC current, DC voltage (V)
Control action (Heating side)	1	Time proportional PID (relay output)
	2	Time proportional PID (voltage pulse)
	3	Continuous output PID (4 – 20 mA DC)
	4	Continuous output PID (1 – 5 V DC)
Control action (Cooling side)	1	Time proportional PID (relay output)
	2	Time proportional PID (voltage pulse)
	3	Continuous output PID (4 – 20 mA DC)
	4	Continuous output PID (1 – 5 V DC)
Alarm output	N	No alarm
	1	With alarms
Style code	*A	Style A
Option code / /		Specify each option code.

Notes ①, ③

Cryogenic type ⇨ UT55A-000-10-00

Use a cryogenic temperature converter. Note ⑧

Model	Suffix Code	Description
UT35		Digital indicating controller
	-C	Cryogenic type
Target setpoints that can be switched	1	1 setting
	4	4 settings
	8	8 settings
Measurement input	4	RTD (Pt-CO), (J263*B)
Control action	10	Time proportional PID (relay output)
	20	Time proportional PID (voltage pulse output)
	30	Continuous output PID (4 – 20 mA DC)
	40	Continuous output PID (1 – 5 V DC)
Alarm output	N	No alarm
	1	With alarms
Style code	*A	Style A
Option code / /		Specify each option code.

Notes ①, ③

Options

Option Code	Description	Recommended Model (1 setting, 4/8 setting type)
/EX1	Auto/Manual with external contact switching terminal	Standard
/EX2	Run/Stop with external contact switching terminal	Standard
/RET1	Transmission output signal: 4 – 20 mA DC	Standard
/RET2	Transmission output signal: 1 – 5 VDC	Note ④
/RSP	Remote setting input	UT55A-* 40-10-00, etc. Note ⑤
/RMSR	Remote input ratio, bias, and square root extraction	UT55A-* 40-10-00, etc. Note ⑤
/RLEX	Remote/Local with external switching terminal	UT55A-* 40-10-00, etc. Note ⑤
/PVSR	PV input square root extraction	Standard
/SPEX	Target setpoint automatic switching	UP550-* 0
/RS232C	Communication interface	UT55A-* 10-10-00, etc. Note ⑥
/RS422	Communication interface	UT55A-* 10-10-00, etc. Note ⑦
/STC	Special thermocouple input	Standard

Note!

① There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
② For three-position output, control action is handled by ON/OFF control on both heating and cooling sides using the heating/cooling UT55A-200-10-00.
③ For DC voltage output, use an external 250-Ω shunt resistor (X010-250-3).
④ Because a 4 – 20 mA transmission output signal is provided as standard, each option code can be handled by purchasing a 250-Ω shunt resistor (X010-250-3) separately.
⑤ For DC current input, specify UT55A-* 00-10-00/DR.
⑥ Use RS-232C/RS-485 converter ML2.
⑦ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a program change.
⑧ Use the cryogenic temperature converter WRU*.
⑨ Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions
7. Input/output not required to be specified (universal input/output)
8. Hunting-suppressing function
9. Transmission output provided as standard

UT37 • UT38 ⇨ UT55A

UT37 and UT38 Digital Indicating Controllers

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.1%
Control period: 200 ms
Universal input/output
(For UT38, only input is universal)
Auto tuning “SUPER” built in

Model	Suffix Code	Description	Recommended Model
UT37		Digital indicating controller	UT55A-1*0-10-00
UT38		Digital indicating controller Universal input position proportional type	UT55A-1*0-10-00
Option codes	/RET	Transmission output Selectable from among PV, SP, and MV	Standard
	/LPS	Sensor supply power 21.6 to 28.0 V DC, 30 mA max Not possible to be used in combination with /RSP or /RET	UT55A-*00-10-00/LP
	/RS422	RS-422A interface	UT55A-*10-10-00, etc. Note ①
	/RSP	Remote setting input (1 – 5 V DC)	UT55A-*10-10-00, etc.
	/ALM4	Four alarm outputs (Two open collector outputs can be added)	UT55A-*30-10-00, etc.

