Controller - Indicator - Transmitter

1/32 DIN - 48 x 24 - C1 Line

1/16 DIN - 48 x 48 - M1 Line

Quick Guide • ISTR-FC1M1ENG02

ASCON TECNOLOGIC

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Model Code

The product code indicates the specific hardware configuration of the instrument, that can be modified by specialized engineers only.

	Line	Basic	Accessories	Configuration
Model:	C 1	A B C D -	E 9 0 0 /	I L M N

Or

	Line	Basic	Accessories	Configuration
Model:	M 1	A B C D -	E 9 0 0 /	I L M N

Line	C	1
	M	1

Power supply	A
100...240Vac (-15...+10%)	3
24Vac (-25...+12%) or 24Vdc (-15....+25%)	5

Outputs OP1 - OP3	B
Relay	0
Triac	3

Serial Communications	Options	C	D
Not fitted	None	0	0
	Transmitter Power Supply (P.S.)	0	6
	Transmitter P.S. + Retransmission	0	7
RS485 Modbus/Jbus SLAVE	None	5	0
	Transmitter Power Supply (P.S.)	5	6

Declaration of Conformity and Manual retrieval

C1 and M1 are panel mounting, Class II instruments. They have been designed with compliance to the European Directives.
All information about the controller use can be found in the User Manual: `MIU_C1_EN.pdf` (or `MIU_M1_EN.pdf`).
The Declaration of Conformity and the manual of the controller can be downloaded (free of charge) from the web-site:
`www.ascontecnologic.com`
Once connected to the web-site, search:
`C1` (or `M1`)
then click on `C1` (or `M1`) from the result list.
In the lower part of the product page (in any language) is present the download area with links to the documents available for the controller (in the available languages).

⚠ Warning!

- Whenever a failure or a malfunction of the device may cause dangerous situations for persons, things or animals, please remember that the plant must be equipped with additional devices which will guarantee safety.
- We warrant that the products will be free from defects in material and workmanship for 18 months from the date of delivery. Products and components that are subject to wear due to conditions of use, service life and misuse are not covered by this warranty.

Configuration Code

A 4 digits index code follows the model (letters from I... N).

This code must be set to configure the controller. Using UP ( ) and DOWN ( ) keys insert the desired configuration code. When not configured the code is 9999.

Input type and range			I
TR Pt100 IEC751	-99.9...300.0°C	-99.9...572.0°F	0
TR Pt100 IEC751	-200...600°C	-328...1112°F	1
TC L Fe-Const DIN43710	0...600°C	32...1112°F	2
TCJ Fe-Cu45% Ni IEC584	0...600°C	32...1112°F	3
TC T Cu-CuNi	-200 ...400°C	-328...752°F	4
TC K Chromel-Alumel IEC584	0...1200°C	32...2192°F	5
TC S Pt10%Rh-Pt IEC584	0...1600°C	32...2912°F	6
Dc input 0...50mV linear	Engineering and units		7
Dc input 10...50mV linear	Engineering and units		8
Custom input and range [1]			9

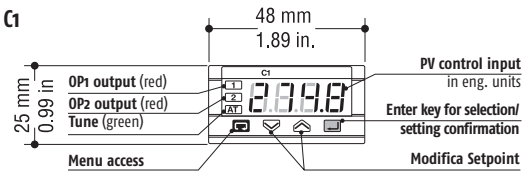
[1] For instance, other thermocouples types, ΔT (with 2 PT100), custom linearisation etc.

Control mode	Output configuration	L
PID	Control OP1/Alarm AL2 on OP2	0
	Control OP2/Alarm AL2 on OP1	1
ON-OFF	Control OP1/Alarm AL2 on OP2	2
	Control OP2/Alarm AL2 on OP1	3
Indicator with2 alarms	Alarm AL1 on OP1/Alarm AL2 on OP2	4
	Alarm AL1 on OP2/Alarm AL2 on OP1	5

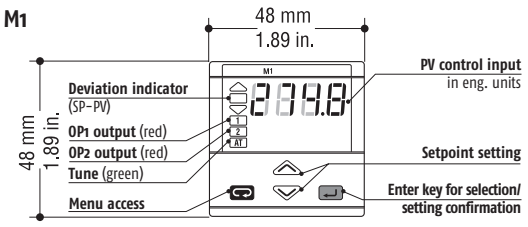
Description and dimensions

Depth: 120 mm

C1

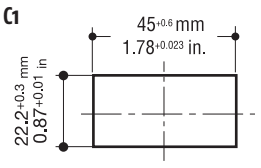


M1

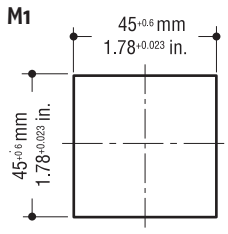


Panel cut out

C1



M1



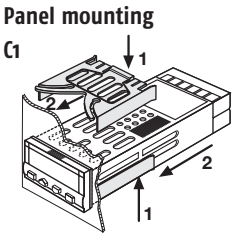
Control action type	Safety	M
Reverse (AL1 active low)	Safety 0%	0
Direct (AL1 active high)	Safety 0%	1
Reverse (AL1 active low)	Safety 100%	2
Direct (AL1 active high)	Safety 100%	3

