Process controller with Modbus Master/Slave 1/4 DIN – 96 x 96 Q5 line

δ2 SERIES

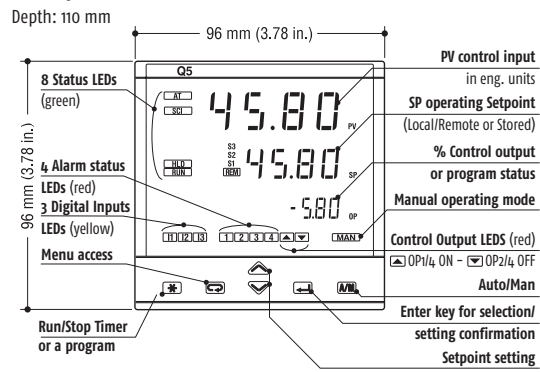Quick Guide • ISTR-FQ5ENG02

CE

ASCON TECNOLOGIC

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Tel.: +39 0381 698 71, Fax: +39 0381 698 730
internet site: www.ascontecnologic.com
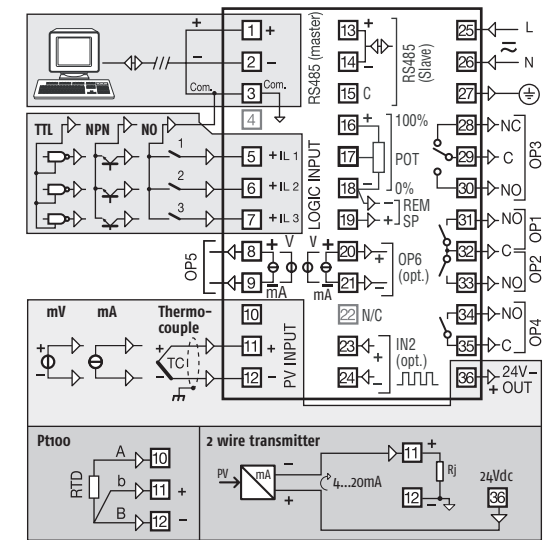E-mail: sales@ascontecnologic.com

Declaration of Conformity and Manual retrieval

Q5 is panel mounting, Class II instrument. It has been designed with compliance to the European Directives.
All information about the controller use can be found in the User Manual: **MIU_Q5_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:
Q5
then click on **Q5** 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).
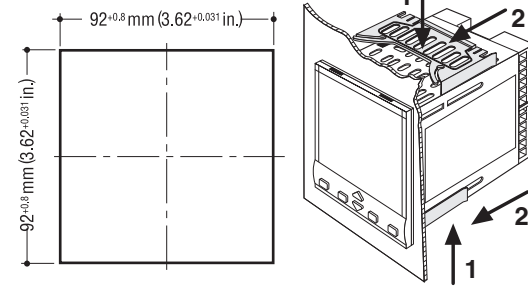
⚠ Warning!

– 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.

