XI SPECIAL PURPOSE DEVICES

Systems

Etalons

Other Devices

Protective Cartridges and Connectors

SYSTEM OF TEMPERATURE CONTROL OF MELTED METALS CKTP-0597

Designed to measure temperature of melted metals by means of contact method with the help of a submerging thermocouple and signal about measurement progress. The process is controlled by CPU.

Letter notation of NSC (ДСТУ 2837-94) of thermoelectrical couple	B, S, R, A and K
Range of measured temperatures, °C	from 800 to 1800
Error of measurement of digital device, not more than, °C	1
Quantity of decimal positions of indicator screen	4 (height of digits 40 mm)
Power	220^{+22}_{-33} V, 47 - 63 Hz
Ambient temperature, °C	from 0 to 50 (different packaging for from minus 40 to 50 °C range)
Weight of digital device, not greater than, kg	5

CKTP-0597 system is easy to use.

When thermocouple is attached, green light turns on which signals that the system is ready to measure. Yellow light (measurement) shows that the thermocouple has reached the temperature close to the set level.

After measurement process is over which lasts several seconds, red signal light turns on and brief sound alarm goes off. The digital indicator displays the measured value of temperature of melted metal that is stored until the next measurement.

CKTP-0597 system provides archiving of measurement results and time when they were taken in volatile memory. Archived data can be displayed on the indicator and sent to PC via RS232 or RS485.
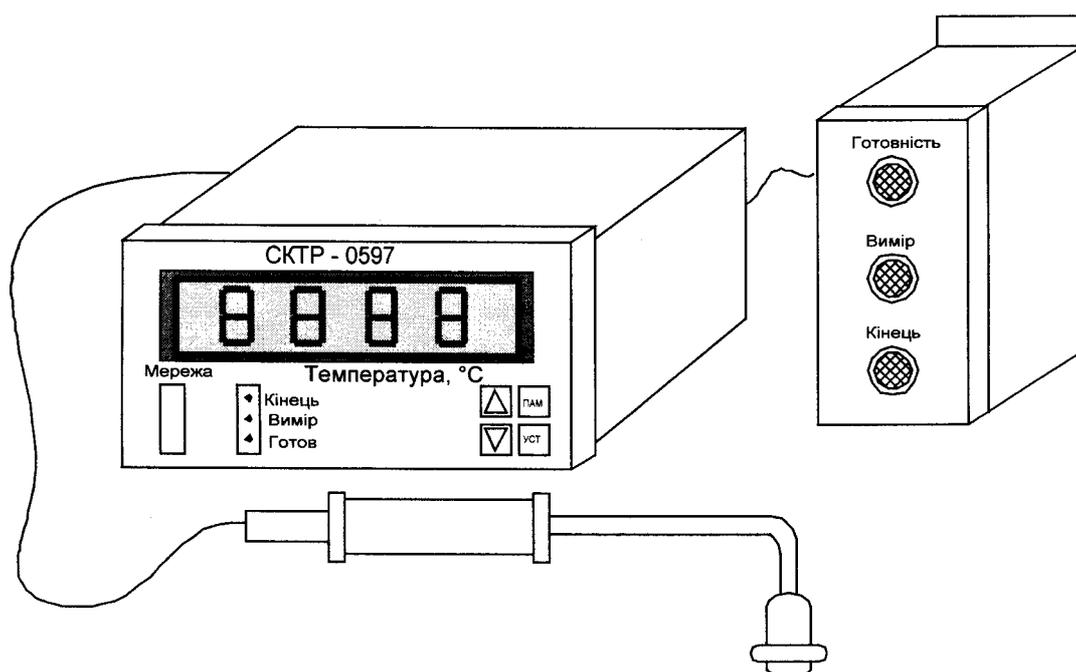
# DEVICE FOR TEMPERATURE CONTROL AND ADJUSTMENT
ПКРТ-0103

Designed for automatic and continuous signaling that a set level of temperature/ other physical value was achieved (independent level setting for each channel), and indication of the current value of measurements in the controlled channels. The device can operate in two, three position modes or PID control.. The outputs are vacant relay contacts, optosymistors or optotransistors (open collectors). 8 entry channels available.