Alarms 1 and 2 type and function		N
Disabled		0
Sensor break/Loop break alarm (LBA)		1
Absolute	active high	2
	active low	3
Deviation [2]	active high	4
	active low	5
Band [2]	active out	6
	active in	7

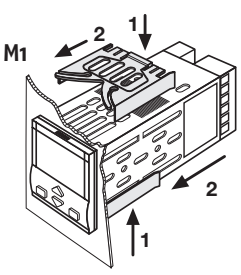
[2] Choice not available when the controller has been configured as 2 alarms indicator (L digit assigned to 4 or 5).

Panel mounting

C1

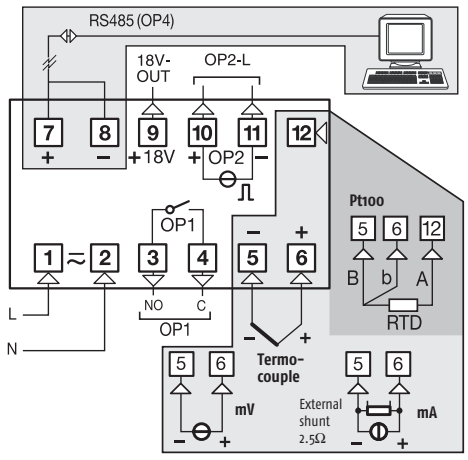


M1

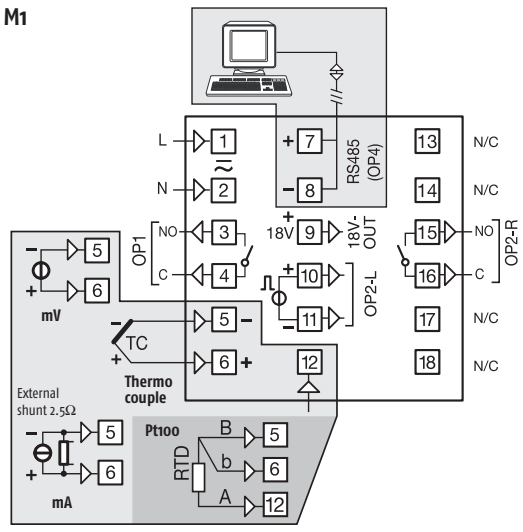


Electrical connections

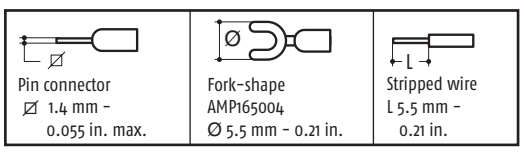
C1



M1



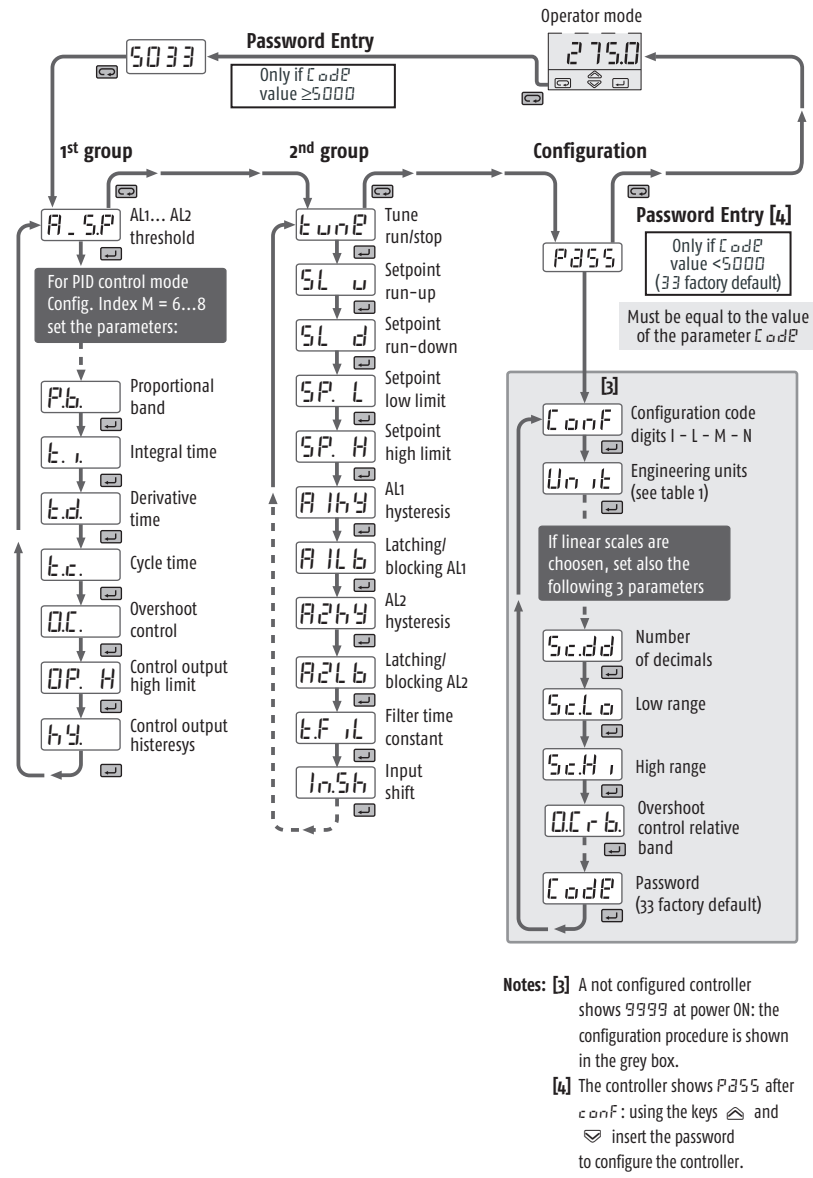
Terminals



Controller configuration chart

The present chart includes only the basic parameters
For the list and the description of all the controller parameters see the User Manual.
When the controller is new and not configured, it shows the code 9999 at power ON. In this case NO PASSWORD is needed to configure the controller (see the grey box in the chart below). Enter the configuration code in accordance with the desired functional characteristics.

Warning! If the parameter `CodE` has previously set to a value ≥5000, (for example 5033 in the chart) the controller is locked in operator mode; insert the correct password to access both the parameter and the configuration menus.



Notes: **[3]** A not configured controller shows 9999 at power ON: the configuration procedure is shown in the grey box.
[4] The controller shows PASS after `ConF`: using the keys and insert the password to configure the controller.

Automatic tuning
To determine the PID values for the process, run the `tunE` procedure: press the key until the dislay shows: `tunE`; press the keys to select `Strt`; then press to run the automatic tuning procedure (to end the tuning procedure press to select `StoP` then).