Note!
① RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a program change.
② Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions
7. Transmission output provided as standard
8. Hunting-suppressing function
9. Eight groups of setpoints and PID are settable

UT40 ⇨ UT750

UT40 Digital Indicating Controller

External dimensions: 96×96×180 mm
Measurement accuracy: ±0.1%
Control period: 100 ms
Multi-range in the same sensor
Auto tuning built in

Model	Suffix Code	Description	Recommended Model
UT40		Digital indicating controller	UT750-01 Notes ①, ②, and ③
Measurement input group	-1	Thermocouple, mV, and 4 – 20 mA DC input	
	-2	RTD input	
Control action	1	Time proportional PID (relay output)	
	2	Time proportional PID (voltage pulse output)	
	3	Continuous output PID (4 – 20 mA DC output)	
	4	Continuous output PID (1 – 5 V DC output)	
	5	Position proportional PID (relay output)	UT750-11
Power supply	1	100 V system (90 – 132 V AC)	Free power supply 100 – 240 V AC
	5	200 V system (180 – 250 V AC)	
Style code	*B	Style B	————
Option code	/DCV	DC voltage (V) input	Note ③
	/F***	Specify the input type.	N/A
	/EX	Remote/Local external switching	Standard
	/RET	Transmission output	
	/RTSR	Ratio, bias, and square root extraction	
	/RS422	RS-422 communication interface	UT750-*1 Note ④

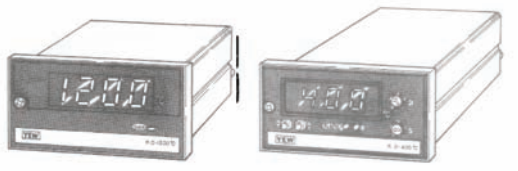
Note!
① For continuous output PID 1 – 5 V DC, use a 250-Ω shunt resistor (X010-250-2).
② If no remote setting input is used, optional specifications are not required (UT750-*0).
③ There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
④ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.
⑤ For current input, use a 250-Ω shunt resistor (X010-250-2).

Advantages of replacement

1. Transmission output provided as standard
2. Four alarm points/loop provided as standard
3. Eight sets of setpoints and PID are settable
4. Five-digit large LED display
5. One-touch control mode switching (maximum of 13 types of UT mode)
6. Hunting-suppressing function provided

UT101 • UT102 ⇨ UM330/UM331

UT101 Digital Temperature Indicator
UT102 Digital Temperature Indicating Alarm Unit



External dimensions:	96×48×145 mm
Measurement accuracy:	±0.25% (UT101) ±0.3% (UT102)
Sampling period:	2 sec.
Alarm:	Two points (UT102)

Model	Suffix Code		Description	Recommended Model
UT101			Digital temperature indicator	UM-330-00 UM-331-00
Input	-K		Thermocouple type K	Standard (Universal input)
	-J		Thermocouple type J	
	-R		Thermocouple type R	
	-P		RTD JPt100	
Style code		*A	Style A	

Model	Suffix Code		Description	Recommended Model
UT102			Digital temperature indicating alarm unit	UM-330-00 UM-331-00
Alarm action	-11		High-limit setting	Standard (three points)
	-12		Low-limit setting	
	-14		High- and low-limit setting	
Input		K	Thermocouple type K	Standard (Universal input)
		J	Thermocouple type J	
		R	Thermocouple type R	
		P	RTD JPt100	
Style code		*A	Style A	

Advantages of replacement

1. Input not required to be specified (universal input)
2. Alarm output provided as standard
3. Transmission output provided as standard
4. High precision ±0.1%
5. Large LED display
6. 24-V DC sensor power can be supplied (optional specifications)
7. Active display installed (UM331)

UT103 ⇨ UM330/UM331

UT103 Digital Indicating Controller

External dimensions: 96×48×100 mm
Measurement accuracy: ±0.3%
Sampling period: 500 ms
Burn-out: Up for TC or RTD
Down for voltage or current
Two alarm points
Transmission output

