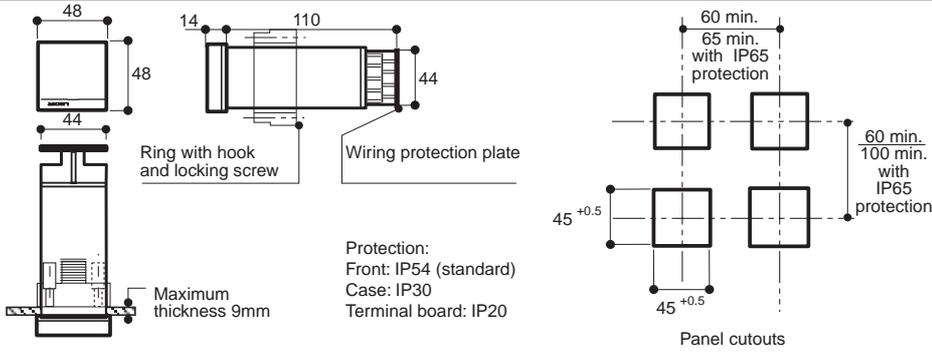


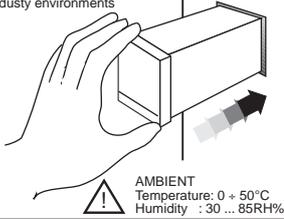
# 1 • INSTALLATION

## • Dimensions

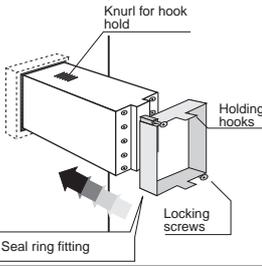


### • Panel fitting

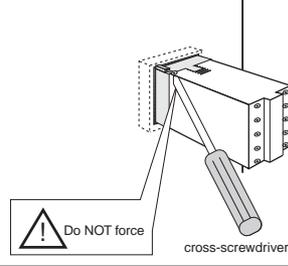
- Install away from:
  - heat sources
  - corrosive gases
  - dusty environments



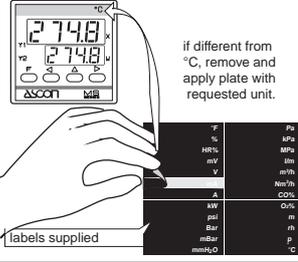
### • Fixing with ring



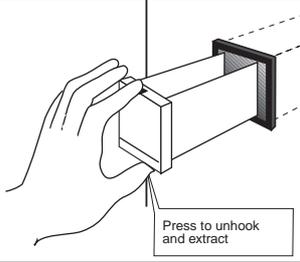
### • Screw locking



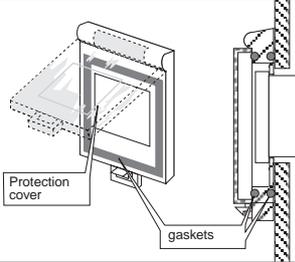
### • Plate for engineering units



### • Front extractability



### • Seal IP65 F-10-141-2A101



Configurable Multi-input Controller  
48x48 DIN

**MS Series**



INSTRUCTION MANUAL  
MIU. MS-4/96.12/E

Cod.: J30-354-1AMS ING.



**Ascon TecnoLogic S.r.l.**

via Indipendenza 56,  
27029 - Vigevano (PV)  
Tel.: +39 0381 69871,  
Fax: +39 0381 698730

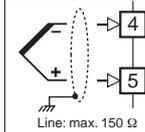
[www.ascontecnologic.com](http://www.ascontecnologic.com)

# 2 • CONNECTIONS

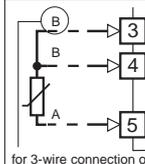
## • Input

- Observe polarity
  - For extension, use a compensation cable suitable for the thermocouple used
  - The eventual shield must be well earthed at only one end
  - For 3-wire connection, use wires of same section (min. 1 sq.mm)
  - For 2-wire connection, use wires of adequate section (min. 1.5 sq.mm.)
- Note:  
with a 15 m. probe to controller distance and a 1.5 sq.mm. section cable, the error is about 1°C.

