- *Easy plug-in mounting*
- *Quick and safe installation*
- *Axis mount 12 x 12 mm*
- *Terminal box integrated*
- *Temperature range -40 ... +70 ° C*
- *Heating including thermostat integrated*
- *Protection class IP66*
- *Blocking resistant by electronic disconnection*
- *LED status indication*
- *Low power consumption in holding mode*
- *High corrosion resistance by using high tech polymer and stainless steel*
- *Long life by using brushless motors*
- *Maintenance-free*
- *Optional Y-modulating version (analog inputs and outputs mA and V short-circuit-proof)*
- *Electrically isolated circuits for optimum interference immunity*

QT.Nc Manual

BA.0003.01.EN
BA.0004.01.EN

Assembly and installation instructions for safe use of actuator
QT...-M... with / without spring return Fail Safe function

made
in
Germany

pi safety components

Content

1. General

The manual is included in the delivery and serves to ensure proper handling and optimum functioning of the device. The manufacturer offers no guarantee for this publication and is not liable for any improper handling of the products described. For this reason, the manual has to be read before operation. In addition, all personnel who are involved in the transport, setup, operation, maintenance and repair are to be familiar with this manual. This manual may not, without the prior written consent of the manufacturer be used for competition purposes and will not be passed on to third parties. Copies for personal use are permitted. This documentation may contain technical inaccuracies or typographical errors. The information shall be revised periodically and is not subject to change management. The manufacturer reserves the right to modify or alter the product described at any given time.

SYMBOLS

This sign shows Safety notes.

Safety notes must be followed. Failure to observe may result in personal injury or property damage. The manufacturer assumes no liability.

SAFTEY NOTES

Installation, electrical connection, maintenance and commissioning may only be performed by trained specialist.

Avoid excessive mechanical loads and improper use.

Switch off power when mounting and dismounting

The motor and spring return times are approximate and may vary depending on the conditions of use.

2. Product description

The quarter turn actuator QT.Nc-M.. consists of a supply unit and a gear unit. Through the modular concept separation of electronics and transmission is a simple, safe assembly and commissioning. The integrated terminal box ensures a direct electrical connection.

The following actuators are available

- 90 ° rotary actuators with spring return 10 s
- 90 ° rotary actuators with fast spring return 3
- Modulating actuators
- Modulating actuators Quick
- Fire damper actuators

FUNCTION

The QT.Nc-M .. can be installed in industrial areas indoor and outdoor. If the actuator is controlled OPEN / CLOSE, it performs a 90° rotation movement and opens / closes dampers and fittings. An optional spring moves the actuator into the safety position in the event of a power failure. A terminal box is integrated into the drive. A LED and push button are used as an indication or initialization.

An interface M12 socket / connector is used for the option QT.Nc-MFD ... as a connection for a thermal release FT.Nc- .. which can be installed on fire dampers in the ventilation duct.

Depending on the external load and low temperatures, the spring return times may be extended.

The manual adjustment shaft must be used de-energized,

Attachments parts may affect the function. Check always your fully application to eliminate any risks.

The device must not be opened or modified. It also contains no user replaceable components.

APPLICATIONS

QT.Nc-MF10.. Fail Safe actuator
The actuator has the control On / Off / 3Pos. In case of power fail the actuator moves into the safety position by an internal spring within 10 s.

QT.Nc-MF03.. Fail Safe actuator fast
The actuator has the control On / Off / 3Pos. In case of power fail the actuator moves into the safety position by an internal spring within 3 s.

QT.Nc-M.. 3 Pos actuator
Universial non spring return actuator. Control On / Off / 3Pos. Up to 50 Nm load.

QT.Nc-MY.. modulating actuator
Modulating actuator with control 0-10 V or 4-20 mA and feedback 0-10 V and 4-20 mA.

QT.Nc-MYQ.. modulating actuator quick
Modulating actuator with control 0-10 V or 4-20 mA and feedback 0-10 V and 4-20 mA. movement 5s/90°

QT.Nc-MFY.. Modulating control with spring return
Modulating control 0-10 V or 4-20 mA and feedback signal 0-10 V and 4-20 mA. In case of power fail the actuator moves into the safety position by an internal spring.

QT.Nc-MFD.. Fire damper actuator
The actuator and associated thermal release FT.Nc-.. sensor. If the sensor is trips, the actuator moves into the safety position.

.