Model	Suffix Code		Description	Recommended Model
UT103			Digital temperature indicating alarm unit	UM330-00 UM331-00
Alarm action	-N		Indication only	3 points provided as standard
	-1		High-limit setting	
	-2		Low-limit setting	
	-3		High- and low-limit setting	
Input	K		Thermocouple type K	Universal input Note ①
	J		Thermocouple type J	
	R		Thermocouple type R	
	S		Thermocouple type S	
	B		Thermocouple type B	
	E		Thermocouple type E	
	N		Thermocouple type N	
	T		Thermocouple type T	
	D		RTD Pt100	
	P		RTD JPt100	
	V		DC voltage	
	A		DC current: 4 – 20 mA DC	
Supply voltage	1		100/110 and 200/220 V AC	Free power supply
	2		110/120 and 220/240 V AC	
Style code	*A		Style A	
Option code	/RET		Transmission output: 4 – 20 mA DC	Standard

Note!
① For DC current input, use a 250-Ω shunt resistor (X010-250-2).

Advantages of replacement

1. Input not required to be specified (universal input)
2. Alarm output provided as standard
3. Transmission output provided as standard
4. High precision ±0.1%
5. Large LED display
6. 24-V DC sensor power can be supplied (optional specifications)
7. Active display (UM331)

UT201 ⇨ UT55A

UT201 Digital Indicating Controller

External dimensions: 96×144×240 mm Note ①
Measurement accuracy: ±0.3%
Two alarm points
Remote input and Remote/Local selectable
Output bar graph display
A/M switching
Anti-reset windup provided

Model	Suffix Code			Description	Recommended Model
UT201				Digital temperature indicating controller	UT55A-000-10-00
Input	A			DC current: 4 – 20 mA DC	Universal input
	V			DC voltage: 1 – 5 V DC	
	M			DC voltage: 0 – 10 mV DC	
	K			Thermocouple type K	
	J			Thermocouple type J	
	E			Thermocouple type E	
	T			Thermocouple type T	
	R			Thermocouple type R	
	B			Thermocouple type B	
	P			RTD JPt100	
	Q			RTD Pt50	N/A
	D			RTD Pt100	Universal input
Setting		1		Local setting	Standard
		2		Local/remote setting (4 – 20 mA DC)	UT55A-040-10-00/DR
		3		Local/remote setting (1 – 5 V DC)	UT55A-040-10-00
Control action			4	PID action: time proportional ON-OFF	Universal output
			5	PID action: voltage output 24 V DC (isolated type)	N/A
			6	PID action: position proportional ON-OFF	UT55A-1*0-10-00
			7	PID action: current output 4 – 20 mA DC	Universal output
Proportional band			1	Proportional band: 1 – 50%	Standard (Proportional band: 0.1 to 999.9%
			2	Proportional band: 6 – 300%	
Construction				0	General type	————

Note!
① Pay attention to the external dimensions.
② Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions
7. Input/output not required to be specified (universal input/output)
8. Hunting-suppressing function
9. Transmission output provided as standard

UT320 • UT321 ⇨ UT32A

UT320 • UT321 Digital Indicating Controller

External dimensions: 48×96×100 mm
Measurement accuracy: ±0.1%
Control period: 250 ms
Universal input/output
Auto tuning “SUPER” built in
A/M switching function

Model	Suffix Code		Description	Recommended Model
UT320			Digital indicating controller (provided with retransmission output and 15V DC loop power supply as standard)	UT32A-000-10-00
UT321				
Type	-0		Standard type	UT32A-000-10-00
	-2		Heating/cooling type	UT32A-200-10-00
	-3		Standard type with 24V DC loop power supply	UT32A-000-10-00/LP
Optional function		0	None	UT32A-*00-10-00
		1	Communication functions, heater burnout alarm (2 points)	UT32A-*10-10-00/HA
		2	Heater burnout alarm (2 points)	UT32A-*00-10-00/HA

Note!
① Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Quick setting function for easy setting of basic functions
6. High-speed and high percision (200msec, ±0.1%)
7. Position proportional control type can be specified.

