

Product data sheet

Sheet No.: 1.604.08 - Rev: C, Page 1 of 4
Date: March, 2009

FieldQ

Integrated Base Control Module

QC21, QC22 and QC23 (Moulded Ex d e mb, Ex ia/ib e mb)

Description:

These FieldQ conventionally wired control modules with the moulded pilot valve, offer an integrated concept for valve automation. Its compact and robust construction incorporates basic control and feedback functionality. These modules are certified for use in Zone 1, 2, 21 and 22 and are suitable for all gas and dust groups.

Construction:

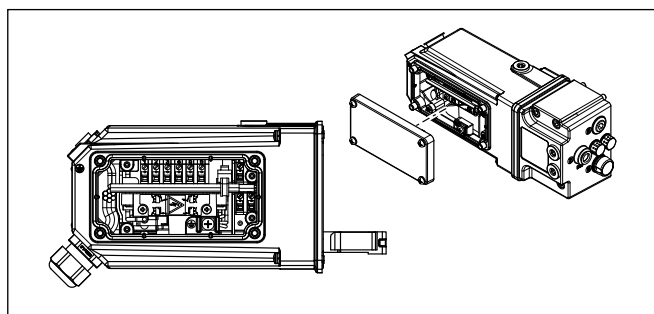
The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside, wiring terminals are available for connecting control and feedback signals. Three cable entries are available.

Features:

- Basic actuator functions for fail safe (spring return) or double acting applications.
- Robust IP65/NEMA4X enclosure, protecting the IPT system, the pilot valve's coil, the feedback switches and terminals, suitable for indoor and outdoor use.
- All the control and feedback connections can be wired to the Control Module.
- IPT-technology.
- Easy to set feedback signals.
- Control module can be easily plugged in the pneumatic module.
- ATEX Zone 1, 2, 21 and 22 approvals.

General specifications:

Material housing	: Aluminium alloy
Electrical connections	: Internal 9 pole terminal strip.
Cable entries	: 3x M20x1.5 or 3x 1/2"NPT
Operating media	: Air or inert gasses, filtered at 50µm
Switch point	: Factory set at 15° before each end of travel (open and closed position).
- Adjustable range	: Between -3° to 15° and +75° to +93° of the end position.
Enclosure	: IP65 / NEMA 4X
Finish	: Polyester non-TGIC based powder coating.
Temperature	: Depends on the applied switches and or Hazardous Area approvals (See section Feedback switches QC21, QC22 & QC23)
Dimensions	: See 1.603.01 metric See 1.603.04 imperial/UNC See 1.603.02 DIN 3337



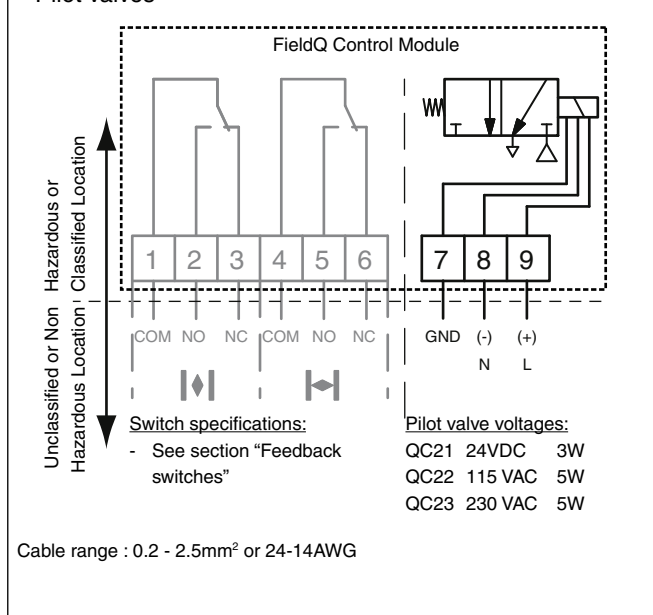
Pilot valve specifications

The pilot valve inside the Control Module sends the actuator to its open or closed position. The following moulded pilot valves are available:

Module	Voltages	Power
QC21	24VDC (±10%)	3W
QC22	115 VAC (±10%)	5W
QC23	230 VAC (±10%)	5W

