

EC5800

DIGITAL CONTROLLER

Ohkura

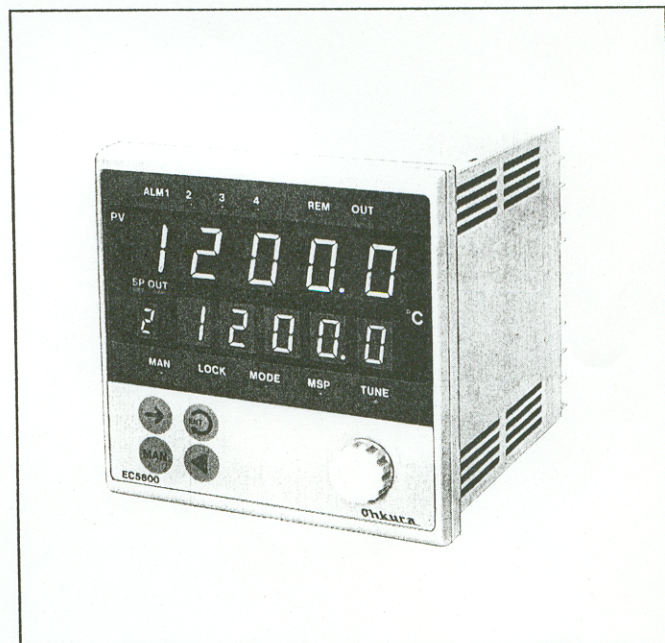
SPEC-1226E

THE MODEL EC5800 IS A MICROPROCESSOR BASED SINGLE LOOP CONTROLLER WITH FLEXIBLE FUNCTIONS.

- HIGH ACCURACY OF $\pm 0.1\%$
- AUTO-TUNING STANDARD
- 0.1 sec. CONTROL EVALUATION CYCLE
- FLEXIBLE SCALING RANGE OF -19999 TO 19999
- EXTENDED MULTI-RANGE
- 4 ALARM OUTPUTS
- RS232C OR 422A OPTIONAL INTERFACE
- OPTIONAL SELF-TUNING FOR OPTIMAL CONTROL

SPECIFICATIONS

Input range: Subject to models, refer to range table
Display: 7 segment LED, Process variable/green, setpoint & output/orange
Display update: 100 msec.
Scaling: -19999 to 19999 with mV, V & mA ranges
Setpoint: Front panel (local) or remote (option)
Setpoint bias: $\pm 20\%$ available with remote setpoint
Setpoint tracking: Remote to local
Setpoint limiter: 0-100% with TC & RTD input ranges
Multisetpoint: Up to 8 setpoints
Sensor correction: $\pm 30^\circ\text{C}$ with TC & RTD input ranges
Setpoint transfer ramping: 0.01 to 450.00 unit/min.
Unit: $^\circ\text{C}$ or %
Control: PID, PD, 3-position (dual output) or ON/OFF
Proportional band: 0.1-999.9%
Integral(reset): 0.01-99.99 min.
Derivative:(rate): 0-20.00 min.
Manual reset: 0-100.0%, PD control mode only
Dead band(differential gap): $\pm(0-0.500)$, 2 output model
Hysteresis: 0.00-20.00% (ON/OFF control mode)
PID adjustment: Independent on each setpoint
Programmed PID: 8 PID parameters programmed with optional remote setpoint
Autotuning: Standard



Output: Relay; Form-C, 250Vac, 3A resistive
SSR Drive; 15Vdc, 20mA max.
Current; 4-20mA/600 Ω or 0-5mA/2k Ω
Servo drive; Option
Dual output; Any combination from among relay, SSR drive and current output
Auto/Manual: Balanceless bumpless transfer
Output limiter: 0-100% No.1 output only
Direct/Reverse: Selectable, reverse in 2 output model
Cycle time: 1-120 sec., relay and SSR drive output
Control evaluation cycle: 100 msec.
RUN/STOP: The function does enable/disable controller
Preset manual: 0.0-100.0%, available when controller disabled
Alarm: 4 setpoint process or deviation alarm
Alarm setpoint: Process alarm, 0-100% of range, deviation alarm, $\pm 100\%$ of range
Hysteresis: 0-100% adjustable within the range
Alarm on delay timer: 0-600 sec.
Nos of output relays: 4 relays, available link to alarms and controller status each
Relay rating: Form-A, 250VAC 0.5A, resistive, common-contact connection