3. Technical data

QT.Nc-M SUPPLY-UNIT

TYPES							
QT.Nc-MSL						20 ... 70	V AC/DC
QT.Nc-MSH						85 ... 250	V AC

QT.Nc-M... GEAR-UNIT

SPRING RETURN (FAILSAFE) TYPES							
QT.Nc-MF10	Motor	18 Nm	15 s	Spring	18 Nm	10 s	Nm/s/90°
QT.Nc-MF03	Motor	18 Nm	15 s	Spring	18 Nm	3 s	Nm/s/90°
QT.Ex-MF02	Motor	18 Nm	15 s	Spring	12 Nm	2 s	Nm/s/90°
QT.Nc-MF10Y	Motor	18 Nm	15 s	Spring	18 Nm	10 s	Nm/s/90°
QT.Nc-MFD10	Motor	18 Nm	15 s	Spring	18 Nm	10 s	Nm/s/90°
QT.Nc-MFD03	Motor	18 Nm	15 s	Spring	18 Nm	3 s*	Nm/s/90°

*closing time by using thermal fire trigger

NON SPRING RETURN TYPES							
QT.Nc-M	Motor	50 Nm	15 s				Nm/s/90°
QT.Nc-MY	Motor	40 Nm	15 s				Nm/s/90°
QT.Nc-MYQ	Motor	15 Nm	5 s				Nm/s/90°

SUPPLY		
Voltage	See type list	
Frequency	50 – 60	Hz
Power consumption holding mode	5 / 7	W / VA
Power consumption motor mode	30 / 50	W / VA
Dimensionierung bei 24 V Versorgung	30 / 50	W / VA
Protection class / over voltage category / pullution degree	II / 2 / III	insulated
ELECTRICAL CONNECTION		
Terminal clamps	0,08 – 2,5	mm without sleeve
	0,25 – 1,5	mm with sleeve
Cable glands M20x1,5	6 - 13	Ø mm
AUXILLERY SWITCHES		
Voltage	5 ... 250	V
Current	5 ... 100	mA
Limit switches	5 / 80	°
IN-/OUTPUTS MODULATION (OPTION Y)		
Voltage / Current	0 – 10 / 4 – 20	V DC / mA
Position accuracy	0,2	°
Duty cycle	S1 - 80	%
HOUSING		
High Tech Polymer	halogene-, silicone-, PVC	free
Housing protection	IP66	
GENERAL		
Dimensions H x B x T	320 x 120 x 85	mm
Weight	4,0 / 4,1 (without / with spring)	kg
MATERIAL		
Housing	High Tech Polymer	electrostatically conductive
Front plate, screws	Stainless steel	
Seals	EPDM	
Cable glands	Brass plated	
Sensor connection M12	Brass plated	
Gear wheels	Steel / Sinter steel heat treatment	
Output shaft double square	12 x 12, Steel surface treatment	mm
Spring	Spring steel	
APPLICATION AREA		
Ambient temperature and storage	-40 ... +70	°C
Humidity, without condensation	0 ... 90	%r.F.
Mounting position	any	
Maintenance	Maintenance free, time lubrication	
Corrosion resistance	On-/offshore	with high salt load

FT.Nc-72-... THERMAL TRIGGER UNIT Accessory for QT.Nc-MFD actuators

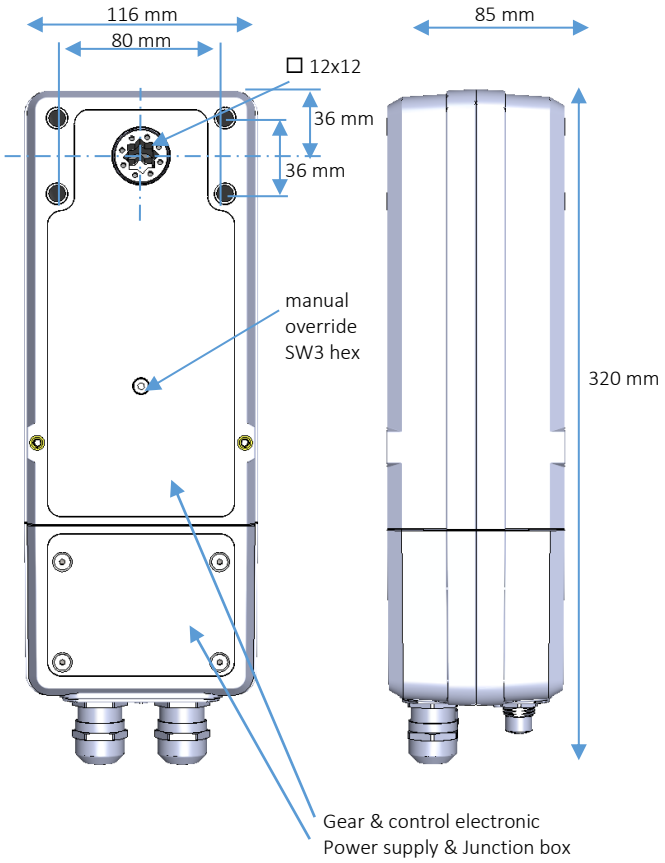
TYPES AND TEMPERATUR RELEASE			
FT.Nc-72	Fire Trigger	72	°C