Wiring diagram:

- Pilot valves



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Feedback switches QC21, QC22 and QC23 Control Modules

The feedback switches inside the module senses the open or closed position and are prewired to the terminal strip. The following feedback switches are available:

Hermetically sealed switches	
Option code	D
Type	Hermetically sealed V3
Voltage	250 VAC or VDC (maximum)
Contacts	Gold plated, NO and NC
Mechanical life	10 ⁷ operations (depends on electrical load).
Temperature	-20°C to +60°C (-4°F to +140°F)

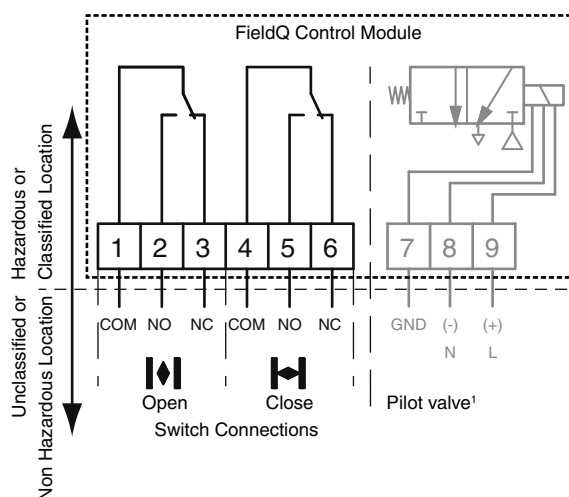
Maximum currents:		
Load :	Non Inductive	Inductive
125 VAC	5 A	5 A (Cos φ ≥ 0.9)
250 VAC	5 A	5 A (Cos φ ≥ 0.9)
30 VDC	5 A	5 A
125 VDC	0.5 A	0.06 A
250 VDC	0.25 A	0.03 A

Important

The hermetically sealed switches have gold contacts. For applications where the benefits of gold contacts are required, the maximum current is 100mA. When the current is higher than 100mA, the gold plating will evaporate.

Wiring diagram:

- Mechanical switches
- Hermetically sealed switches



Cable range : 0.2 - 2.5mm² or 24-14AWG

- 1 See section "Pilot valve specifications"
- 2 For Zone 1 or 21 hazardous area applications, see Installation Guide : DOC.IG.QC21.1
- 3 Wiring diagram is shown in the actuators mid-stroke position.

Hazardous area executions:

The Conventional Modules QC21, QC22 and QC23, in combination with the Hermetically sealed switches, have ATEX approvals for use in Zone 1, 2, 21 or 22 and for all gas and dust groups.

- ATEX : CE 0344
- : II 2 G Ex d e mb IIC T4/T5
- : II 2 D Ex tD A21 T85°C IP65
- : Certificate : TÜV 07 ATEX 553927X

Temperature range

- T4 @ Ta = -20°C(-4°F) to +60°C (140°F)
- T5 @ Ta = -20°C(-4°F) to +40°C (104°F)



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Feedback switches QC21, QC22 and QC23 Control Modules

The feedback switches inside the module senses the open or closed position and are prewired to the terminal strip. The following feedback switches are available:

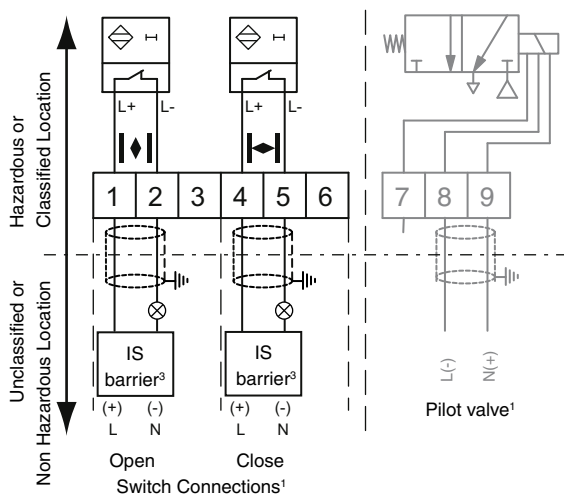
2-Wire NAMUR proximity switches	
Option code	N
Type	2-wire inductive, normally closed
Voltage	8 VDC nominal
Output	Unswitched , > 3mA Switched , < 1mA
Temperature	-20°C to 60°C (-4°F to +140°F)
Compliant to	DIN EN 60947-5-6 (NAMUR)

QC14 Intrinsically Safe Entity Parameters Feedback switches						
Switch	Terminal	Ui	Ii	Pi	Ci	Li
Type N	1 – 2, 4 - 5	16Vdc	25mA	64mW	100nF	100µH

* a cable length of 10 m is considered.

