

Product data sheet

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Date: December, 2008

FieldQ

Integrated Base Control Module

QC14 Intrinsic Safe

Description:

The Intrinsic Safe FieldQ conventionally wired control modules offer an integrated concept for valve automation. Its compact and robust construction incorporates basic control and feedback functionality.

Construction:

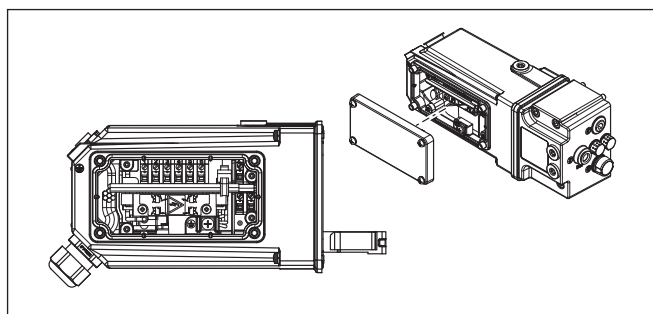
The Control Module is mounted at the side of the Pneumatic Module in front of the basic actuator housing. Inside, wiring terminals are available for connecting control signal to the pilot valve and feedback signals to the switches. Three cable entries are available.

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 and CSA Intrinsically Safe 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 5µm
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	: -20°C ... +50°C (-4°F ... +122°F)
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.

Typical functional ratings Pilot Valves

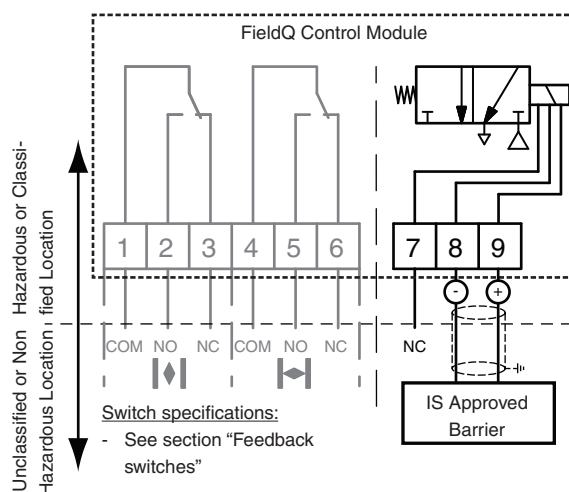
Voltage	Turn on	V	21.6 ... 28
	Turn off	V	5
Current	Peak	mA	10
	Hold	mA	1.9
Resistance	Barrier+Cable	Ohm	1200

Safety parameters Pilot Valves

Voltage	Ui	V	30
Maximum	Li	mA	200
Power	Pi	W	0.9
Capacity maximum	Ci	nF	0
Inductivity	Li	mH	0

Wiring diagram:

- Pilot valves



Cable range : 0.2 - 2.5mm² or 30-12AWG



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Feedback switches QC14 Intrinsically Safe Control Module

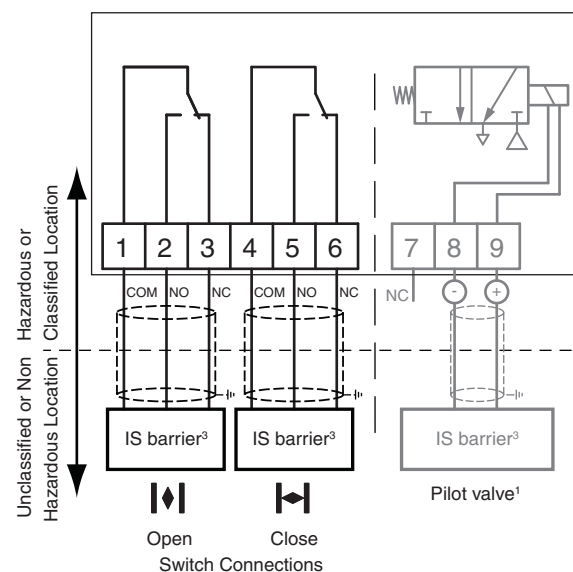
The feedback switches inside the module senses the open or closed position and are prewired to the terminal strip. The following feedback switches are available:

Mechanical switches	
Option code	M or G
Type	Mechanical V4
Contacts	NO and NC (G = Goldplated)
Mechanical life	10 ⁷ operations (depends on electrical load).
Temperature	-20°C to +50°C (-4°F to +122°F)

Hermetically sealed switches	
Option code	D
Type	Hermetically sealed V3
Contacts	Gold plated, NO and NC
Mechanical life	10 ⁷ operations (depends on electrical load).
Temperature	-20°C to +50°C (-4°F to +122°F)

Wiring diagram:

- Mechanical switches
- Hermetically sealed switches






Cable range : 0.2 - 2.5mm² or 30-12AWG

- 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.QC14.1
- 3 IS Approved barrier
- 4 Wiring diagram is shown in the actuators mid-stroke position.

