OP 20

Two channels data recorder
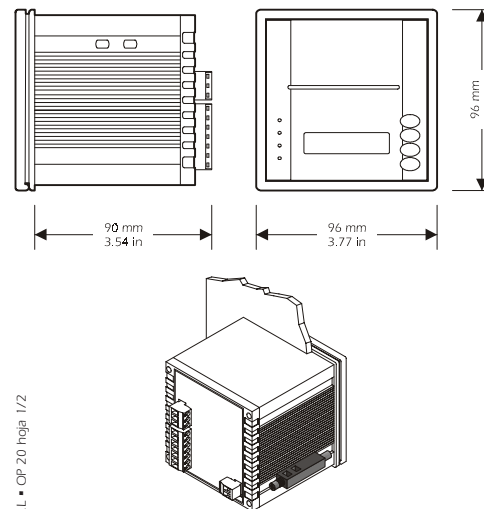
Versión 1.0 del 1 de Marzo 2002

Código:OP 20

Osaka - Electronics Equipment

1 PREPARATIONS

1.1 How to install the instrument

Panel mounting, panel cut out 92 x 92 mm (3.62 x 3.62 in), with screw brackets (they are supplied by the builder).

90 mm
3.54 in

96 mm
3.77 in

96 mm
3.77 in

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installation with screw brackets; you have to moderate the clamping torque, in order not to damage the box and screw brackets.

2 OPERATION

2.1 How to turn the instrument ON/OFF

If you have to turn the instrument ON/OFF:

▪ press (on/off)

During the normal operation the instrument prints and/or stores the values the probes are reading.

During the OFF mode the instrument stores the values the probes are reading.

2.2 How to feed the paper by hand

If you have to feed the paper by hand:

▪ press (feed)

2.3 How to change the roll of paper

If you have to change the roll of paper:

▪ turn the instrument OFF

▪ press (👆) for opening the panel at the front of the instrument

▪ slip the roll of paper into the lower side of the roller

• press (feed) as long as the roller drags the roll of paper
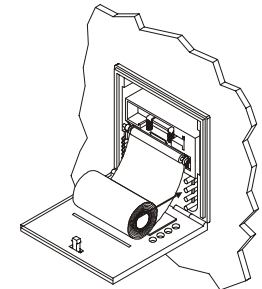
▪ put the roll of paper into its box

▪ close the panel at the front of the instrument.

3   PRINTING MODES

3.1   On Line Report

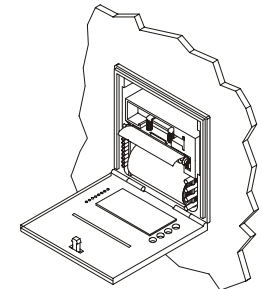Once the acquisition time you have set with the parameter `Acq. Time` has passed, the instrument will print and store the values the probes will be reading.

The parameter `Off Line` must have value `no`.

3.2   Daily Report

Once the acquisition time you have set with the parameter `Acq. Time` has passed, the instrument will store the values the probes will be reading and it will print them at the time you have set with the parameter `Print Hour`

The parameter `Off Line` must have value Yes and the parameter `Print Hour` must have values different from Off [1].

3.3   Historical Report

Once the acquisition time you have set with the parameter `Acq. Time` has passed, the instrument will store the values the probes will be reading and it will print them by activating the input for remote print.

The parameters `Off Line` and `Remote Print` must have value Yes [1].

[1] you can use the Daily Report and Historical Report printing modes at the same time.

4   CONFIGURATION PARAMETERS

4.1   How to set the configuration parameters

Configuration parameters are arranged on two levels (you can select them according to the password you use).

If you have to gain access the procedure:

- press   (▲)   the instrument will show `password`

- press   (▲) and (▼)   the instrument will show `<>`

If you have to gain access the "User" level

- press   (▲) or (▼)   for setting "`-19`"

- press   (▲) and (▼)   the instrument will show `Print Setup?`

If you have to gain access the "Installer" level

- press   (▲) or (▼)   for setting "`19`"

- press   (▲) and (▼)   the instrument will show `Print Setup?`

If you have to select a parameter:

- press   (▲) or (▼)

If you have to modify the value of the parameter:

- press   (▲) and (▼)   the instrument will show `<>` and ...

- press   (▲) or (▼)   then ...

- press   (▲) and (▼)

If you have to quit the procedure:

- do not operate for the time you have set with the parameter `Timeout Setup`

If you modify the value of the parameter, the modification will have effect as soon as you will quit the setting procedure.