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Cable: ELETOKRA TOKYO

Rev. Sep. 1992

Status output: AUTO/MAN, RUN/STOP, Watchdog timer & Reach at setpoint (available on setpoint ramping)

Discrete inputs: 4 inputs for setpoint selection, PID parameter selection, AUTO/MANual switching, Remote/Local switching, or RUN/STOP switching, opto-coupler driven 15VDC 1mA

Memory backup: Non-volatile RAM

Interface: TTL 300-9600 bps, ZE7101A01 and ZE7101A02 allow direct connection of RS-232C and RS-422A to the controller respectively

Power input: 85-264Vac, 45-65Hz

Power consumption: Approx. 6VA/100VAC, 8VA/200VAC

Net weight: Approx. 500 g

Operation temperature range: -10 to 55°C

PERFORMANCE

Accuracy: $\pm(0.1\%+1 \text{ LSB})$ max.

Reference junction: $\pm 1^\circ\text{C}/\text{B,R,S,AuFe}$ & PR40-20,
 $\pm 0.5^\circ\text{C}/\text{K,E,J,T,N,WRe5-26,PLII,U}$ & L

Reference junction compensation:

$\pm 1^\circ\text{C}$ with B,R,S,Au-Fe, & PR40-20

$\pm 0.5^\circ\text{C}$ with K,E,J,T,N,WRe5-26,PLII,U & L

Source impedance effects: Approx. $0.13\mu\text{V}/\Omega$ at TC & mV ranges, RTD lead wire 5Ω max.

Input impedance: $250\Omega/4\text{-}20\text{mA}$, $500\text{k}\Omega/\text{Volt}$ input

CMRR: 140dB min.

NMRR: 60dB min.

OPTIONS

Analog retransmission: 0-20mA or 4-20mA selectable for process variable, setpoint or output, accuracy $\pm 0.2\%$, resolution 0.05% max., load 400Ω max.

Isolated remote setpoint: 1-5Vdc, $500\text{k}\Omega$ input impedance

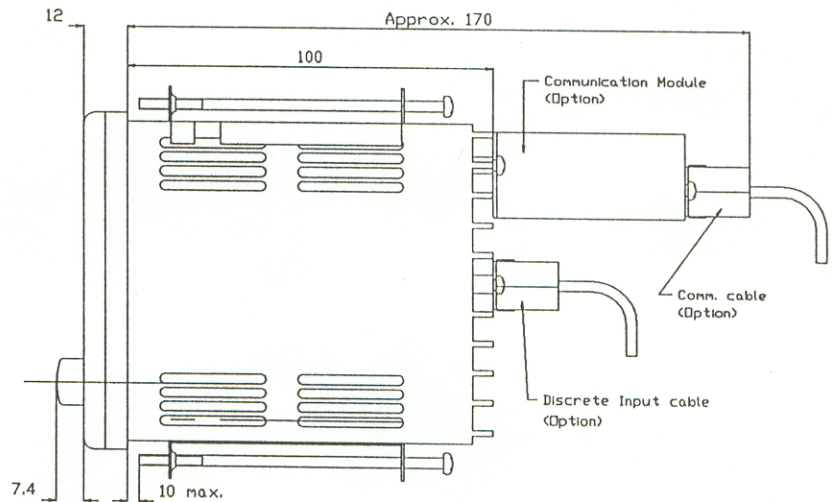
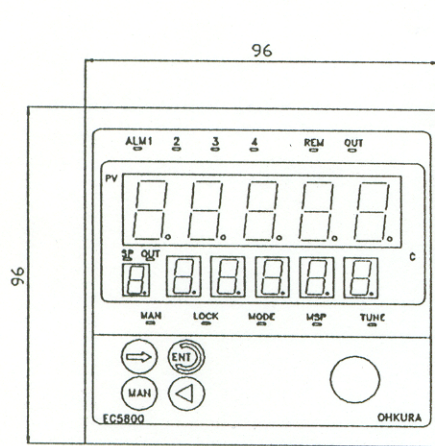
Self-tuning: Continuous loop tuning