At the end the PID parameters are entered.

Table 1 Engineering Units

Value	Description
°C	degree Celsius
°F	degree Fahrenheit
none	none
mU	mV
U	Volt
mA	mA
A	Ampére
bar	Bar
PSI	PSI
rh	Rh
Ph	pH

Parameter list

The parameters pointed out with grey background are those necessary to configure the options and are NOT shown in the configuration chart. All the parameters are fully described and explained in the user manual of the controller.

Code	Parameter Name	Value Default	Value User
ConF	1st Configuration code	9999	
Unit	Engineering units	NONE	
Scdd	Decimal point	0	
ScLo	Low range for engineering units	0	
ScHi	High range for engineering units	9999	
Prot	Communications protocol	JBUS	
bAud	Baud rate	9600	
rPEr	Continuous Output range	4... 20	
O.C.rb.	Overshoot Control relative band	0.5	
CodE	Password	33	
A1SP	AL1 alarm threshold	0	
A2SP	AL2 alarm threshold	0	
P.b	Proportional band (Hysteresis ON - OFF)	5.0	
t. i.	Integral time	5.0	
t.d.	Derivative time	1.00	
t.c.	Output Cycle time	20	

Code	Parameter Name	Value Default	Value User
O.C.	Overshoot Control	1.00	
OP. H	Control output high limit	100.0	
hy.	Control output hysteresis	0.5	
tunE	Start/Stop One shot tuning (0=Stop 1=Run)	STOP	
SL. u	Slope up	OFF	
SL. d	Slope down	OFF	
SP. L	Setpoint low limit	PV.LO	
SP. H	Setpoint high limit	PV.HI	
A1hy	AL1 Alarm Hysteresis	0.5	
A3hy	AL3 Alarm Hysteresis	0.5	
t.LbA	Loop Break Alarm delay	OFF	
t.F iL	Input filter	2.0	
In.Sh	Input shift	OFF	
Addr	Serial comm address	1	
rt.Lo	Retransmission low range	PV.LO	
rt.Hi	Retransmission high range	PV.HI	