UT350 • UT351 ⇨ UT35A

UT350 • UT351 Digital Indicating Controller

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.1%
Control period: 250 ms
Universal input/output
Auto tuning “SUPER” built in
A/M switching function

Model	Suffix Code		Description	Recommended Model
UT350			Digital indicating controller (provided with retransmission output and 15V DC loop power supply as standard)	UT35A-000-10-00
UT351				
Type	-0		Standard type	UT35A-000-10-00
	-2		Heating/cooling type	UT35A-200-10-00
	-3		Standard type with 24V DC loop power supply	UT35A-000-10-00/LP
Optional function		0	None	UT35A-*00-10-00
		1	Communication functions, heater burnout alarm (2 points)	UT35A-*01-10-00/HA
		2	Heater burnout alarm (2 points)	UT32A-*00-10-00/HA
		A	Ethernet communication Note ①	UT35A-*02-10-00

Note!
① Ethernet option is not applicable with “-3” standard type with 24V DC loop power supply.
② Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Quick setting function for easy setting of basic functions
6. High-speed and high percision (200msec, ±0.1%)
7. Position proportional control type can be specified.

UT420 ⇨ UT52A

UT420 Digital Indicating Controller

External dimensions: 48×96×100 mm
Measurement accuracy: ±0.1%
Control period: 200 ms
Universal input/output
Auto tuning built in
5-digit display
Three alarm points provided as standard

Model	Suffix Code		Description	Recommended Model
UT420			Digital indicating controller	UT52A-000-10-00
Type	-0		General type	UT52A-000-10-00
Optional function		0	None	UT52A-000-10-00
		7	Communication, remote input, and two DI points to be added	UT52A-010-10-00
		8	Remote input and two DI points to be added	UT52A-020-10-00

Note!
① Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Quick setting function for easy setting of basic functions

UT450 ⇨ UT55A

UT450 Digital Indicating Controller

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.1%
Control period: 200 ms
Universal input/output
Auto tuning built in
5-digit display
Three alarm points provided as standard

Model	Suffix Code		Description	Recommended Model
UT450			Digital indicating controller	
Type	-0		General type	UT55A-0*0-10-00
	-1		Position proportional type	UT55A-1*0-10-00
	-2		Heating/cooling type	UT55A-2*0-10-00
	-3		General type (provided with 24 V DC sensor supply power)	UT55A-0*0-10-00/LP
	-4		Position proportional type (provided with 24 V DC sensor supply power)	UT55A-1*0-10-00/LP
Optional function		0	None	UT55A-*00-10-00
		1	Communication, remote input, five DI points, and one alarm point to be added	UT55A-*10-10-00
		2	Communication, remote input, and one DI point to be added	UT55A-*20-10-00
		3	Four DI points and one alarm point to be added	UT55A-*30-10-00
		4	Remote input and one DI point to be added	UT55A-*40-10-00

Note!
① Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Ethernet function (optional installation)
6. Quick setting function for easy setting of basic functions

UT520 ⇨ UT52A

UT520 Digital Indicating Controller

External dimensions: 48×96×100 mm
Measurement accuracy: ±0.1%
Control period: 50 ms or greater
Universal input/output
Auto tuning built in
5-digit display
Three alarm points provided as standard

Model	Suffix Code		Description	Recommended Model
UT520			Digital indicating controller	UT52A-000-10-00
Type	-0		General type	UT52A-000-10-00
Optional function		0	None	UT52A-000-10-00
		7	Communication, auxiliary analog (remote) input, and two DI points to be added	UT52A-010-10-00
		8	Auxiliary analog (remote) input and two DI points to be added	UT52A-020-10-00

Note!
① Screw terminals are from M3.5 to M3.

Advantages of replacement

1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Quick setting function for easy setting of basic functions

UT550/UT551 ⇨ UT55A

UT550/UT551 Digital Indicating Controllers

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.1%
Control period: 50 ms or greater
Universal input/output
Auto tuning built in
5-digit display
Active display (UT551 only)
Ethernet communication (UT551-□A to D only)

Model	Suffix Code		Description	Recommended Model
UT550 /UT551			Digital indicating controller	————
Type	-0		General type	UT55A-0*0-10-00
	-1		Position proportional type	UT55A-1*0-10-00
	-2		Heating/cooling type	UT55A-2*0-10-00
	-3		General type (provided with 24 V DC sensor supply power)	UT55A-0*0-10-00/LP
	-4		Position proportional type (provided with 24 V DC sensor supply power)	UT55A-1*0-10-00/LP
Optional function		0	None	UT55A-*00-10-00
		1	Communication, auxiliary (remote) input, six DI points, and four DO points to be added	UT55A-*10-10-00
		2	Communication, auxiliary analog (remote) input, and one DI point to be added	UT55A-*20-10-00
		3	Five DI points and four DO points to be added	UT55A-*30-10-00
		4	Auxiliary analog (remote) input and one DI point to be added	UT55A-*40-10-00