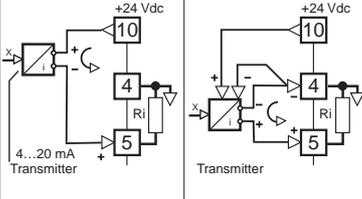
### • For THERMOCOUPLES



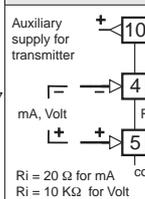
### • For RTD Pt100



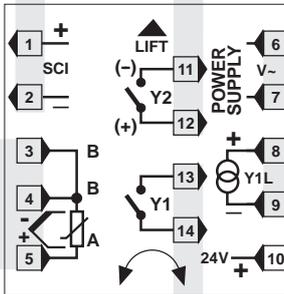
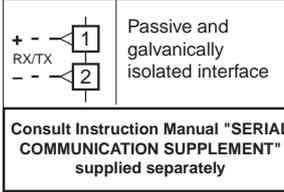
### For 2-WIRE TRANSMITTER 3 or 4-WIRE TRANSMITTER



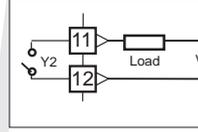
### • For mA, Vdc



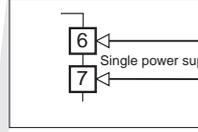
## • Serial communication (option)



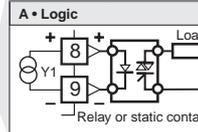
## • Auxiliary output Y2



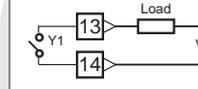
## • Power supply



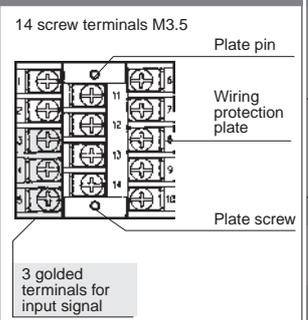
## • Main output Y1



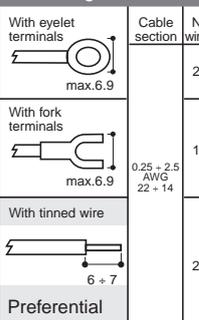
## • Relay



## • Terminal board



## • Effecting connections

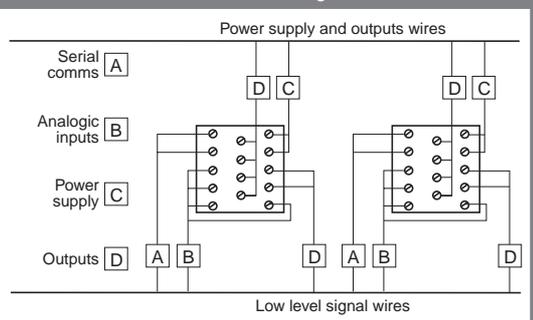


## Precautions

Although this controller is designed to resist the heaviest disturbances present in industrial environments (level IV of standard IEC 801-4), it is advised to keep to the following precautions:

- Keep away supply line from others power lines
- Keep away from electromagnetic contactors and motors
- Keep away from SCR power units, especially if with phase control

## Advised wiring



### 3 • CODIFICATION

#### Model

#### Model code

MS-**A B** /

#### Configuration code

**C D E F** /

#### Beginning and end of scale (only for configurable scales)

**G....H**

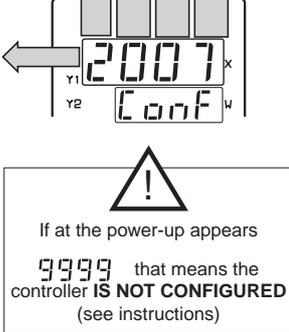
Mains	A	Serial communication (option)	B
100...240 V 50/60Hz	3	None	0
18...28V 50/60Hz and 20...30Vdc	5	Fitted Ascon std. protocol	1
		Fitted Mod/bus/Jbus protocol	2

#### Configuration

Input type, scale range (1)	C	Output type Y1	D	Type of action and safety state Y1 (2)	E
RTD IEC 751	Pt100 -200...600°C	Relay 3A/250 Vac	0	Reverse Safety 0%	0
	Pt100 -99,9...300,0°C	Logic 0/18 Vdc	1	Direct Safety 0%	1
Thermocouples IEC 584	Type J 0...600°C	You can configure your instrument just entering through the keyboard an 4 characters code	2	Reverse Safety 100%	2
	Type L 0...600°C			Direct Safety 100%	3
	Type K 0...1200°C			Reverse Safety 0%	4
	Type S 0...1600°C			Direct Safety 0%	5
4...20mA	Conf. eng. units		6	Reverse Safety 100%	6
0...20mA	Conf. eng. units		7	Direct Safety 100%	7
0...1 Vdc	Conf. eng. units		8	Reverse Safety -100%	8
0...10 Vdc	Conf. eng. units		9	Direct Safety -100%	9