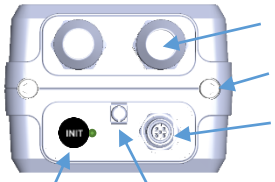
SUPPLY		
By actuator via M12 connector		
MATERIAL		
High Tech Polymer	halogene-, silicon-, PVC	free
Cable	FRNC	
Seal	EPDM	
Sensor connection M12	brass plated	
Weight	100	g
APPLICATION AREA		
Ambient temperature*	-40 ... +125	°C
Storage temperature	-40 ... +60	°C
Humidity, without condensation	0 ... 90	%RH
Mounting position	Any, recommended vertically	
Thermal release	ISO 10294-4	

* The ambient temperature refers to the application area. The temperature fuses can already trigger at 60°C.

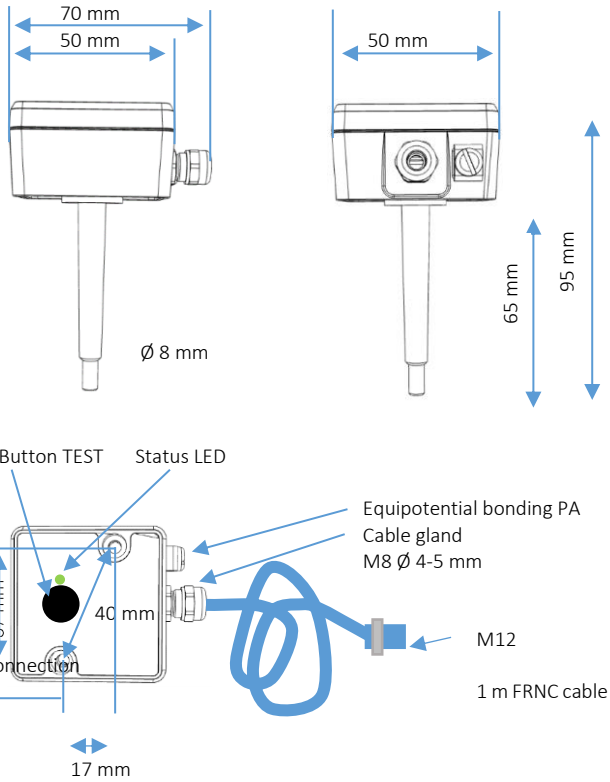
4. Dimensions

QT.Nc (ACTUATOR)





FT.Nc-.... (THERMAL FIRE TRIGGER)

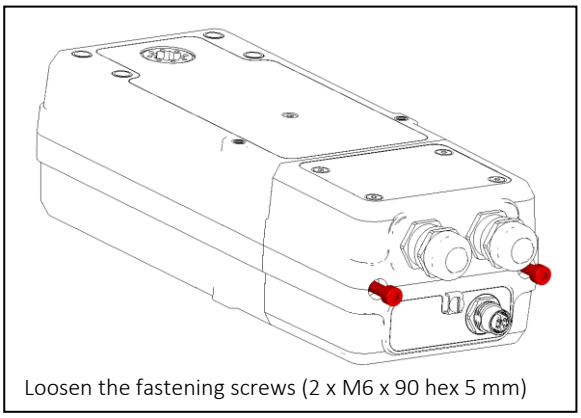


5. Mounting / Installation

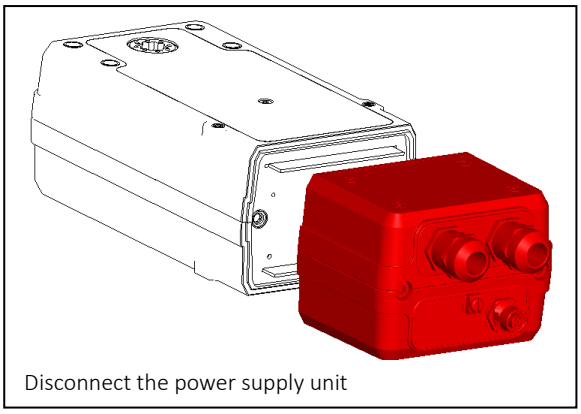
In the delivery state, the power supply unit is installed (terminal box cover at the top), that the actuator runs clockwise UP and the counterclockwise CLOSE. By rotating the gear unit, the rotational direction / spring return direction of e.g. left (counterclockwise) to the right (clockwise). If this is necessary, proceed according to the next step, otherwise the installation follows.