5   SIGNALS

5.1   Signals

LED	MEANING
on/off	ON/OFF LED if it is lighted, the instrument will be in the ON mode
alarm	Alarm LED if it flashes, an alarm will be running
set	Set LED if it is lighted, the configuration parameters setting procedure will be running if it flashes, the modification of the value of configuration parameters will be running
timer	Timer LED if it is lighted, the Daily Report printing mode will be running

INDICATION	MEANING
`Printing...`	if it scrolls on the LCD, the On Line Report printing mode will be running
`Recording...`	if it scrolls on the LCD, the Daily Report and/or Historical Report printing modes will be running
`Memory 90% ... 99%`	if it is showed by the LCD, the memory will be running out

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AN2 4-20mA Min	-99	999	points	0	minimum value of the range of the transducer 2 (it is important if `AN2 Type` = 4-20 mA) [6]
AN2 4-20mA Max	-99	999	points	100	maximum value of the range of the transducer 2 (it is important if `AN2 Type` = 4-20 mA) [6]

[2]   if the parameter has value Yes, the instrument will print the set up as soon as you will quit the configuration parameters setting procedure

[3]   in order to activate the Daily Report printing mode, the parameter `Print Hour` must have values different from Off as well; in order to activate the Historical Report printing mode, the parameter `Remote Print` must have value Yes as well

[4]   as soon as you will quit the configuration parameters setting procedure, the parameter will automatically get value No

[5]   the unit of measure depends on the parameters `AN1 Type`, `Celsius/Fahr.` and `AN1 4-20mA Type`

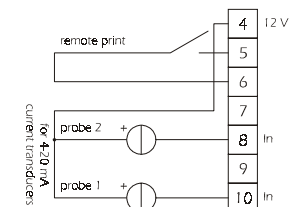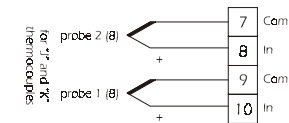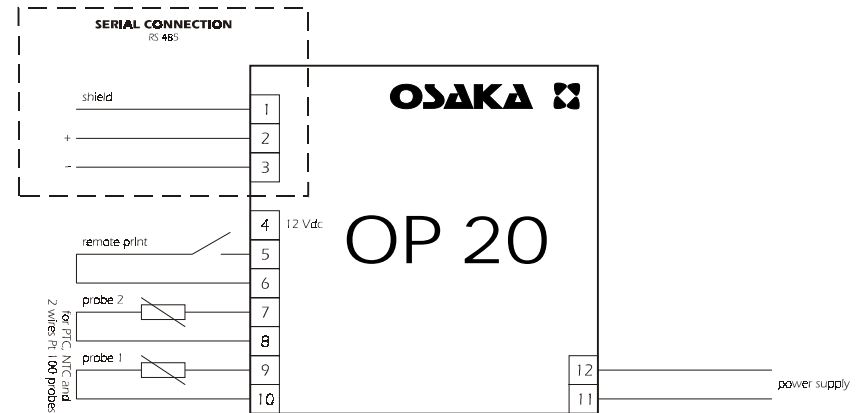[6]   unless the parameter `N. Probe` has value 2, the parameter will not be showed

[7]   the unit of measure depends on the parameters `AN2 Type`, `Celsius/Fahr.` and `AN2 4-20mA Type`.

[8]   provide the probe with a protection able to protect it against contacts with metal parts or use insulated probes.

9   ELECTRICAL CONNECTION

9.1   Electrical connection

Print Hour	Off	23	h	8	printing time by using the Daily Report printing mode (it is important if `Off Line` = Yes; the instrument will never print the data)

LABEL	MIN.	MAX.	U.M.	DEF.	ERASING OF THE DATA THE INSTRUMENT HAS STORED
`Delete Memory?`	Yes	No	—	No [4]	erasing of the data the instrument has stored

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS NUMBER
`N. Probe`	1	2	—	2	measure inputs number