Model	Suffix Code		Description	Recommended Model
UT551			Digital indicating controller	
Type	-0		General type	UT55A-0*2-10-00
	-1		Position proportional type	UT55A-1*2-10-00
Optional function		A	Provided with Ethernet communication	UT55A-*02-10-00
		B	Provided with Ethernet communication, and auxiliary (remote) input and one DI point to be added	UT55A-*42-10-00
		C	Provided with Ethernet communication, and five DI points and four DO points to be added	UT55A-*32-10-00
		D	Provided with Ethernet communication, and auxiliary analog (remote) input, six DI points, and four DO points to be added	UT55A-*52-10-00

Note!
① Screw terminals are from M3.5 to M3.

Advantages of replacement
1. 14-segment active color LCD
2. Simple operations using the Navigation key
3. Depth: 65 mm
4. Ladder sequence function provided as standard (Note that the LL50A Parameter Setting Software, separately sold, is required.)
5. Quick setting function for easy setting of basic functions

UP25 ⇨ UP550

UP25 Program Controller

External dimensions: 96×96×180 mm
Measurement accuracy: ±0.2%
Control period: 200 ms
Multi-range in the same sensor
Auto tuning “SUPER” built in
Maximum of eight patterns/118 segments
Two PV events and four time events
Eight sets of zone PID

General type ⇨ UT550-0*
Position proportional Þ UP550-1*

Model	Suffix Code	Description
UP25		Program controller
	-A	General type
Number of patterns	4	4 patterns
	8	8 patterns
Measurement input group	1	Thermocouple, DC voltage (mV)
	2	RTD
	3	DC current, DC voltage (V)
Control action	10	Time proportional PID (relay output)
	20	Time proportional PID (voltage pulse output)
	30	Continuous output PID (4 – 20 mA DC)
	40	Continuous output PID (1 – 5 V DC)
	50	Position proportional PID (relay output)
	60	Three positions (relay output)
Alarm output	N	No alarm
	1	With alarms (PV event)
Style code	*A	Style A
Option code / ☐ / ☐		Specify each option code.

Note ①
Current input → Note ②
Continuous PID 1 – 5 V → Note ③
Three-position output → Note ⑤

Heating/cooling type ⇨ UP550-2*

Model	Suffix Code	Description
UP25		Program controller
	-B	Heating/cooling type
Number of patterns	4	4 patterns
	8	8 patterns
Measurement input group	1	Thermocouple, DC voltage (mV)
	2	RTD
	3	DC current, DC voltage (V)
Control action (Heating side)	1	Time proportional PID (relay output)
	2	Time proportional PID (voltage pulse output)
	3	Continuous output PID (4 – 20 mA DC)
	4	Continuous output PID (1 – 5 V DC)
Control action (Cooling side)	1	Time proportional PID (relay output)
	2	Time proportional PID (voltage pulse output)
	3	Continuous output PID (4 – 20 mA DC)
	4	Continuous output PID (1 – 5 V DC)
Alarm output	N	No alarm
	1	With alarms (PV event)
Style code	*A	Style A
Option code / ☐ / ☐		Specify each option code.

Note ①
Current input → Note ②
Continuous PID 1 – 5 V → Note ③

Cryogenic type ⇨ UP550-0*

Use a cryogenic temperature converter.
Note ⑨

Model	Suffix Code	Description
UP25		Program controller
	-C	Cryogenic type
Number of patterns	4	4 patterns
	8	8 patterns
Measurement input	4	RTD (Pt-CO), (J263*B)
Control action	10	Time proportional PID (relay output)
	20	Time proportional PID (voltage pulse output)
	30	Continuous output PID (4 – 20 mA DC)
	40	Continuous output PID (1 – 5 V DC)
Alarm output	N	No alarm
	1	With alarms (PV event)
Style code	*A	Style A
Option code / ☐ / ☐		Specify each option code.