Type of Set point and control mode output Y2	F
Disabled	0
Heat-Cool (2)	1
Startup inhibition band	Active outside 2
	Active inside 3
Band	Active outside 4
	Active inside 5
Independent	Active high 6
	Active low 7
Deviation	Active high 8
	Active low 9
Loop - Break - Alarm	9

The configuration code indexes C, D, E, F



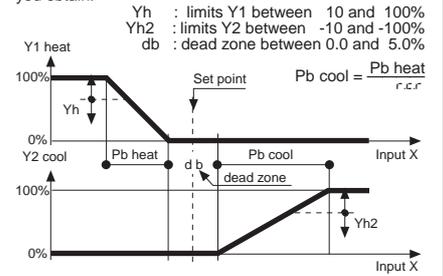
#### Note:

- For mA and Volt inputs the beginning and end scale values can be configured in engineering units between -999 and 9999. The minimum scale span is of 100 steps. The values can be expressed in units (xxxx), in tenths (xxx.x), hundredths (xx.xx) or thousandths (x.xxx).
- The safety value assumed by Y1 and Y2 (if configured heat-cool) in case of failure in the control loop coincides respectively with the upper limit of Yh and Yh2.

### 5 • AUXILIARY OUTPUT Y2

#### Double action (Heat-Cool)

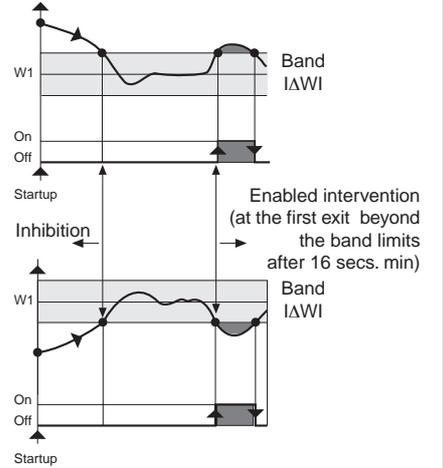
With Y1 configured for reverse action (E = 4.6 or 8) and Y2 configured for Heat-Cool operation (F=1) you obtain:



Yh : limits Y1 between -10 and 100%  
Yh2 : limits Y2 between -10 and -100%  
db : dead zone between 0.0 and 5.0%

With  $r.c.c.r$  = relative gain of cool action from 0.1 to 3.0  
Example:  
if Pb heat = 10% and  $r.c.c.r$  = 0.5 → Pb cool = 20%  
The ti (integral) and td (derivative) times of Heat are valid also for Cool whereas the cycling times tc are different.

#### Band with inhibition



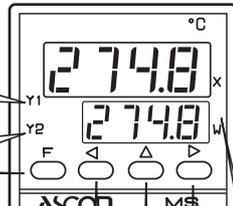
### 4 • KEYS AND DISPLAYS

#### Leds for output states

- Lit with output Y1 "ON"
- Lit with output Y2 "ON"

#### Keys

- Keys for modifying values
- Selects the digit to be modified
- Increments value of the flashing digit from 0...9
- Programming keys
- Access to the functions menu
- Enters or Scrolls values or operation modes



#### Display

Displays the value of measure X expressed in engineering units.  
If above end of scale  
8888  
If below beginning of scale  
8888

- In programming: displays parameter values
- In configuration: displays the values of the configuration code

#### Displays the Set point value

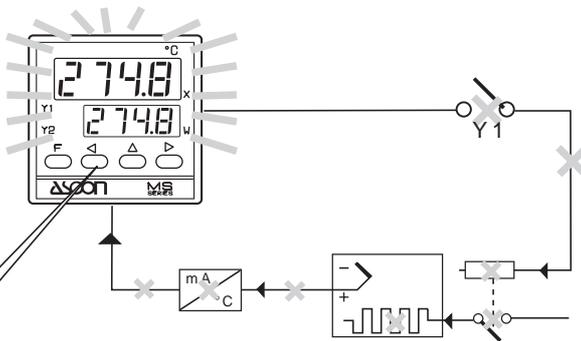
- In programming: displays the parameter codes

#### "Loop-Break-Alarm" LBA (interruption/control loop failure)

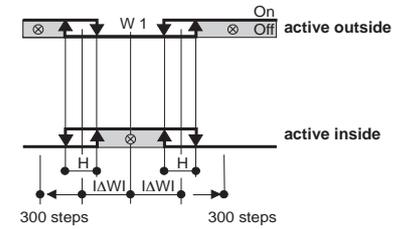
#### With Y2 output active and configured as Loop-Break-Alarm

Any interruption in connections or any failure in the operation of one of the control loop components will cause after a few minutes the output Y2 to be energized and the entire front display to flash.