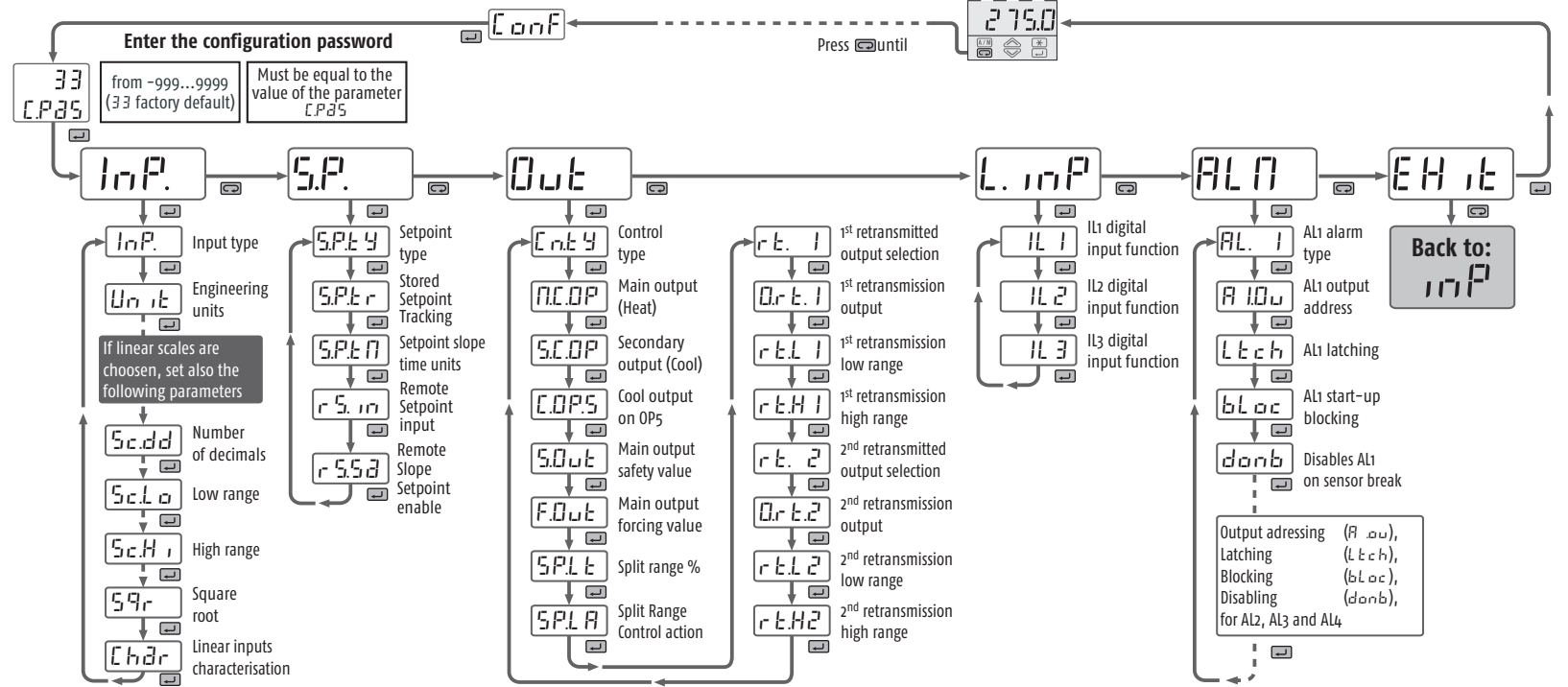## Description and dimensions

Depth: 110 mm

- 8 Status LEDs (green)
- 4 Alarm status LEDs (red)
- 3 Digital Inputs LEDs (yellow)
- Menu access
- Run/Stop Timer or a program
- PV control input in eng. units
- SP operating Setpoint (Local/Remote or Stored)
- % Control output or program status
- Manual operating mode
- Control Output LEDS (red) OP1/4, ON – OP2/4, OFF
- Auto/Man
- Enter key for selection/ setting confirmation
- Setpoint setting

Panel cut out and mounting

92 +0,8 mm (3.62 +0,031 in.)
92 +0,8 mm (3.62 +0,031 in.)

Electrical connections

Terminals

Pin connector	Fork-shape	Stripped wire
∅ 1.4 mm – 0.055 in. max.	AMP165004 ∅ 5.5 mm - 0.21 in.	L 5.5 mm – 0.21 in.

Model Code

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

Model: **Q 5 A B C D - E 9 0 0**
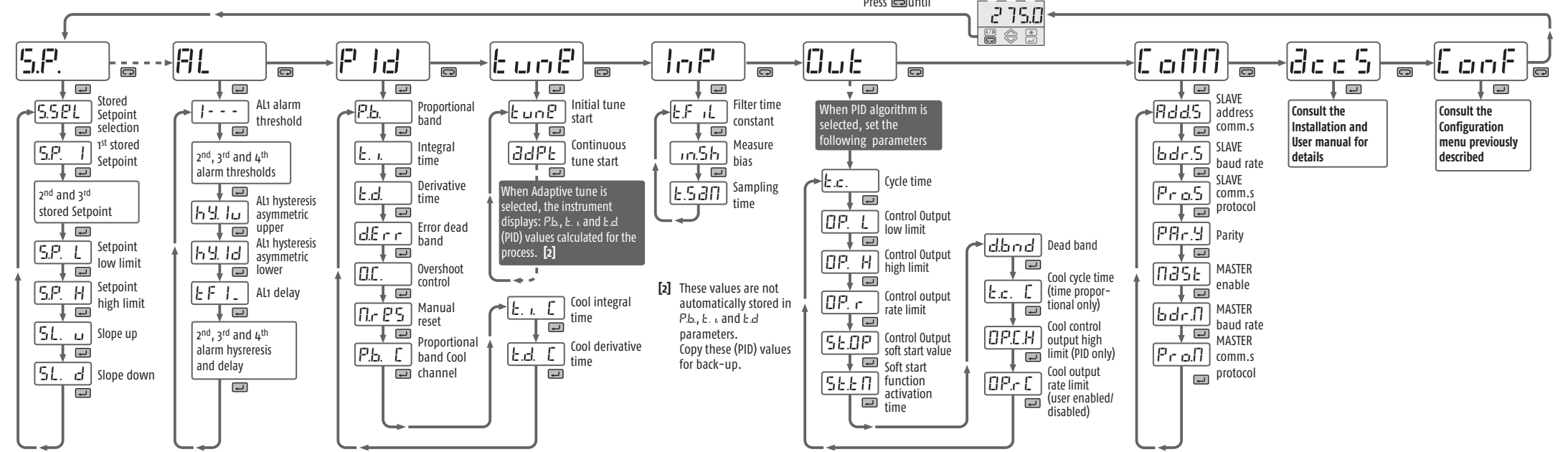(Line / Basic / Accessories)