The devices works in a set with primary thermocouples: thermocouples of resistance with nominal static characteristic of transduction (NSC) 50 M, 100M, 50П, 100П, or thermoelectrical couple with NSC K, L or primary thermocouples transducing other values with input signal 4 - 20 mA, 0 - 20 mA, 0 - 5 mA, 0 - 1 V, 0 - 5 V, 0 - 10 V etc.

The device can link with PC through RS232 or RS485 interface. The connection is provided with three wire line galvanically divided from input and powering circuits. The device may also generate measurement data archives and show them on PC screen later. The devices can be easily connected in a computer network.

Mounting — on board.	
Range of measured temperature, °C	from minus 50 to 1800 (depending on the type of thermocouple used)
Resolution, °C	0,1 (1 — for thermoelectrical couples)
Number of decimal orders of indication	4
Threshold of main acceptable composite measurement, %	0,1.. - 0,5
Length of indication of the measured value of single channel, s	1
Number of points of archiving measured values for each channel, not less than	2000
Period of archiving, min	from 1 to 180
Powering voltage	220^{+22}_{-33} V, 50 ± 1 Hz
Power of consumption, not more than, Wt	3
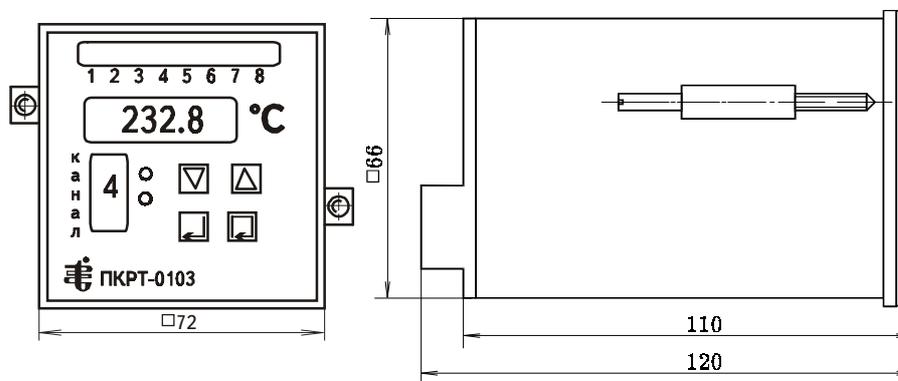
THERMAL SET OF TEMPERATURE FIELD SIGNALING
ТСТП-071 М1 (ТУ 25-02-79-1971-76)

The set including thermoelectrical couples with nominal static characteristic (NSC) of transduction K and meters gauged in degrees Celsius is designed to control non-uniformity of temperature field, control of mean field temperature and selective temperature control at every test point in the field.

The set includes:
      - temperature signaling device - СТП-082 М1;
      - connection box - КС-429 М1
      - miliammeter (0-5 mA) M 1618 with the range from 0 to 1100 °C - 3 pcs.

The set shall:
      - signal about temperature deviation at every test point of temperature field;
      - light signaling (generalized) with the help of indicator on the control panel

Range of controlled temperatures, °C	from 0 to 1100
Acceptable main error of signaling for every analog output, %	±1,5
Acceptable main error of measurement, %	±0,5
Maximum quantity of thermoelectrical couples connected to the box, units	30
Consumed power, B·A, not more than	30
Supply voltage and frequency	220/127 V, 50(400) Hz
Weight, kg, not more than:	
box	15
signaling device	25
Packaging	water proof
Size, mm:	
СТП-081М1	320x180x160
M1618	120x120x126
КС-429М1	467x260x130

DIGITAL RESISTANCE METER ОЦ-0103

Designed for precision measurement of resistance of mainly thermocouples of resistance. Interface to PC is provided via RS232.

Ambient air temperature is from 10 to 35 °C. One of the features is automatic compensation of additional error due to changes in surrounding air temperature.