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUT 1
`AN1 Type`	—	—	—	NTC	kind of probe 1 (PTC, TC J, TC K, NTC, 4-20mA, PT 100)
`AN1 Alarm Setup`	—	—	—	No	kind of alarm (No = it will never be activated, AH = upper alarm, AL = lower alarm, AH & AL = both the upper alarm and the lower one)
`AN1 Max Alarm`	-99	999	[5]	70	upper alarm threshold (it is important if `AN1 Alarm Setup` = AH or AH & AL)
`AN1 Min Alarm`	-99	999	[5]	10	lower alarm threshold (it is important if `AN1 Alarm Setup` = AL or AH & AL)
`AN1 Alarm Hyst`	0	20	[5]	0	hysteresis (differential, it is relative to `AN1 Max Alarm` and `AN1 Min Alarm`, it is important if `AN1 Alarm Setup` ≠ No)
`AN1 Offset`	-20	20	[5]	0	probe 1 calibration
`AN1 4-20mA Type`	—	—	—	%RH	4-20 mA unit of measure (it is important if `AN1 Type` = 4-20 mA; %RH = percentage of relative humidity, bar = bar, 0.1 bar = decibar, 0.01 bar = centibar)
`AN1 4-20mA Min`	-99	999	points	0	minimum value of the range of the transducer 1 (it is important if `AN1 Type` = 4-20 mA)
`AN1 4-20mA Max`	-99	999	points	100	maximum value of the range of the transducer 1 (it is important if `AN1 Type` = 4-20 mA)

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUT 2
`AN2 Type`	—	—	—	NTC	kind of probe 2 (PTC, TC J, TC K, NTC, 4-20mA, PT 100) [6]
`AN2 Alarm Setup`	—	—	—	No	kind of alarm (No = it will never be activated, AH = upper alarm, AL = lower alarm, AH & AL = both the upper alarm and the lower one) [6]
`AN2 Max Alarm`	-99	999	[7]	70	upper alarm threshold (it is important if `AN2 Alarm Setup` = AH or AH & AL) [6]
`AN2 Min Alarm`	-99	999	[7]	10	lower alarm threshold (it is important if `AN2 Alarm Setup` = AL or AH & AL) [6]
`AN2 Alarm Hyst`	0	20	[7]	0	hysteresis (differential, it is relative to `AN2 Max Alarm` and `AN2 Min Alarm`, it is important if `AN2 Alarm Setup` ≠ No) [6]
`AN2 Offset`	-20	20	[7]	0	probe 2 calibration [6]
`AN2 4-20mA Type`	—	—	—	%RH	4-20 mA unit of measure (it is important if `AN2 Type` = 4-20 mA; %RH = percentage of relative humidity, bar = bar, 0.1 bar = decibar, 0.01 bar = centibar) [6]

6   ALARMS

6.1   Alarms

CODE	REASONS	REMEDIES	EFFECTS
`AN1 ERR` probe 1 alarm	• the kind of probe 1 you have connected is not right • the probe 1 plays up • the connection instrument-probe 1 is wrong • the value the probe 1 is reading is outside the limits allowed by the working range of the instrument	• look at the parameter `AN1 Type` • test the integrity of the probe • test the instrument-probe connection • test the value close to the probe (it has to be between the limits allowed by the working range)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`AN2 ERR` probe 2 alarm	• the kind of probe 2 you have connected is not right • the probe 2 plays up • the connection instrument-probe 2 is wrong • the value the probe 2 is reading is outside the limits allowed by the working range of the instrument	• look at the parameter `AN2 Type` • test the integrity of the probe • test the instrument-probe connection • test the value close to the probe (it has to be between the limits allowed by the working range)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`AN1 AH` upper alarm probe 1	the value the probe 1 is reading is outside the limit you have set with the parameter `AN1 Max Alarm`	test the value close to the probe (look at the parameters `AN1 Alarm Hyst` and `AN1 Max Alarm`)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`AN1 AL` lower alarm probe 1	the value the probe 1 is reading is outside the limit you have set with the parameter `AN1 Min Alarm`	test the value close to the probe (look at the parameters `AN1 Alarm Hyst` and `AN1 Min Alarm`)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`AN2 AH` upper alarm probe 2	the value the probe 2 is reading is outside the limit you have set with the parameter `AN2 Max Alarm`	test the value close to the probe (look at the parameters `AN2 Alarm Hyst` and `AN2 Max Alarm`)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`AN2 AL` lower alarm probe 2	the value the probe 2 is reading is outside the limit you have set with the parameter `AN2 Min Alarm`	test the value close to the probe (look at the parameters `AN2 Alarm Hyst` and `AN2 Min Alarm`)	if the On Line Report printing mode is running, the instrument will print and store the event; if the Daily Report and/or Historical Report printing modes are running, the instrument will store the event
`Memory Full` memory run out alarm	the memory has run out	erase the data the instrument has stored (look at the parameter `Delete Memory?`)	the instrument will not print and store any data