Continuous PID 1 – 5 V → Note ③

Options

Option Code	Description	Recommended Model
/EX	Operation mode with external contact switching terminal	UP550-*0 Note ⑥
/RET1	Transmission output signal: 4 – 20 mA DC	Standard
/RET2	Transmission output signal: 1 – 5 VDC	Note ④
/PTNEX	Program patterns with external contact switching terminal	Standard, Note ⑥
/RS232C	Communication interface	UP550-*1, Note ⑦
/RS422	Communication interface	UP550-*1, Note ⑧
/STC	Special thermocouple input	Standard

Note!
① There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
② For DC current input, use a 250-Ω shunt resistor (X010-250-2).
③ For DC voltage output, use an external 250-Ω shunt resistor (X010-250-2).
④ Because a 4 – 20 mA transmission output signal is provided as standard, this option code can be handled by purchasing a 250-Ω shunt resistor (X010-250-2) separately.
⑤ For three-position output, control action is handled by ON/OFF control on both the heating and cooling sides using the heating/cooling UP550-2*.
⑥ If /EX and /PTNEX are both specified, the option code (-*1) is required.
⑦ Use RS-232C/RS-485 converter ML2.
⑧ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.
⑨ Use the cryogenic temperature converter WRU*.

Advantages of replacement

1. 30 patterns/300 segments
2. Contact input/output: Up to eight points each (7 points each are provided as standard).
3. Eight PV events/16 time events are settable (Up to eight contact outputs)
4. Transmission output provided as standard
5. Hunting-suppressing function
6. Eight sets of zone PID/segment PID are settable
7. Five-digit large LED display

UP27 ⇨ UP550

UP27 Program Controller

External dimensions: 96×96×100 mm
Measurement accuracy: ±0.1%
Control period: 200 ms
Universal input/output
Auto tuning “SUPER” built in
15 patterns/192 segments
Two PV events and four time events
Pattern end signal (1 point)
Zone PID/300 segments
Eight sets of PIDs settable

Model	Suffix Code		Description	Recommended Model
UP27			Program controller	UP550-01 Note ①
Option code		/RET	Transmission output Selectable from among PV, SP, and MV	Standard Notes ② and ③
		/LPS	Sensor supply power 21.6 – 28.0 V DC, 30 mA DC max Not available in mixed use with /RSP or /RET	
		/RS422	RS-422A interface Provided with a coordinated operation function	UP550-01 Note ④

Note!
① Eight contact inputs and 15 patterns selectable. If one of PRG, RST, ADVANCE, and HOLD functions is not used, UP550-00 (provided with seven contact inputs as standard) can be used.
② Either transmission output or sensor supply power is available as standard.
③ Sensor supply power is 14.5 to 18.0 V DC at 21 mA DC maximum.
For 21.6 – 28.0 V power supply, provide an external power supply separately.
④ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.

Advantages of replacement

1. 30 patterns/300 segments
2. Contact inputs and outputs: Up to eight points each (7 points each are provided as standard).
3. Eight PV events/16 time events are settable (Up to eight contact outputs)
4. Transmission output provided as standard
5. Hunting-suppressing function
6. Five-digit large LED display

UP30 ⇨ UP550

UP30 Program Controller

External dimensions: 96×96×180 mm
Measurement accuracy: ±0.1%
Control period: 100 ms
Universal input/output
Auto tuning “SUPER” built in
19 patterns/200 segments
Two PV events and four time events
Pattern end signal (1 point)
Zone PID switching and eight sets of PIDs are settable

Model	Suffix Code	Description	Recommended Model
UP30		Program controller	UP550-00 Notes ①, ④, and ⑤
Measurement input group	-1	Thermocouple, mV, and 4 – 20 mA DC input	
	-2	RTD input	
Control action	1	Time proportional PID (relay output)	
	2	Time proportional PID (voltage pulse output)	
	3	Continuous output PID (4 – 20 mA DC)	
	4	Continuous output PID (1 – 5 V DC)	
Power supply	1	100 V system (90 – 132 V AC)	Free power supply 100 – 240 V AC
	5	200 V system (180 – 250 V AC)	
Style code	*B	Style B	————
Option code	/DCV	DC voltage (V) input	Standard Note ②
	/F***	Specify the input type.	N/A
	/RET	Transmission output	Standard
	/RS422	RS-422 communication interface	UP550-*1 Note ③

Note!
① For continuous output PID (1 – 5 V DC), use a 250-Ω shunt resistor (X010-250-2).
② There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
③ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.
④ There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
⑤ For DC current input, use a 250-Ω shunt resistor (X010-250-2).