Range of measurement, Ohm   from 0 to 750
Threshold for acceptable main absolute error, Ohm:
- for grade A $\pm(0{,}002+2{\cdot}10^{-5}{\cdot}Rx)$
- for grade B $\pm(0{,}002+5{\cdot}10^{-5}{\cdot}Rx)$
- for grade C $\pm(0{,}002+10^{-4}{\cdot}Rx)$, where
Rx is a value of resistance measured

Low order unit, Ohm

0,001 (in indication)
0,0001 (on PC monitor)

Supply voltage, V
- DC   8...12
- AC (with power supply)   220 (50 Hz)
Power consumed, not more than, W   2
Size (without power supply), mm   147x50x140
Weight (without power supply), kg   0,5

Technical specification may change (range, low order unit, error, etc). Resistance meter may also come with a channel commutation unit.
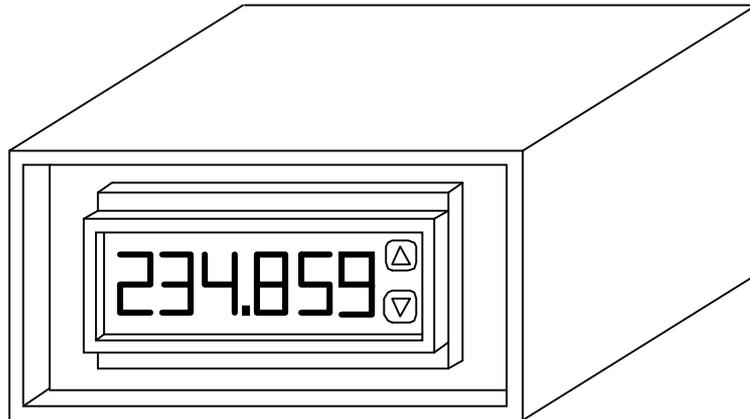
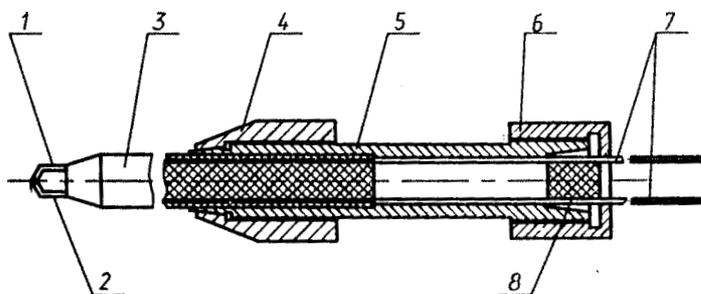# ETALON THERMOELECTRICAL THERMOCOUPLE, ППЕ SERIES

Platinum Rhodium — Platinum etalon thermoelectrical thermocouple transducer, ППЕ series, grade 1, 2, 3 is designed for use as a working etalon for certification and calibration works, and precision measurements of temperature in the air or neutral environments in the laboratory.

Range of measured temperatures, °C	from 300 to 1200

Threshold of acceptable error, °C
(at temperature of 1084,62 °C)

1	0,6
2	0,9
3	1,8

Length of themoelectrodes, mm	1000; 1250; 1600

1. Thermoelectrode Platinum
2. Thermoelectrode Platinum Rhodium
3. Reinforcing tube
4. Nut
5. Collet
6. Cap
7. Electric insulation tube
8. Bushing

ETALON THERMOELECTRICAL THERMOCOUPLE, ПРЕ SERIES

Platinum Rhodium — Platinum Rhodium etalon thermoelectrical thermocouple, ПРЕ series, grade 1, 2, 3 is designed for use as a working etalon for certification and calibration works, and precision measurements of temperature in the air or neutral environments in the laboratory.