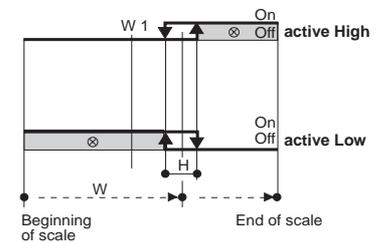
The alarm state stops when the failure having caused it disappears or pressing any key



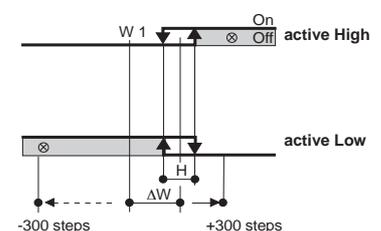
#### Band ΔAWI



#### Independent W



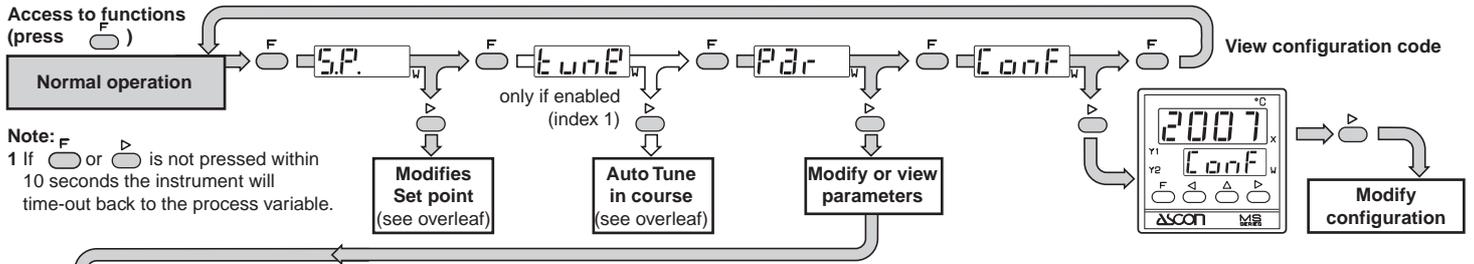
#### Deviation ΔW



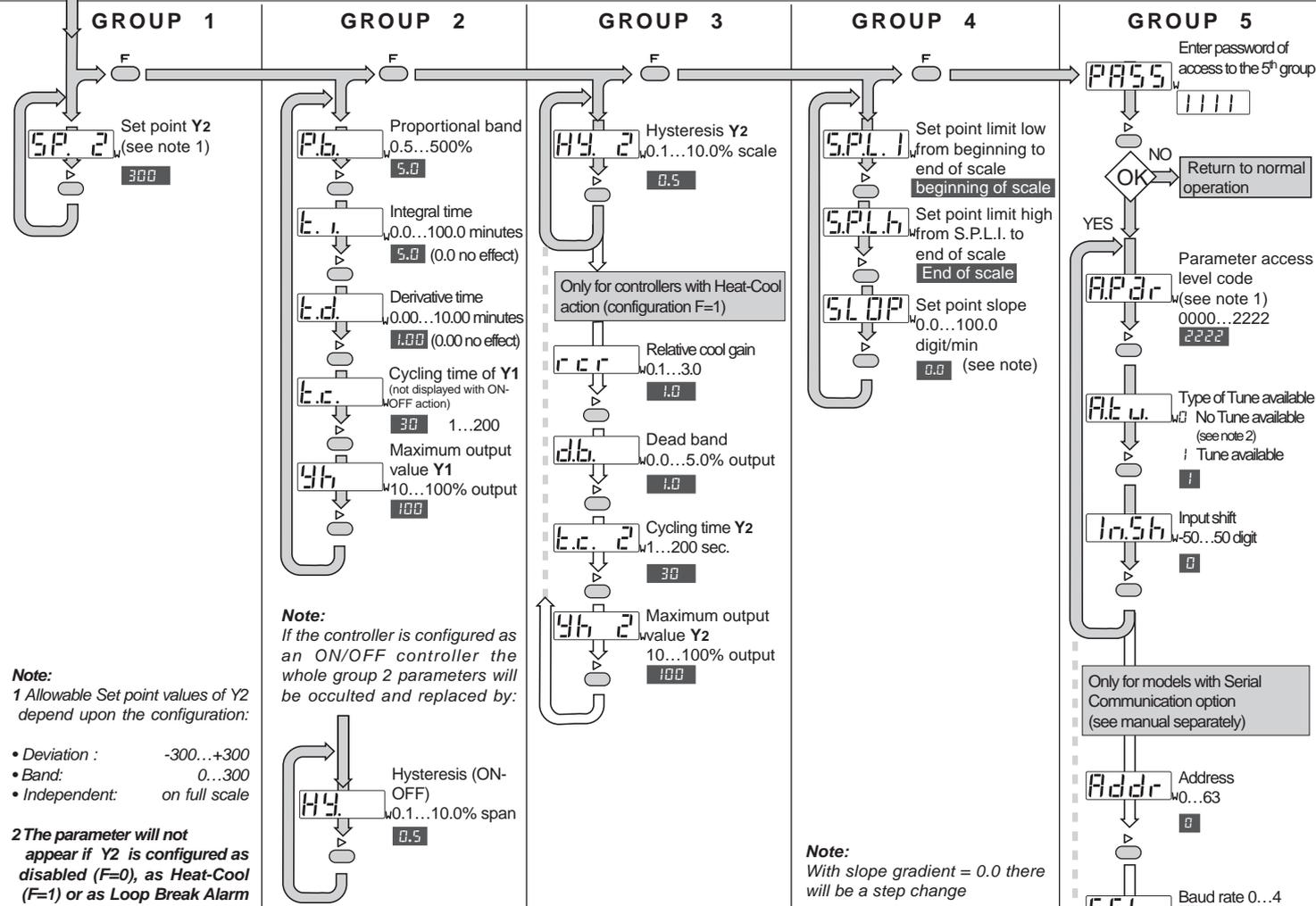
The Setting range of Y2 is not limited by the limits of main Set point W1 but only by the scale span

