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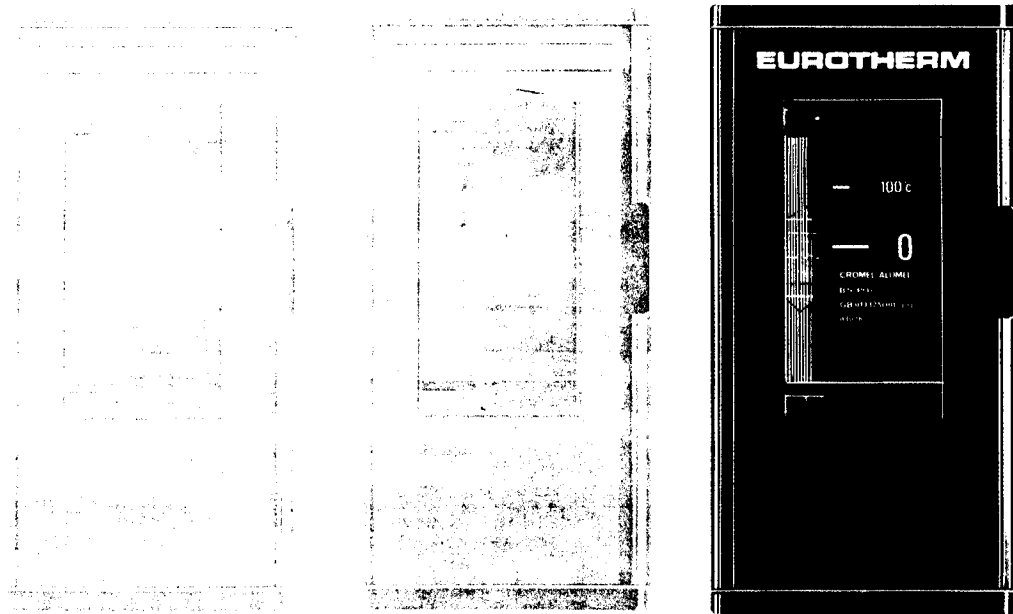
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EUROTHERM

106

EI

Process Alarm



- Compact precision alarm unit
- Analogue setting on 113mm scale with adjacent indication on 5-bar LED display
- Scale stops permit limiting of trip point adjustment
- Latching option
- High reliability solid-state circuitry
- Fail-safe high or fail-safe low
- Upscale or downscale thermocouple break action
- Plug-in mounting for rapid insertion and removal

Description

The 106 can be used as an alarm instrument, a trip instrument or a controller with an external contactor or circuit breaker.

For maximum security, operation from a separate thermocouple is recommended. However, the 106 can share the thermocouple of another controller or recorder without introducing significant errors. Break protection must be the same on both units.

A clear 113mm scale provides the analogue setpoint/alarm point and a vertical bank of five LEDs mounted alongside gives the temperature indication about the alarm point.

Technical Specification

Quoted at 25°C unless otherwise stated

Inputs

Thermocouple

U.S. Standard British Standard German Standard Scale ranges Effect of thermocouple lead resistance Thermocouple break protection Cold junction compensation	ASTM E230 (1972) BS 4937 (1973) DIN 43710 See scale list mV error equal to bias current circuit resistance Upscale on 046-028 (high alarm) downscale on 046-036 (low alarm) Upscale std. on Controller version. Better than 15:1 rejection
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Resistance Thermometer

100 ohm bulb at 0°C British Standard German Standard Scale ranges 3 or 2 wire RT break protection Sensor bias current	BS1904 Pt100 to DIN 43760 See scale list Automatic compensation reduces lead resistance error in 3 wire Only on 2 out of 3 wires for 3 wire RT Full protected on 2 wire RT Upscale only available 1mA
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Outputs

Relay

2A/250V ac	Single pole changeover, de-energised in alarm (failsafe) N/O contact suppressed with 0.022µF and 100 Ω
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General

Setpoint System

Scale length Scale stops Setpoint repeatability Setpoint linearity Calibration accuracy Indication Deadband pot Common mode rejection Series mode rejection Effect of supply voltage variation	113mm Optional upper and lower stops adjustable in steps of 1% of span < 0.5% of span 3% of span < 0.5% of span at lower and upper calibration points 5-segment LED display, giving deviations from setpoint of: above 3%, +1 to +3%, ±1%, -1 to -3%, below 3% of span Plug-out adjustable 0.2 to 2% of span Sensor can be elevated up to 240V/50Hz without affecting instrument accuracy No effect for up to 50mV at 50Hz < 0.1% change in setpoint for ±15% supply voltage change
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Other Details

Finish: sleeve half case Power supply Power consumption Weight Terminals Dimensions	Flame-retardant plastic Aluminium 100-130V } 50/60Hz 200-260V } 100/200 +10—15% 50/60Hz 1.5VA max 0.4Kg DIN double faston or single screwed (optional) 96 x 48 x 125mm
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Two forms of output relay action are available.