Range of measured temperatures, °C   from 600 to 1800

Bound value of confidence error with confidence probability 0,95, K for different grades:
1   2,5
2   4
3   10

Length of thermoelectrodes, mm   1000; 1250; 1600
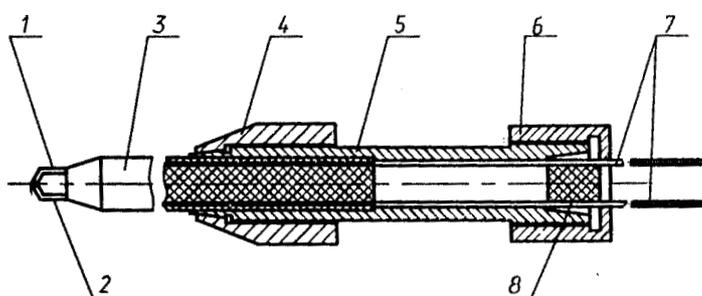
1. Negative thermoelectrode (Platinum Rhodium wire ПР/6 0,5 ГОСТ 10821-75)
2. Positive thermoelectrode ((Platinum Rhodium wire ПР-30 0,5 ГОСТ 10821-75)
3. Reinforcing tube
4. Nut
5. Collet
6. Cap
7. Electric insulation tube
8. Bushing

ELECTRONIC SENSORS OF FIXATION OF WHEEL COUPLE RUN ДЕ-96

The sensors are designed to generate electrical current pulse at the point of fixation of a wheel run in a mobile unit.

The sensors are designed for use in such devices as "ПОНАБ" , "ДИСК", "ГАЦ" etc.

Conditions of sensor operation:

ambient temperature - from minus 40 to 60 °C

relative humidity — up to 100 %

atmosphere pressure - from 66 to 106,7 kPa (495 - 800 mm Hg)

mechanical load — according to group МС5 РД32 ЦШ 03.07-90

|	
Nominal voltage of sensor powering, V	12 ± 1
Output signal of a sensor of wheel fixation, mA	3,5 ± 1
Resistance of insulation between sensor housing and electrical leads at 20 °C and relative humidity 80 %, not less than, MOhm	40
Size of sensor (without mounting), not more than, mm	80x58x25
Weight of sensor (without brackets and mounting), not more than, kg	0,15

SPARK PROTECTION BARRIER ТФ-3388
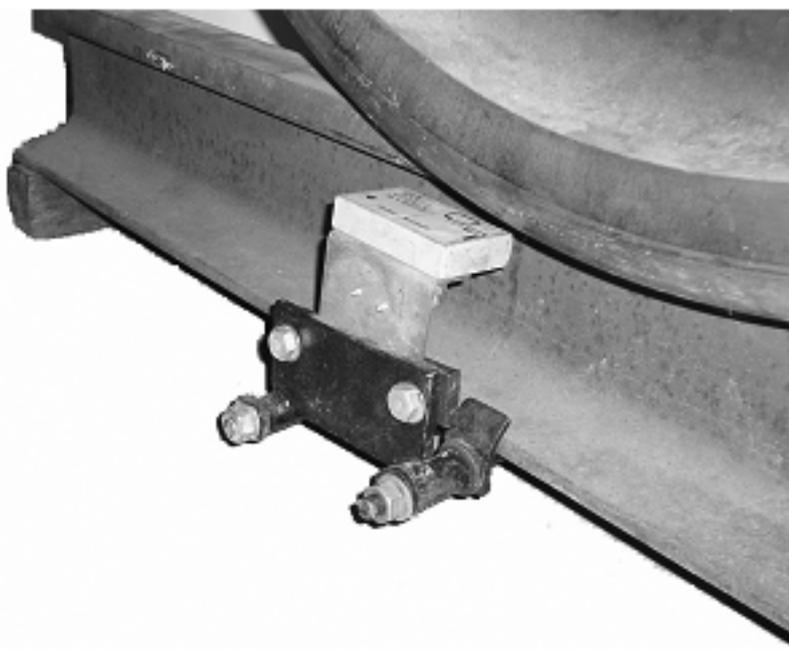
Design to provide spark safety in electrical circuits of various transducers and thermocouples, and their power supplies located in explosive areas.

