



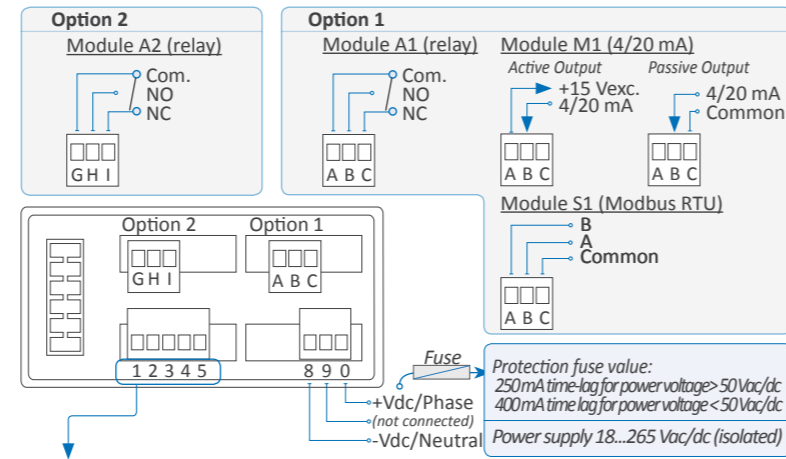
DP20 shown smaller than actual size

### 5. Installation and start-up

1. Open the instrument (see section 7).
2. Select the jumpers for the desired signal range (see section 8).
3. Close the instrument (see section 7).
4. Connect the signal and the power (see section 6).
5. Configure the instrument from the 'Configuration menu' (see section 9).
6. If you need additional information, see section 3.



### 6. Connections



1	2	3	4	5	Input Signal Terminal
-Vac +Vdc			-Vac -Vdc		~600 Vac, ±600 Vdc, ~200 Vac, ±200 Vdc
	-Vac +Vdc		-Vac -Vdc		~20V, ~2V, ~200mV, ~60mV, ~20mA ±20V, ±2V, ±200mV, ±60mV, ±20mA
		-Aac +Adc	-Aac -Adc		~5 Aac ±5 Adc
	tc+		tc-		Thermocouples
	+		-		Pt (2 wire), Ni, NTC, PTC
	pt+		pt-	Sense	Pt100 (3 wire)
	mA		Vexc.		4/20 mA passive
	mA+		mA-		4/20 mA active
	+Vdc		common	Vexc.	0/10 Vdc passive
	+Vdc		common		0/10 Vdc active
	res+		res-		Resistances
	signal		pot-	pot+	Potentiometer

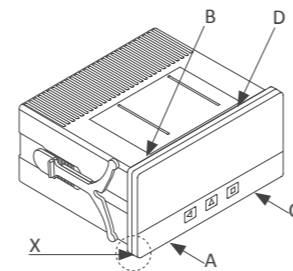
Check Jumpers 'S' and Jumper 'T' position for each input signal

### 7. How to open and install the instrument

Use a flat screwdriver to unlock clips 'D', 'C', 'B' and 'A', in this order. Remove the front filter. Gently let the internal boards slide out of the instrument.

To reinsert the boards in the housing :

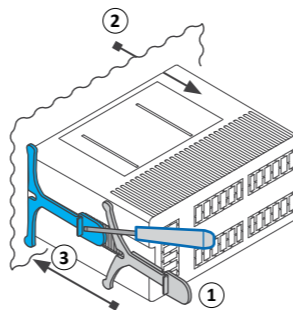
1. make sure that the boards are correctly connected to the displays pins
2. slide the boards into the housing guides
3. place the front filter at corner X, and then insert clips 'A', 'B', 'C' and 'D' in this order.