RS485 Interface: 1 Mbps

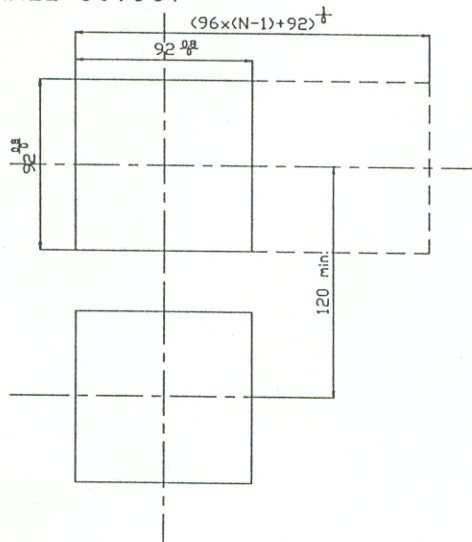
RANGE TABLE AND ACCURACY

	INPUT	CODE	RANGE	ACCURACY	REMARKS
TC/mV/ V/mA	B	b *1	0.0 - 1820.0°C	$\pm(0.1\%+1 \text{ digit})$, $\pm(0.15\%+1 \text{ digit})$ within -200-0°C	*1 0 - 400°C $\pm 4\%$
	R	r1 *2	0.0 - 1760.0°C		400 - 800°C $\pm 0.15\%$
	R	r2 *2	0.0 - 1200.0°C		*2 0 - 200°C $\pm 0.15\%$
	S	S *2	0.0 - 1760.0°C		*3 -270 - -200°C $\pm 2\%$
	K	k1	-200.0 - 1370.0°C		*4 -270 - -200°C $\pm 1\%$
	K	k2	0.0 - 600.0°C		*5 0 - 20K $\pm 0.5\%$
	K	k3	-200.0 - 300.0°C		20 - 50K $\pm 1.5\%$
	E	E1	0.0 - 700.0°C		*6 0 - 300°C $\pm 1.5\%$
	E	E2 *3	-270.0 - 300.0°C		300 - 800°C $\pm 0.8\%$
	E	E3 *3	-270.0 - 150.0°C		
	J	J1	-200.0 - 900.0°C		
	J	J2	-200.0 - 400.0°C		
	J	J3	-100.0 - 200.0°C		
	T	t1 *4	-270.0 - 400.0°C		
	T	t2	-200.0 - 200.0°C		
	WRe5-26	C	0.0 - 2320°C		
	N	n	0.0 - 1300.0°C		
	PLII	P1	0.0 - 1390.0°C		
	PLII	P2	0.0 - 600.0°C		
	U	U	-200.0 - 400.0°C		
	L	L	-200.0 - 900.0°C		
	Au-Fe	A *5	0.0 - 300.0°K	$\pm(0.2\%+1 \text{ digit})$	
	PR40-20	Pr *6	0.0 - 1300.0°C		
	0 $\pm$ 10mV	10	-10.0 - 10.0mV	$\pm(0.1\%+1 \text{ digit})$	
	0-20mV	20	0.0 - 20.0mV		
	0-50mV	50	0.0 - 50.0mV		
	1-5V	v	1.0 - 5.0V		
	4-20mA	mA	4.0 - 20.0mA		
RTD	Pt100	Pt0	-200.0 - 650.0°C	$\pm(0.1\%+1 \text{ digit})$	
		Pt1	-200.0 - 400.0°C		
		Pt2	-200.0 - 300.0°C		
		Pt3	-200.0 - 200.0°C		
	Pt4	Pt4	-100.0 - 100.0°C	$\pm(0.15\%+1 \text{ digit})$	

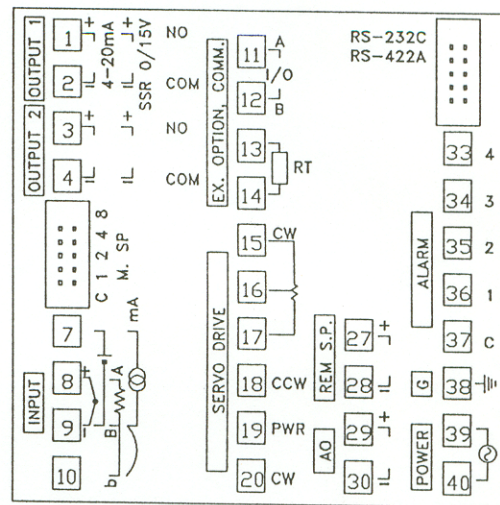
DIMENSIONS (Unit: mm)