Hazardous area executions:

The Conventional Modules QC14 in combination with the mechanical gold plated and hermetically sealed switches, have an ATEX and CSA Intrinsically Safe approval as listed below:

ATEX 0344

- :  II 1 G Ex ia IIC T4...T6,  II 1 D Ex tD A20 T80°C
- Optional for D type switch:  II 1 G Ex ib d IIC T4...T6
- : Certificate : TÜV 07 ATEX 553928X



- : Intrinsically safe, Class I, II, III, Division 1, Groups ABCDEFG T4...T6, Type 4X
- : Ex ia IIC, T6, IP65
- : DIP A20 TA 80°C
- : Certificate : 1638508

Temperature range:

T4..T6 @ Ta = -20°C(-4°F) to +50°C (122°F)

QC14 Intrinsically Safe Entity Parameters Feedback switches						
Circuit	Terminal	Ui	Ii	Pi	Ci	Li
M-type,	1 - 2 - 3,	30Vdc	300mA	1.2W	0	0
D type	4 - 5 - 6					
G-type	1 - 2 - 3,	30Vdc	100mA	1.2W	0	0
	4 - 5 - 6					

ATEX classified hazardous areas:

Base FieldQ actuators do not comply to all Zone 0 requirement. Please contact our sales for these Zone 0 applications.

The combination of basic actuator and the above control module QC14 is allowed to be used up to Zone 1 or 21.



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Feedback switches QC14 Intrinsically Safe Control Module

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:

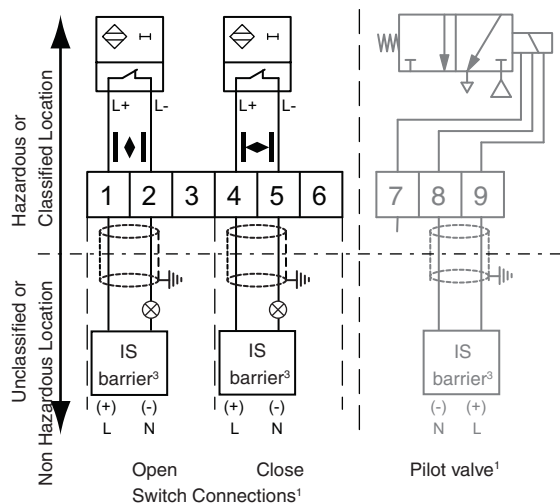
2-Wire NAMUR proximity switches	
Option code	N
Type	2-wire inductive, normally closed
Voltage	8 VDC nominal
Output	Unswitched, > 3mA Switched, < 1mA
Temperature	-20°C to T* (-4°F to +T*)
Compliant to	DIN EN 60947-5-6 (NAMUR)

QC14 Intrinsically Safe Entity Parameters Feedback switches						
Circuit	Terminal	Ui	Ii	Pi	Ci	Li
Type 1	1 - 2, 4 - 5	16Vdc	25mA	34mW	100nF	100µH
Type 2	1 - 2, 4 - 5	16Vdc	25mA	64mW	100nF	100µH
Type 3	1 - 2, 4 - 5	16Vdc	52mA	169mW	100nF	100µH
Type 4	1 - 2, 4 - 5	16Vdc	76mA	242mW	100nF	100µH

* a cable length of 10 m is considered.

Wiring diagram:

2-Wire NAMUR proximity switches



Cable range : 0.2 - 2.5mm² or 30-12AWG

- See section "Pilot valve specifications"
- For Intrinsically Safe (Cl. I Div 1 or Zone 1 or 21) hazardous area applications, see Installation Guide : DOC.IG.QC14.1
- IS Approved barrier
- Wiring diagram is shown in the actuators mid-stroke position.

Hazardous area executions:

The Conventional Modules QC14 in combination with the NAMUR proximity switches, have an ATEX and CSA Intrinsically Safe approval as listed below:

ATEX : 0344
: II 1 G Ex ia T*
: II 1 G Ex tD A20 T80°C IP65
: Certificate : TÜV 07 ATEX 553928X

: Intrinsically safe, Class I, II, III, Division 1,
Groups ABCDEFG T*, Type 4X
: Ex ia IIC, T*, IP65
: DIP A20 TA 80°C
: Certificate : 1638508

Temperature range:

T4...T6 @ Ta = -20°C (-4°F) to +50°C (122°F)

T* ambient at T class:			
Connection	T6	T5	T4 - T1
Type 1	50°C / 122°F	50°C / 122°F	50°C / 122°F
Type 2	46°C / 114°F	50°C / 122°F	50°C / 122°F
Type 3	25°C / 77°F	37°C / 98°F	50°C / 122°F
Type 4	10°C / 50°F	22°C / 71°F	50°C / 122°F

ATEX classified hazardous areas:

Base FieldQ actuators do not comply to all Zone 0 requirement. Please contact our sales for these Zone 0 applications.

The combination of basic actuator and the above control module QC14 is allowed to be used up to Zone 1 or 21.



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