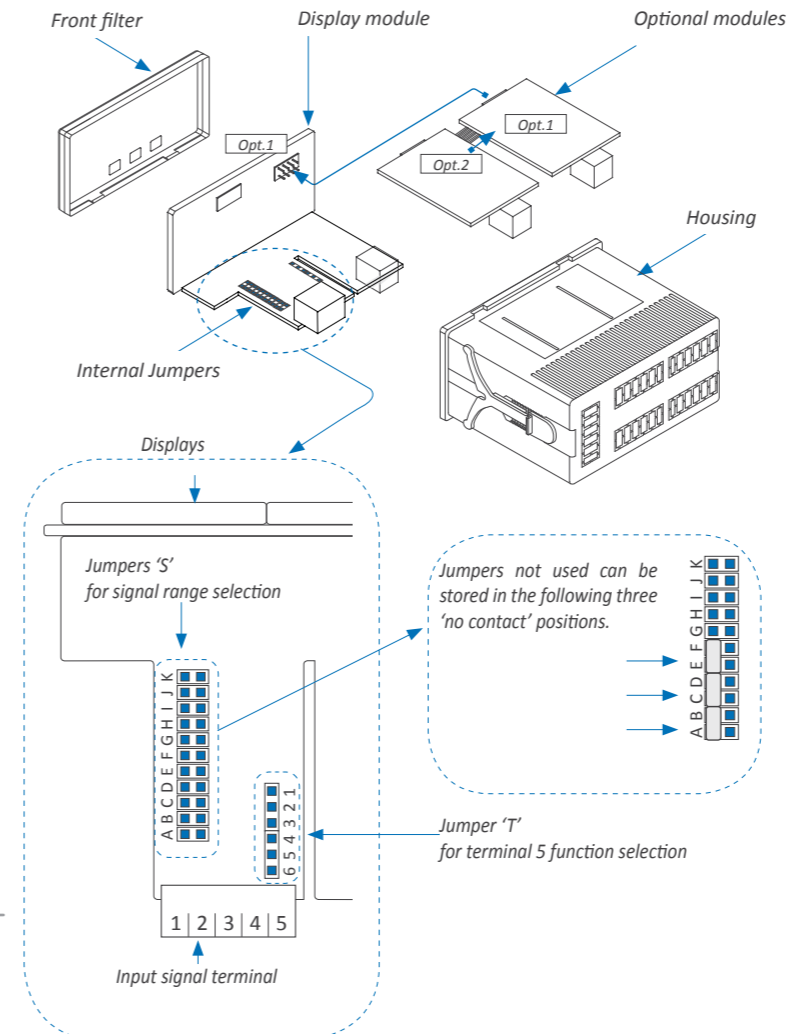
**Risk of electric shock.** Removing the front cover will grant access to internal circuits which may be at dangerous voltage. Disconnect the input signal and the power supply to prevent electric shock to the operator. Operation must be performed by qualified personnel only.

How to install the meter in a panel

1. Remove the 2 blue fixation tabs from each side of the unit.
2. After setting internal jumpers selection and housing is closed, insert instrument from the front of the panel into panel cut out.
3. Re-attached the 2 blue fixation tabs by sliding each one along its rail on each side and push until the tabs are tight onto the panel. If needed use a flat screwdriver to push the tabs strongly to the end.



### 8. Internal structure and jumpers for range selection



AC ranges	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
~600 Vac		G & I	4-5	<0.30 % (up to 150 Hz)
~200 Vac		I		
~20 Vac	from 9999 to -1999	A & I		
~2 Vac		B & I		
~200 mVac		C & I		
~60 mVac		E & I		
~5 Aac		I		
~20 mAac		D & I		

DC ranges	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
±600 Vdc		G	4-5	<0.20 %
±200 Vdc		---		
±20 Vdc		A		
±2 Vdc	from 9999 to -1999	B		
±200 mVdc		C		
±60 mVdc		E		
±5 Adc		---		
±20 mAdc		D		

Resistance ranges	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% reading)
0 to 5 K	from 9999 to -1999	F & H & K	4-5	<1.5 % of reading
0 to 50 K		F & K		

Thermocouples	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error (cold junction included)
tc. K	E	4-5	-100 / 1350 °C (-148 / 2462 °F)	<3 °C
tc. J			-100 / 1200 °C (-148 / 2192 °F)	
tc. E			-100 / 1000 °C (-148 / 1832 °F)	
tc. N			-100 / 1300 °C (-148 / 2372 °F)	
tc. L			-100 / 900 °C (-148 / 1652 °F)	
tc. R			0 / 1768 °C (32 / 3214 °F)	
tc. S			0 / 1768 °C (32 / 3214 °F)	
tc. T			-100 / 400 °C (-148 / 752 °F)	
tc. C			0 / 2300 °C (32 / 4172 °F)	
tc. B			700 / 1820 °C (1292 / 3308 °F)	