PANEL CUTOUT

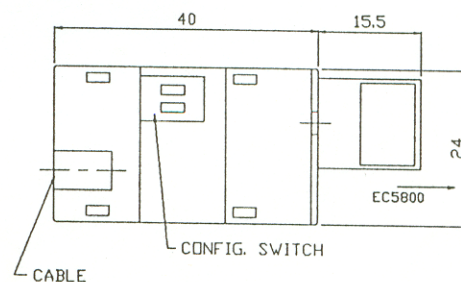
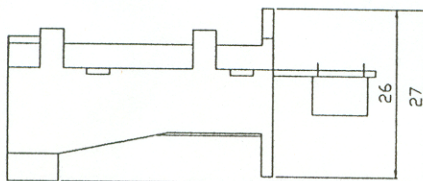


TERMINAL ARRANGEMENT



COMMUNICATION MODULE

ZE7101A01: RS232C Communication module, Cable HMSU2255B02, Length=2 m with D-Sub connector
 ZE7101A02: RS422A Communication module, Cable HMSU2691B01, Length=variable to be specified



MODEL CODE NUMBER

MODEL	DESCRIPTION	
EC581 EC582	Direct thermocouple or millivolt input RTD Pt100Ω input, 3-wire, source impedance 5Ω max. at RTD lead wire	
	CODE	NO.1 OUTPUT
	1A 2A 5A 6A	Relay output, form C 250VAC, 3A resistive SSR drive output, 15VDC, 20mA max. 4-20mA output, 600Ω max. 0-5mA output, 2kΩ max.
	CODE	PANEL COLOR
	1 2	Black White
	CODE	BUILT-IN OPTION
	0 1 5 6	None Self tuning Retransmission plus Self tuning Retransmission, Isolated Remote Input plus Self tuning
	CODE	EXTENDED OPTION (consult factory)
	0 1 2 3	None RS-485 Communication interface, 1Mbps Servo drive RS-485 plus Servo drive
	CODE	No.2 OUTPUT
	00 10 20 50 60	Single output model Relay SSR drive 4-20mA 0-5mA

MULTI-SETPOINT SELECTOR

Part number: ZE3301

Output: Binary and decimal code

Binary for EC5800 multisetpoint input

Decimal for customer instrument

Output contact rating: 30VDC, 1A, 1VA max.

Contact resistance: 100μΩ max.

Torque: Approx. 0.6 kg-cm

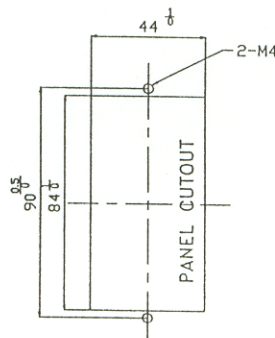
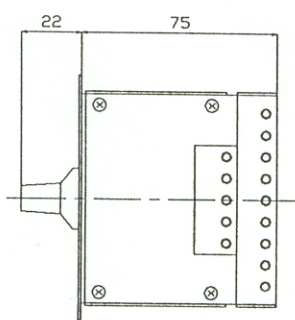
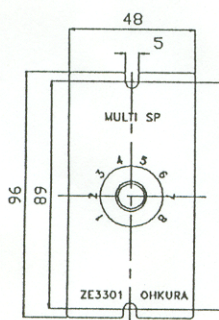
Life time: 200,000 steps at full load

500,000 steps at no load

Operation temperature: -0 to 55°C

Cable: HMSU2695A01, 1m,

HMSU2695A02, 5m



TERMINAL ARRANGEMENT

B	7	8
6	5	4
3	2	1
0	9	8
7	6	5
4	3	2
1	0	9
8	7	6
5	4	3
2	1	0
9	8	7
6	5	4
3	2	1
0	9	8

Specifications subject to change without notice.