Range of acceptable parameters in an explosive area (contacts 3, 4):

|	
Inductance, Hn, not more than	5×10^{-3}
Capacity, mF, not more than	7
Absence of non-sparkproof current sources	
Nominal current of fuse, mA	20
Leakage current between input (output) contacts at voltage of 1 V, mA, not more than	10
Acceptable current of short circuit between contacts 3-6 and 4-6, A, not more than	0,11
Voltage of barrier triggering, V, not more than	6,5 (26)
Degree of protection against penetration of hard bodies (ГОСТ 14254-96)	IP20
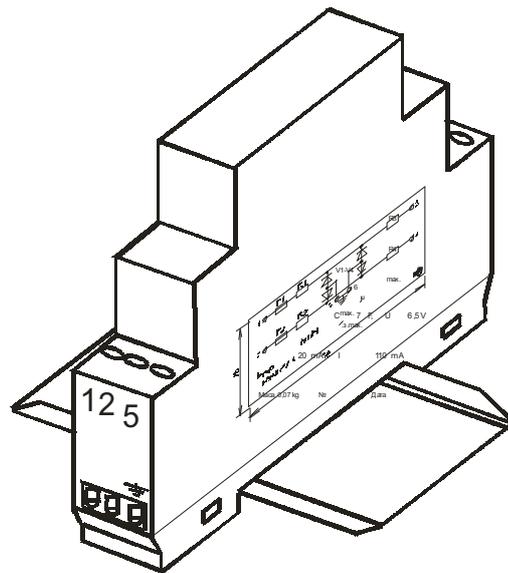
Fig. 1 - Outer view
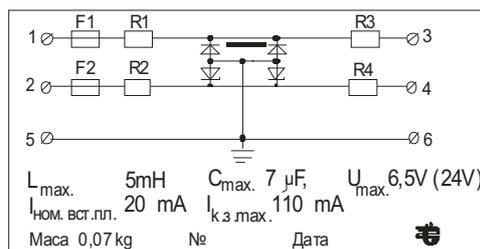
Fig. 2 - Electrical schematic

POWER UNIT БЖ-24, БЖ-24-2, БЖС-18

Designed to power thermocouples with unified output signal (for instance, ПВУ-0197, ТСМУ-0198, ТСПУ-0198, ТХАУ-0198, pressure sensors, level sensors etc.). Can work together with spark protection areas ТФ3388.

БЖ-24, БЖС-18 — single channel;
БЖ-24-2 — double channel with galvanically divided channels;
БЖ-24, БЖ-24-2 — no stabilization;
БЖС-18 — with stabilization.

Nominal output voltage, V
     for БЖ-24, БЖ-24-2   24±5
     for БЖС-18   18

Nominal load current, mA:
     for БЖС-18   160
     for БЖ-24   50
     for single channel БЖ-24-2   25

Power supply specifications 220^{+22}_{-33} V, (50±1) Hz

Power consumed, not more than, Wt:
     for БЖС-18   10
     for БЖ-24, БЖ-24-2   2

Size, mm:
     for БЖС-18   90x118x65
     for БЖ-24, БЖ-24-2   90x35x65

Technical specifications, mechanical construction, supplied spark protection barriers can change.