Pt and Ni probes	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error	Current at sensor
Pt100 (3 wires)	F & H & J	5-6	-200 / 700 °C (-328 / 1292 °F)	<1°C	< 900 uA
Pt100 (2 wires)	F & H	4-5	-200 / 700 °C (-328 / 1292 °F)		< 900 uA
Pt500	F		-150 / 630 °C (-238 / 1166 °F)		< 90 uA
Pt1000	F		-190 / 630 °C (-310 / 1166 °F)		< 90 uA
Ni100	F & H		-60 / 180 °C (-76 / 356 °F)		< 900 uA
Ni200	F & H		-60 / 120 °C (-76 / 248 °F)		< 900 uA
Ni1000	F		-60 / 180 °C (-76 / 356 °F)		< 90 uA

Process signals	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
4/20 mA	from 9999 to -1999	D	1-2*	<0.15 %
0/10 Vdc		A		<0.20 %

\* Place jumper 'T' at position 1-2 for +15 Vdc excitation voltage at terminal 5. Optionally, place jumper 'T' at position 4-5 to work with 'external contact' at terminal 5.

Potentiometers nominal value	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
500 R to 20 K	from 9999 to -1999	A	2-3	<0.5 %

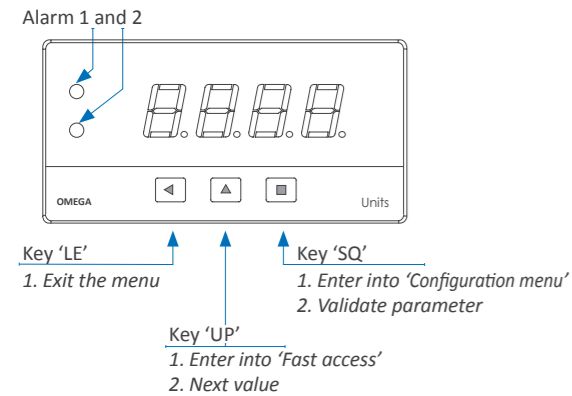
Frequency	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% reading)
15 Hz to 100 Hz	from 9999 to -1999	select Vac or Aac range	4-5	<0.15% of reading

PTC probes Family	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error
KTY-121	F	4-5	-55 / 150 °C (-67 / 302 °F)	<1 °C
KTY-210	F & H & K			
KTY-220	F & H & K			

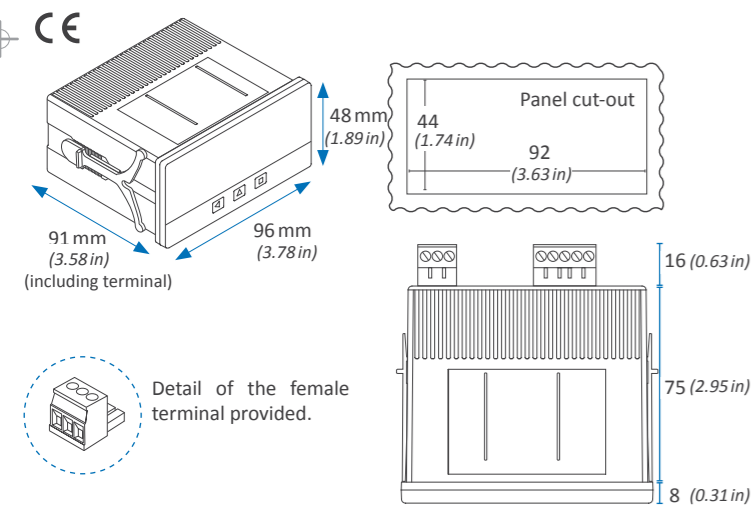
NTC probes 'R <sub>s</sub> ' (configurable)*	Jumpers 'S'	Jumper 'T'	Range of measure	Accuracy (% of reading)	Beta (configurable)*
10K	F & K	4-5	-60 °C to 150 °C	<1.5 % of reading	3500

\*'Beta' configurable (2000 to 5500), R25 configurable. Resistance measure from 100R to 1MR.