7   TECHNICAL DATA

7.1   Technical data

Box: *self-extinguishing grey.*

Size: *96 x 96 x 90 mm (3.77 x 3.77 x 3.54 in).*

Installation: *panel mounting, panel cut out 92 x 92 mm (3.62 x 3.62 in), with screw brackets (they are supplied by the builder).*

Frontal protection: *IP 30.*

Connections: *extractable terminal blocks with pitch 5 mm (0.19 in) for cables up to 2.5 mm² (0.38 sq in, inputs and serial connection) and with pitch 7.5 mm (0.29 in) for cables up to 2.5 mm² (0.38 sq in, power supply).*

Ambient temperature: *from 0 to 55 °C (32 to 131 °F, 10 ... 90% of relative humidity without condensate).*

Power supply: *90-240 Vac, 50/60 Hz (standard model) or 12-24 Vac/dc, 50/60 Hz (by request); the maximum power consumption is 12 W.*

Measure inputs: *2 for PTC or NTC probes, "J" or "K" thermocouples, 2 wires Pt 100 probes, 4-20 mA current transducers.*

At terminal 4 there are 12 Vdc you can use in order to supply the transducers.

Digital inputs: *1 for remote print (NO contact) without voltage (it works with 5 mA).*

Working range: *from -45 to 150 °C (-49 to 302 °F) for PTC probe, from -20 to 110 °C (-4 to 230 °F) for NTC probe, from -50 to 640 °C (-58 to 1184 °F) for "J" thermocouple, from -50 to 850 °C (-58 to 1562 °F) for "K" thermocouple, from -50 to 400 °C (-58 to 752 °F) for 2 wires Pt 100 probe.*

Resolution: *1 °F with unit of measure in Fahrenheit, 1 °C with unit of measure in Celsius, 1% of relative humidity, 1 bar.*

Display: *one green LCD (2 lines per 16 characters) 11.5 mm (0.45 in) high, instrument mode indicators.*

Maximum size of the roll of paper: *58 x Ø 30 mm (2.28 x Ø 1.18 in).*

Print width: *48 mm (1.88 in).*

Dot number (for every line): *384.*

Print density: *8 dot per mm.*

Serial communication: *RS 485.*

8   CONFIGURATION PARAMETERS

8.1   "User" level parameters (password -19)

LABEL	MIN.	MAX.	U.M.	DEF.	PASSWORD
Password	-99	99	—	0	password

LABEL	MIN.	MAX.	U.M.	DEF.	PRINT OF THE INSTRUMENT SET UP
Print Setup?	Yes	No	—	No	print of the instrument set up [2]

LABEL	MIN.	MAX.	U.M.	DEF.	PRINTING MODE
Off Line	Yes	No	—	No	printing mode (Yes = Daily Report and Historical Report, No = On Line Report) [3]
Remote Print	Yes	No	—	No	enabling of the Historical Report printing mode (it is important if Off Line = Yes)
Print Hour	Off	23	h	8	printing time by using the Daily Report printing mode (it is important if Off Line = Yes; Off = the instrument will never print the data)

8.2   "Installer" level parameters (password 19)

LABEL	MIN.	MAX.	U.M.	DEF.	PASSWORD
Password	-99	99	—	0	password

LABEL	MIN.	MAX.	U.M.	DEF.	PRINT OF THE INSTRUMENT SET UP
Print Setup?	Yes	No	—	No	print of the instrument set up [2]

LABEL	MIN.	MAX.	U.M.	DEF.	GENERIC SETTINGS
Celsius/Fahr.	°C	°F	—	°C	temperature unit of measure (it is important if AN1 Type and/or AN2 Type ≠ 4-20 mA)
Acq. Time	1	360	min	2	acquisition time
Day Setup	1	31	day	1	real day
Month Setup	1	12	month	1	real month
Year Setup	1990	2050	year	2001	real year
Hour Setup	0	23	h	0	real hour
Min Setup	0	59	min	0	real minute
Timeout Setup	5	100	s	10	time without you operate with the keys in order that the instrument can quit the configuration parameters setting procedure

LABEL	MIN.	MAX.	U.M.	DEF.	PRINTING MODE
Off Line	Yes	No	—	No	printing mode (Yes = Daily Report and Historical Report, No = On Line Report) [3]
Remote Print	Yes	No	—	No	enabling of the Historical Report printing mode (it is important if Off Line = Yes)