БЖС-18
Блок живлення стабілізований
Вхід: 220В, 50Гц
Вихід: 18В,220мА

БЖ-24
Блок живлення
Вхід: 220В, 50Гц
Вихід: 24В,50мА

Transducers mountable on DIN rod
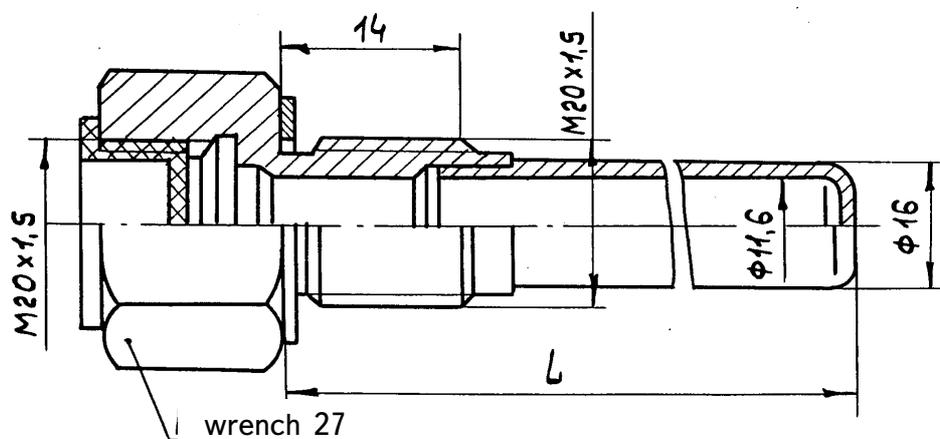
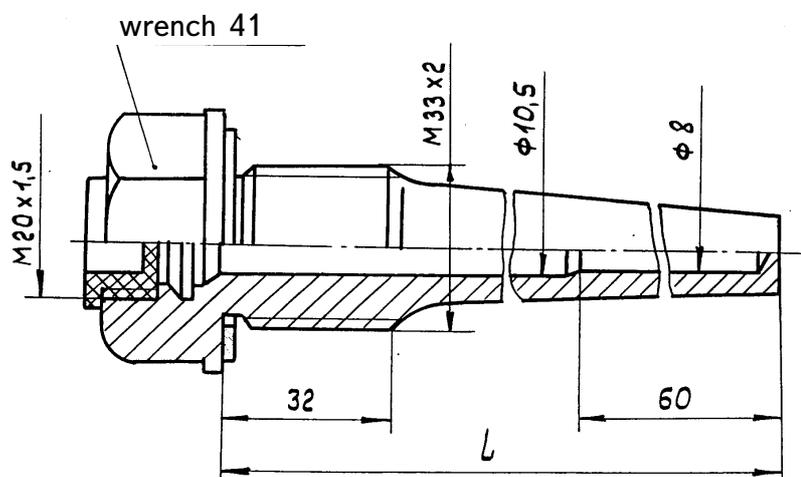Fig. 1 - БЖ-18   Fig. 2 - БЖ-24, БЖ-24-2

PROTECTION CARTRIDGE 4.819.015

Designed for mounting in thermocouple installations at the sites of their application.
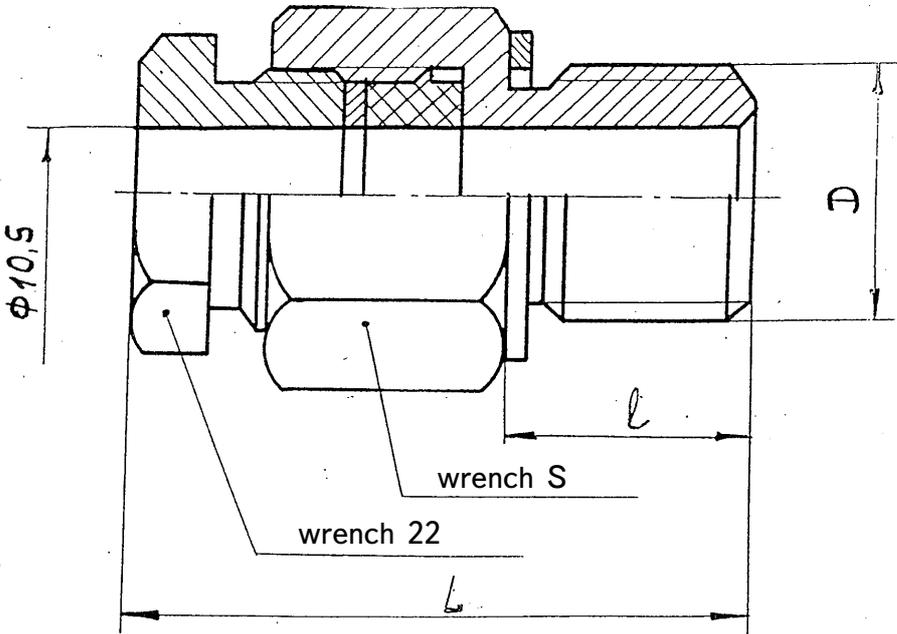
PROTECTION CARTRIDGE 4.819.016

Designed for mounting in thermocouple installations at the sites of their application

wrench 41

M20×1,5 M33×2 φ10,5 φ8

32   60

L

MOVABLE FITTING 4.473.002

Designed for mounting in thermocouple installations at the sites of their application

MOVABLE FITTING 4.473.003

Designed for mounting in thermocouple installations at the sites of their application

wrench 30

wrench 36

M27x2-8g

⌀38

16