### 1. Frontal view



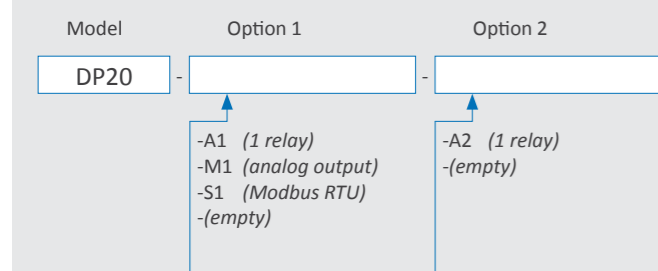
### 2. Dimensions and panel cut-out (mm / in)



### 3. Additional documentation

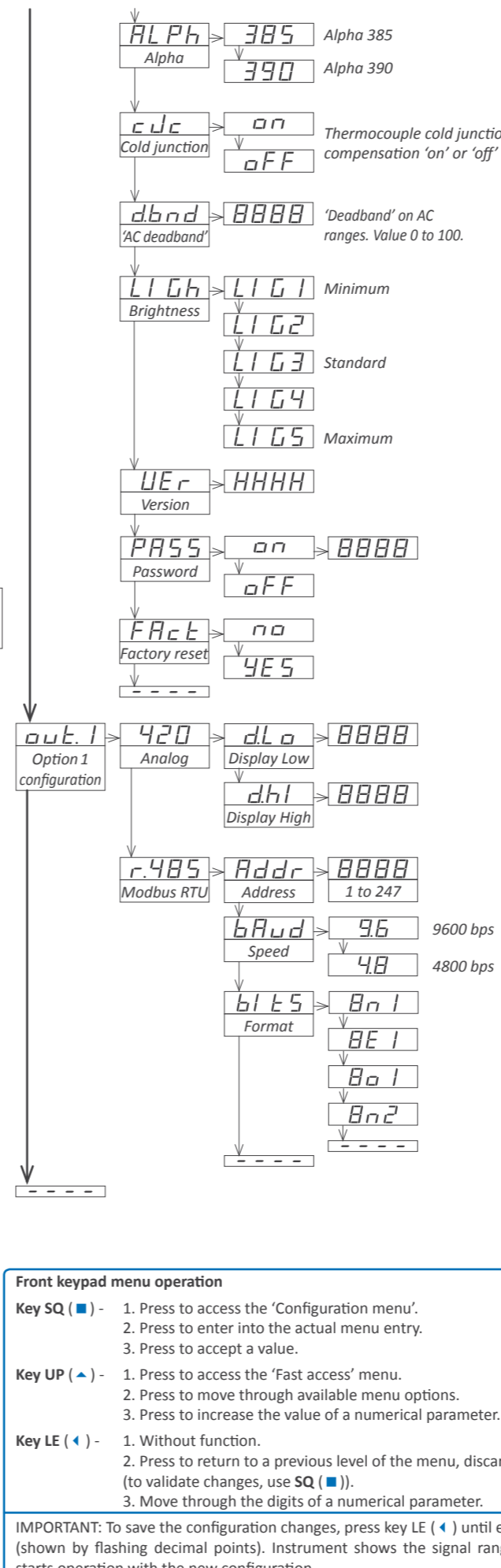