Line	Q	5
Power supply		**A**
100...240Vac (–15…+10%)		3
24Vac (–25…+12%) or 24Vdc (–15….+25%)		5
Serial Communications		**C**
None		0
Mathematical package (MP)		1
RS485 Modbus/Jbus + MP		5
RS485 Modbus/Jbus + SLAVE + MASTER + MP		6
Options		**D**
None		0
Frequency input + OP6		6
Setpoint Programmer [1]		**E**
Not fitted		0
4 programs with 16 segments		4

[1] Not available with split range control mode.

Configuration menu

Configuration: **ConF**
Operator mode: **275.0**
Press until

Enter the configuration password
33 C.PAS
from –999...9999 (33 factory default)
Must be equal to the value of the parameter C.PAS

InP.
- **InP.** Input type
- **Un it** Engineering units
- If linear scales are chosen, set also the following parameters
- **Sc.dd** Number of decimals
- **Sc.Lo** Low range
- **Sc.H i** High range
- **Sqr** Square root
- **CHar** Linear inputs characterisation

S.P.
- **S.Pt Y** Setpoint type
- **S.Pt r** Stored Setpoint Tracking
- **S.Pt ñ** Setpoint slope time units
- **rS in** Remote Setpoint input
- **rSSd** Remote Slope Setpoint enable

Out
- **Cnt Y** Control type
- **ñC.OP** Main output (Heat)
- **SC.OP** Secondary output (Cool)
- **C.OP.S** Cool output on OP5
- **S.Out** Main output safety value
- **F.Out** Main output forcing value
- **SPL t** Split range %
- **SPL A** Split Range Control action

- **rt. 1** 1st retransmitted output selection
- **Or t. 1** 1st retransmission output
- **rt.L 1** 1st retransmission low range
- **rt.H 1** 1st retransmission high range
- **rt. 2** 2nd retransmitted output selection
- **Or t.2** 2nd retransmission output
- **rt.L 2** 2nd retransmission low range
- **rt.H 2** 2nd retransmission high range

L.InP
- **IL 1** IL1 digital input function
- **IL 2** IL2 digital input function
- **IL 3** IL3 digital input function

ALñ
- **AL. 1** AL1 alarm type
- **A 1.Ou** AL1 output address
- **Lt ch** AL1 latching
- **bLoc** AL1 start-up blocking
- **donb** Disables AL1 on sensor break
- Output adressing (A .ou), Latching (Lt ch), Blocking (bLoc), Disabling (donb), for AL2, AL3 and AL4

EH it
Back to: **InP**

Parameterisation menu

Operator mode: **275.0**
Press until

S.P.
- **S.SPL** Stored Setpoint selection
- **S.P. 1** 1st stored Setpoint
- 2nd and 3rd stored Setpoint
- **S.P. L** Setpoint low limit
- **S.P. H** Setpoint high limit
- **SL. u** Slope up
- **SL. d** Slope down

AL
- **1 - - -** AL1 alarm threshold
- 2nd, 3rd and 4th alarm thresholds
- **hY.1u** AL1 hysteresis asymmetric upper
- **hY.1d** AL1 hysteresis asymmetric lower
- **tF 1** AL1 delay
- 2nd, 3rd and 4th alarm hysteresis and delay

PId
- **P.b.** Proportional band
- **t. i** Integral time
- **t.d.** Derivative time
- **dErr** Error dead band
- **O.C.** Overshoot control
- **ñr.ES** Manual reset
- **P.b. C** Proportional band Cool channel

tunE
- **tunE** Initial tune start
- **AdPt** Continuous tune start
- When Adaptive tune is selected, the instrument displays: P.b., t. i and t.d (PID) values calculated for the process. **[2]**
- **t. i. C** Cool integral time
- **t.d. C** Cool derivative time

InP
- **t.F iL** Filter time constant
- **in.Sh** Measure bias
- **t.SAñ** Sampling time

[2] These values are not automatically stored in P.b., t. i and t.d parameters. Copy these (PID) values for back-up.