# 6 • PROGRAMMING

## Functions menu



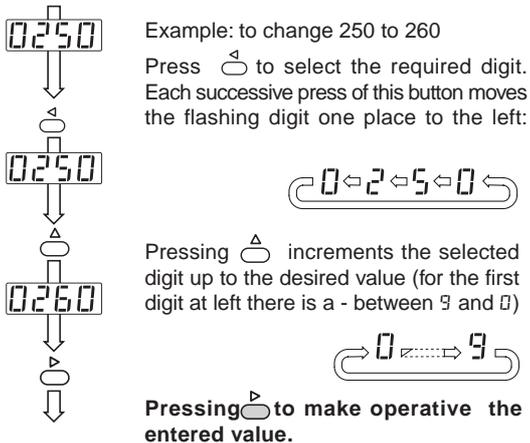
## Parameters



**Note:** FACTORY SET VALUES (DEFAULT)

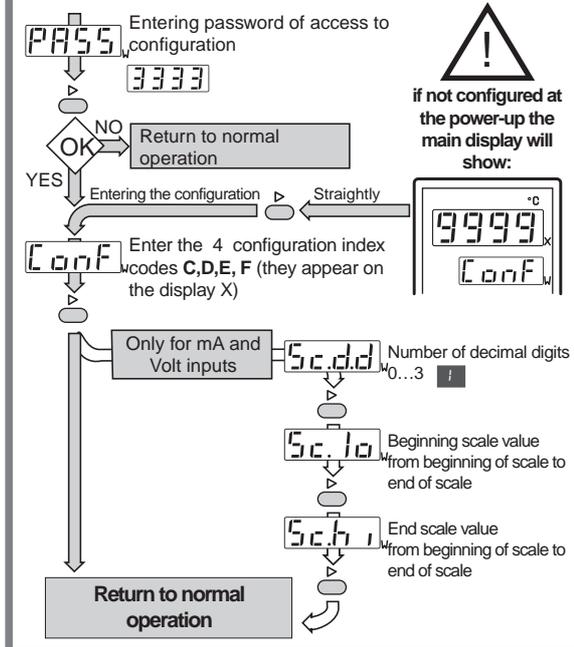
### Modification of a value

It is possible to modify any value by changing each digit in turn. The modified digit flashes.



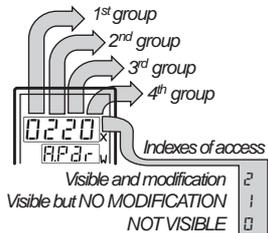
**NOTE FOR CONFIGURATION:**  
All the configuration data are continuously displayed. There is no time-out.

### Configuration



**Notes:**

1 Parameter access protection



2 Is not possible run Auto Tune