Advantages of replacement

1. 30 patterns/300 segments
2. Contact inputs and outputs: 7 points each as standard
3. Eight PV events/16 time events are settable
   (Up to eight contact outputs)
4. Transmission output is provided as standard. A maximum of two transmission outputs
5. Hunting-suppressing function
6. Five-digit large LED display

UP40 ⇨ UP750

UP40 Program Controller

External dimensions: 96×144×180 mm Note ①
Measurement accuracy: ±0.1%
Control period: 100 ms
Multi-range in the same sensor
Auto tuning built in
99 patterns/400 segments
Four PV events and eight time events
Zone PID switching, and eight sets of PIDs are settable

Model	Suffix Code	Description	Recommended Model
UP40		Program controller	UP750-00 Notes ②, ③, and ④
Measurement input group	-1	Thermocouple, mV, and 4 – 20 mA DC input	
	-2	RTD input	
Control action	1	Time proportional PID (relay output)	
	2	Time proportional PID (voltage pulse output)	
	3	Continuous output PID (4 – 20 mA DC)	
	4	Continuous output PID (1 – 5 V DC)	
Power supply	1	100 V system (90 – 132 V AC)	Free power supply 100 – 240 V AC
	5	200 V system (180 – 250 V AC)	
Style code	*B	Style B	————
Option code	/DCV	DC voltage (V) input	Standard Note ③
	/F***	Specify the input type.	N/A
	/RET	Transmission output	Standard
	/RS422	RS-422 communication interface	UP750-*1 Note ⑤

Note!
① Pay attention to the external dimensions.
② For continuous output PID (1 – 5 V DC), use a 250-Ω shunt resistor (X010-250-2).
③ There is no range corresponding to DC voltage range code 021 (-1 to 1 V). Use a signal converter.
④ For DC current input, use a 250-Ω shunt resistor (X010-250-2).
⑤ RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.
⑥ If a sequence is organized using an ANS signal for contact output, this option is handled as custom computation of UP750-10.
⑦ An expansion module is required depending on the number of contact inputs/outputs. See the connection diagram in the general outline.

Advantages of replacement

1. 300 patterns/3000 segments
2. Contact inputs and outputs: Up to 23 points each (7 points each are provided as standard).
3. Eight PV events/16 time events are settable
4. Transmission output provided as standard
5. Hunting-suppressing function
6. Five-digit large LED display

UM04 • UM05 ⇨ UM330/UM331 • UM350/UM351

UM04 and UM05 Digital Indicating Alarm Units

External dimensions: 96×48×100 mm (UM04)
96×96×100 mm (UM05)
Measurement accuracy: ±0.1%
Sampling period: 500 ms
Universal inputs
Two alarm points provided as standard
Transmission output

Model	Suffix Code		Description	Recommended Model
UM04			Digital indicating alarm unit	UM330-00 UM331-00
Style code	*A		Style A	
Option code		/RET	Measured-value transmission output: 4 – 20 mA DC	

Model	Suffix Code		Description	Recommended Model
UM05			Digital indicating alarm unit	UM350-00 UM351-00
Style code	*A		Style A	
Option code		/RET	Measured-value transmission output: 4 – 20 mA DC	
		/RS422	RS-422 communication interface	UM-350-01 Note ① UM-351-01 Note ①
		/ALM4	Four alarm outputs (two outputs to be added)	UM350-02 UM351-02

Note!
① RS-485 is electrically upward compatible to RS-422. However, the communication protocol is changed to PC link communication, which requires a software program change.

Advantages of replacement

1. Four alarm points are possible (3 points provided as standard)
2. Transmission output provided as standard
3. Large LED display
4. RS-485 communication available (optional specifications)
5. 24-V DC sensor power can be supplied.
6. Active display (UM331/UM351)