Out
When PID algorithm is selected, set the following parameters
- **t.c.** Cycle time
- **OP. L** Control Output low limit
- **OP. H** Control Output high limit
- **OP. r** Control Output rate limit
- **St.OP** Control Output soft start value
- **St.t ñ** Soft start function activation time
- **d.bnd** Dead band
- **t.c. C** Cool cycle time (time proportional only)
- **OP.C.H** Cool control output high limit (PID only)
- **OP.r C** Cool output rate limit (user enabled/ disabled)

Coññ
- **AddS** SLAVE address comm.s
- **bdr.S** SLAVE baud rate
- **Pro.S** SLAVE comm.s protocol
- **PAr.Y** Parity
- **ñaSt** MASTER enable
- **bdr.ñ** MASTER baud rate
- **Pro.ñ** MASTER comm.s protocol

AccS
Consult the Installation and User manual for details

ConF
Consult the Configuration menu previously described

Parameter list

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

Configuration

Code	Parameter Name	Default	User
InP.	Input type selection	0… 10	
Un it	Engineering units	NONE	
Sc.dd	Number of decimals (0… 3)	0	
Sc.Lo	Low range	0	
Sc.H i	High range	9999	
Sqr	Square root (0 = OFF, 1 = ON)	NO	
CHar	Linear input characterization	NO	
S.Pt Y	Setpoint type	LOC	
S.Pt r	Stored Setpoint tracking	NO	
S.Pt ñ	Time units and Setpoint slope	P.SEC	
rS.In	Remote Setpoint input	4… 20	
Cnt Y	Control type	PID	
ñC.OP	Main output (Heat)	OFF	
SC.OP	Secondary output (Cool)	OFF	
C.OP.S	Cool output on OP5 (Heat/Cool only)	NO	
S.Out	Main output safety value	OFF	
F.Out	Main output forcing value	OFF	
SPL t	Split range % (split range only)	50	
SPL A	Split Range Control action	dir	
rt. _	nth retransmitted output selection	none	

Code	Parameter Name	Default	User
Or t. _	nth retransmission output	4…20	
rt.L _	nth retransmission low range	0	
rt.H.	nth retransmission high range	9999	
IL _	ILn digital input function	OFF	
AL. _	ALn alarm type	OFF	
A .Ou	ALn addressing	OP1	
Lt ch	ALn latching	no	
bLoc	ALn start-up disabling	no	
donb	Disables ALn on sensor break	no	

Parameterisation

Code	Parameter Name	Default	User
S.SPL	Setpoint selection	NONE	
S.P. _	nth stored Setpoint	0	
S.P. L	Setpoint low limit	PV.LO	
S.P. H	Setpoint high limit	PV.HI	
SL. u	Setpoint ramp up	OFF	
SL. d	Setpoint ramp down	OFF	
rSSL	Remote setpoint slope enable	OFF	
rt io	Ratio remote Setpoint	1.00	
b iaS	Remote Setpoint Bias	0	

Code	Parameter Name	Default	User
Program parameters (consult the Installation and user manual for details)			
1 - - -	AL1 alarm threshold	0	
2 - - -	AL2 alarm threshold	0	
3 - - -	AL3 alarm threshold	0	
4 - - -	AL4 alarm threshold	0	
hY. u	ALn alarm hysteresis Up	1	
hY. d	ALn alarm hysteresis Down	1	
tF - -	ALn delay	1	
P.b.	Proportional band	5.0	
t. i	Integral time	60	
t.d.	Derivative time	12.0	
dErr	Error Dead Band	OFF	
O.C.	Overshoot control	1.00	
ñr.ES	Manual Reset	50.0	
P.b. C	Cool proportional band	5.0	
t. i. C	Cool integral time	60	
t.d. C	Cool derivative time	12.0	
tunE	Start/Stop One shot tuning	NO	
AdPt	Start/Stop Adaptive tuning	NO	
t.F iL	Input filter	OFF	
In.Sh	Input shift	OFF	

Code	Parameter Name	Default	User
t.SAñ	Sampling time	0.1	
OP.h.Y	Output Hysteresis	1	
t.c.	Cycle time	10.0	
OP. L	Control ouput low limit	0.0	
OP. H	Control output high limit	100.0	
OP.r	Control output maximum speed	OFF	
St.OP	Soft start output high value	OFF	
St.t ñ	Soft start time	10	
ñu.t ñ	Servomotor travel time	60	
ñu.h Y	Output minimum step Servomotor	0.5	
d.bnd	Heat/Cool Dead band	0.5	
t.c. C	Cool cycle time	10.0	
OP.C.H	Cool output maximum value	100.0	
OP.r C	Cool output maximum speed	OFF	
AddS	Communication SLAVE address	1	
bdr S	SLAVE Baud rate	9600	
Pro.S	SLAVE Communication protocol	JBUS	
PAr.Y	Parity	NONE	
ñaSt	Enable MASTER	NO	
bdr.ñ	MASTER Baud rate	9600	
Pro.ñ	MASTER Communication protocol	JBUS	