Wiring diagram:

2-Wire NAMUR proximity switches



Cable range : 0.2 - 2.5mm² or 24-14AWG

- 1 See section "Pilot valve specifications"
- 2 For Zone 1 or 21 hazardous area applications, see Installation Guide : DOC.IG.QC21.1
- 3 IS Approved barrier
- 4 Wiring diagram is shown in the actuators mid-stroke position.

Hazardous area executions:

The Conventional Modules QC21, QC22 and QC23, in combination with the NAMUR proximity switches, have ATEX approvals for use in Zone 1, 2, 21 or 22 and for all gas and dust groups.

- ATEX : **CE** 0344
: II 2 G Ex ia/ib e mb IIC T4/T5
: II 2 D Ex tD A21 T85°C, IP65
: Certificate : TÜV 07 ATEX 553927X

Temperature range:

T4 @ Ta = -20°C (-4°F) to +60°C (140°F)
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Feedback switches QC21, QC22 and QC23 Control Modules

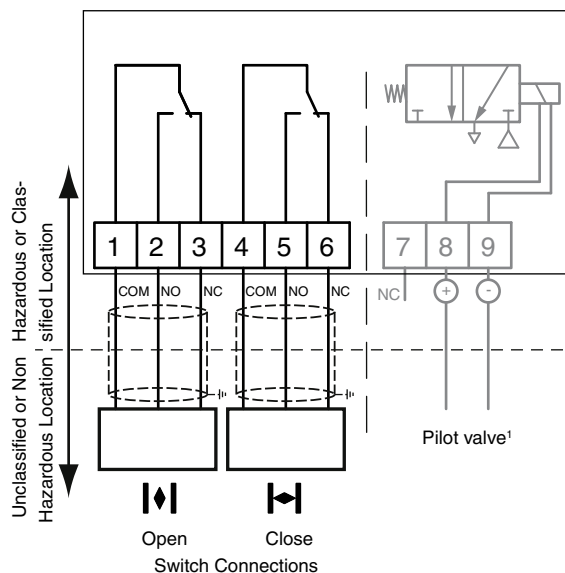
The feedback switches inside the module senses the open or closed position and are prewired to the terminal strip. The following feedback switches are available:

Mechanical switches	
Option code	M or G
Type	Mechanical V4
Voltage	250 VAC or 250 VDC (maximum)
Contacts	NO and NC (G = Goldplated)
Mechanical life	10 ⁷ operations (depends on electrical load).
Temperature	-20°C to +60°C (-4°F to +140°F)

	Safety parameters Mechanical switches	
	M type	G type
Voltage U _i	30 V	30 V
Maximum I _i	300 mA	100 mA
Power P _i	1.2 W	1.2
Capacity C _i	0 nF	0 nF
Inductivity L _i	0 mH	0 mH

Wiring diagram:

- Mechanical switches
- Hermetically sealed switches



Cable range : 0.2 - 2.5mm² or 24-14AWG

- 1 See section "Pilot valve specifications"
- 2 For Intrinsically Safe (Cl. I Div1 or Zone 1 or 21) hazardous area applications, see Installation Guide : DOC.IG.QC21.1
- 3 Wiring diagram is shown in the actuators mid-stroke position.

Hazardous area executions:

The Conventional Modules QC21, QC22 and QC23, in combination with the mechanical or gold plated mechanical switches have ATEX approvals for use in Zone 1, 2, 21 or 22 and for all gas and dust groups.

- ATEX : **CE** 0344
 - : II 2 G Ex ia/ib e mb IIC T4/T5
 - II 2 D Ex tD A21 T85°C, IP65
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Temperature range

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