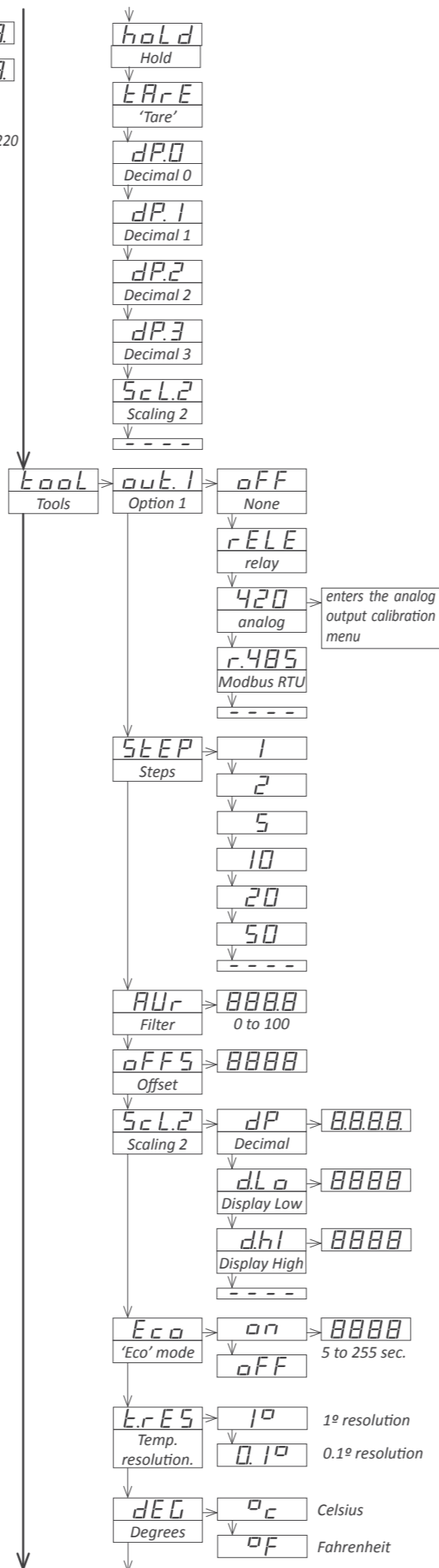
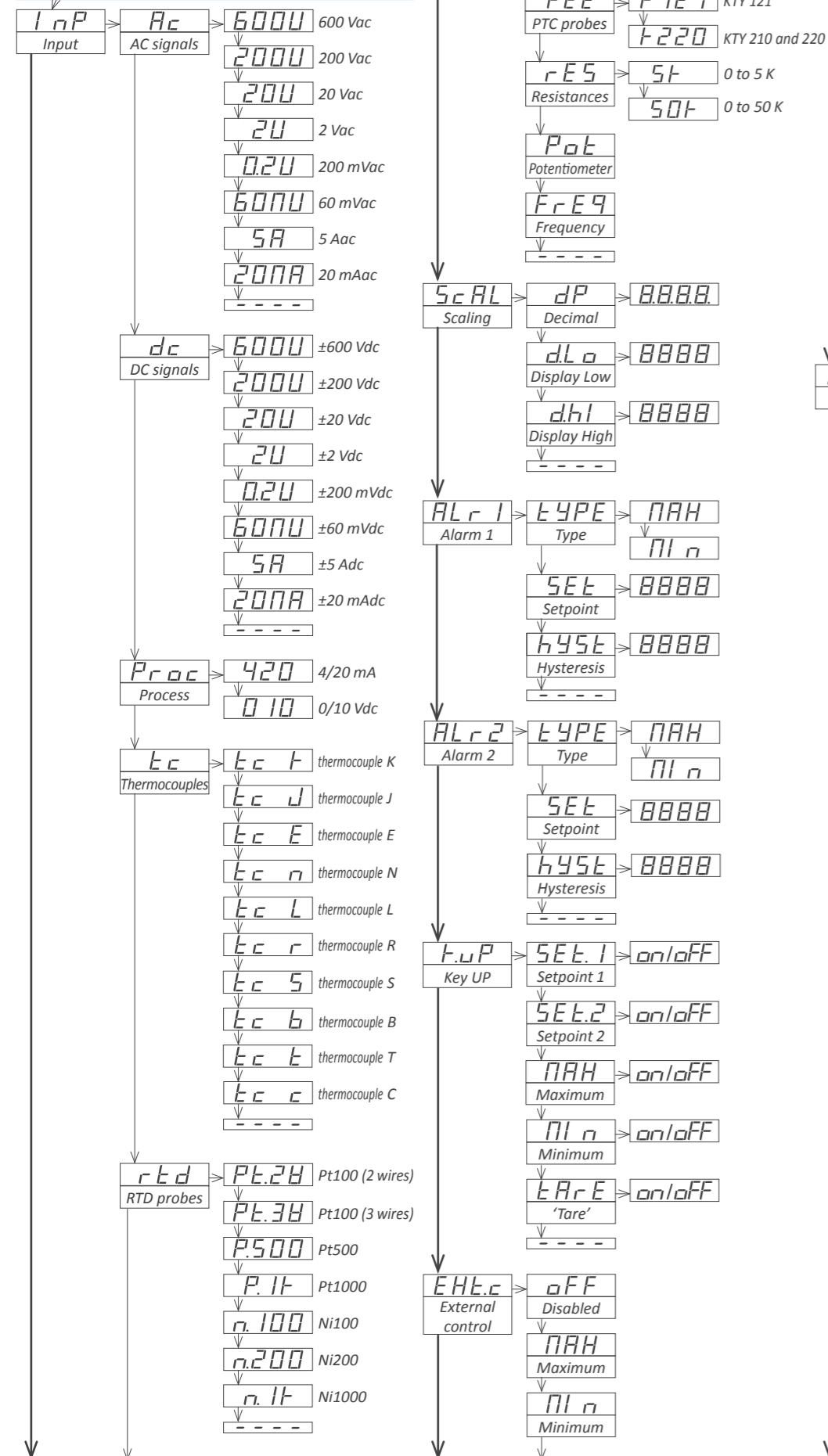
To view the DP20 spec sheet, video and manuals visit us at <http://www.omega.com/pptst/DP20.html>