Type -028 gives protection against over-temperature conditions, with the relay de-energising above the alarm point, and Type -036 gives protection against under-temperature conditions, with the relay de-energising below the alarm point; this relay logic gives a fail-safe action. A thermocouple break is protected by upscale and downscale break protection respectively, with an RT break upscale only. Refer to the specification for further details.

One changeover set of relay contacts is brought out to the rear terminals, with a suppression circuit being connected between the n/o contact and common.

For fleeting alarms an optional latching relay feature is available. The relay remains de-energised if the temperature comes out of the alarm condition and can only be reset by the push button on the front of the instrument.

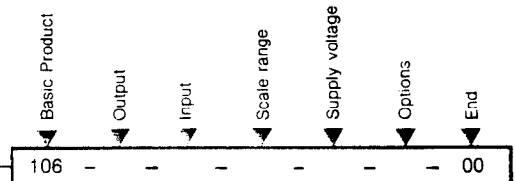
A deadband adjustment potentiometer is accessed by removing the instrument from its sleeve, and is variable between 0.2% and 2% of span, the alarm point being always at the setpoint shown on the drum.

An alarm state LED is mounted below the indicator array, and shows the state of the output relay. The standard arrangement has the LED illuminating for a de-energising relay (one that is in alarm). An option is available to have the 106 built as a controller rather than an alarm unit; the LED is altered in action to illuminate for an energised relay, when power is switched to the load.

Ordering Information

You are welcome to order by description or by code below, which is a useful check list.

Basic Product	Code
Process Alarm	106
Output	
Relay 2A/250V de-energising for high alarm	028
Relay 2A/250V de-energising for low alarm	036
Input	
See inputs and scale ranges	
Scale Range	
See inputs and scale ranges	
Supply Voltage	
100-130V 50/60Hz]	19
200-260V 50/60Hz]	
100/200V + 10% — 15% 50/60Hz	25
Options	
Screw Terminals	09
Downscale 1/3 break (std. with -036 output)	24
Upscale 1/3 break (std. with -028 output)	50
Latching alarm and reset push button	59
Controller version (LED illuminating when relay energised upscale 1/3 break std.)	85



Note: Scale stops now fitted as standard

Example order

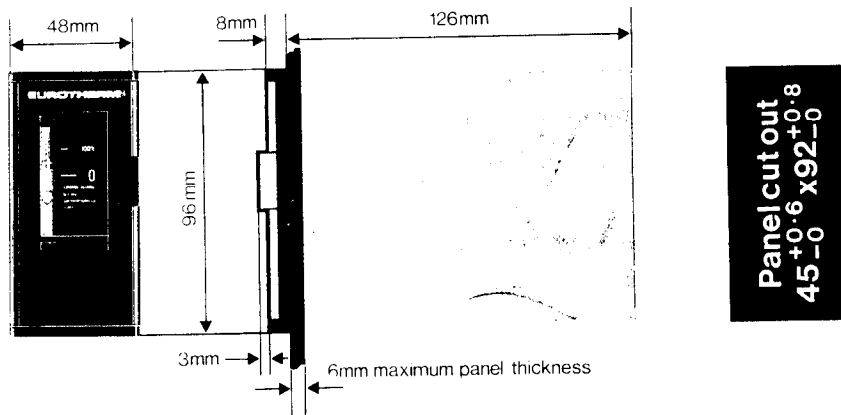
To specify:
Alarm unit (106) with a high alarm de-energised relay output (028), accepting a chromel-alumel thermocouple (03) with a temperature range of 0-400°C (020), supply voltage of 240V, 50Hz (19) and reset push button option (59)

Write: 106-028-03-020-19-59-00

Inputs and Scale Ranges

Input Types

	Code	Degree Scales												Millivolt Scales																
		0-100°C	0-200°C	0-400°C	0-600°C	0-800°C	0-1000°C	0-1200°C	0-1600°C	-10.50°C	-100 — +100°C	-100 — +200°C	-200 — +200°C	0-250°F	0-400°F	0-800°F	0-1200°F	0-1400°F	0-1600°F	0-2400°F	0-2800°F	-50 — +250°F	-50 — +500°F	-100 — +350°F	0-100 Divisions	0-100 Figures	-5 — +5mV			
Iron-Constantan	J	01																												
Iron-Constantan	DIN43710	02																												
NiCr-NiAl	K	03																												
Copper-Constantan	T	04																												
Pt1 3% Rh/Pt	R	05																												
Pt10% Rh/Pt	S	06																												
Copper-Constantan	T	19																												
Platinell 2		28																												
Resistance thermometer (100 at 0°C)		70	015	017	020																									
Millivolts (no CJC)		97																												
Linear		98																												



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