### 4. How to order



### 9. Configuration menu

Press 'SQ' (■) for 1 second to access the 'Configuration menu'.



### 10. Regulations

This instrument conforms to the actual CE regulations. For a copy of the 'CE declaration of conformity' see section 3. Applicable regulations are:

**Security regulations EN-61010-1** ('Fixed' equipment, 'Permanently connected', 'Double' isolation, 'CAT-II' category)

**Electromagnetic compatibility regulations EN-61326-1**

This instrument does not provide a general mains switch and will start operation as soon as power is connected. The instrument does not provide protection fuse, and the fuse must be added during installation.

- Risk of electrical shock. Instrument terminals can be connected to dangerous voltage.
- Instrument protected with double isolation. No earth connection required.
- Instrument conforms to CE rules and regulations.
- According to directive 2012/19/EU, electronic equipment must be recycled in a selective and controlled way at the end of its useful life.

### 11. Factory configuration

Software configuration	
Range, scaling and decimal point	0/600 Vac = 0/600 as maximum
Alarm 1	as maximum
Setpoint	1000
Hysteresis	0 counts
Alarm 2	as maximum
Setpoint	1000
Hysteresis	0 counts
External control	off
Fast access	all off
Tools	
Option 1	off (retains last configuration value)
Step	1
Average	0
Manual offset	0
Second scaling	0/600
'Eco' mode	off
Temperature resolution	1°
Degrees	°C
Alpha	385
cJc	on
AC 'deadband'	20
Luminosity	3
Password	off
Option	
Analog output	0/100.0=4/20 mA
Serial Modbus RTU	9600 bps, address 1, format 8n1
Hardware configuration	
Jumpers 'S'. Jumpers in position	G & I. Range for 600 Vac
Jumper 'T'. Jumpers in position	4-5. External contact 'EK' function

**Front keypad menu operation**

**Key SQ (■)** - 1. Press to access the 'Configuration menu'.  
2. Press to enter into the actual menu entry.  
3. Press to accept a value.

**Key UP (▲)** - 1. Press to access the 'Fast access' menu.  
2. Press to move through available menu options.  
3. Press to increase the value of a numerical parameter.

**Key LE (◀)** - 1. Without function.  
2. Press to return to a previous level of the menu, discarding changes (to validate changes, use SQ (■)).  
3. Move through the digits of a numerical parameter.

**IMPORTANT:** To save the configuration changes, press key LE (◀) until exiting the menu (shown by flashing decimal points). Instrument shows the signal range selected and starts operation with the new configuration.

### 12. User's manual

If you need additional information, see section 3 to download the full User's Manual.