ELEKTRONIC UNLOC

Disconnect and check the voltage

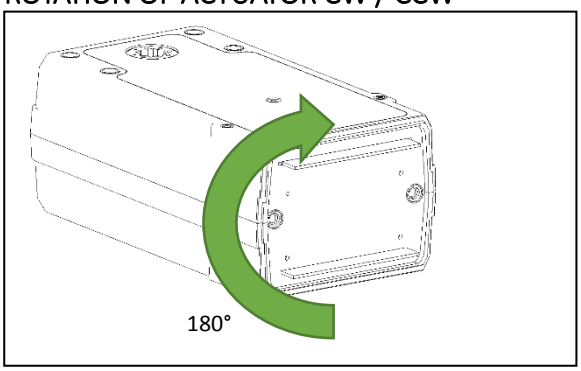


Loosen the fastening screws (2 x M6 x 90 hex 5 mm)



Disconnect the power supply unit

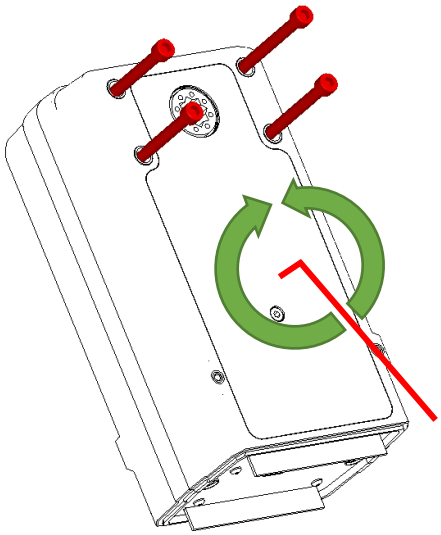
ROTATION OF ACTUATOR CW / CCW



DIRECT MOUNTING

Regard the rotation of the actuator and the valve / valve during assembly.

4 x M6 x 100

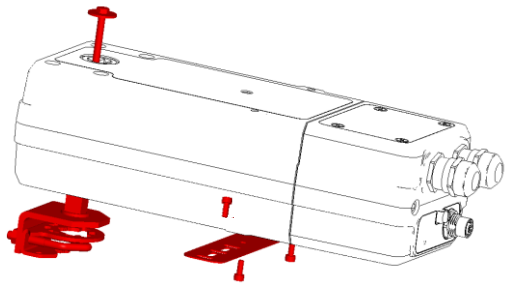


Turn approx. ½ turn at manual override (hex key) to eliminate the preload of 5 °.Then place on the square and screw

By using the hex key the actuator **must be de-energized**

Note the concentricity of the hollow shaft the concentricity of the hollow shaft. If the holes for the screws are eccentric, tension in the drive can occur and lead to loss of torque.

CLAMP ASSEMBLY

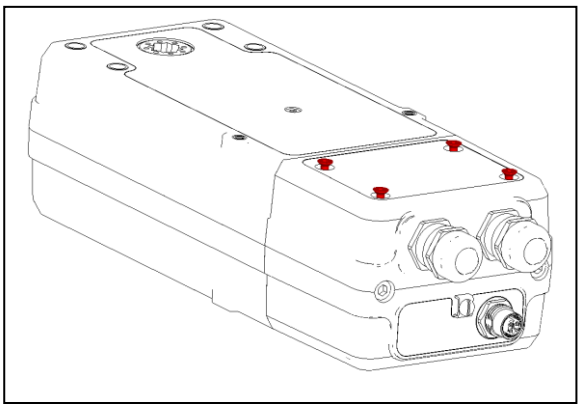


Assembly of the clamp block with screw M5x80 and washer. Screw anti-rotation plate 2 x M4 to the drive and fasten the anti-rotation plate. For this purpose, self-tapping screws M3,9x16 are enclosed.

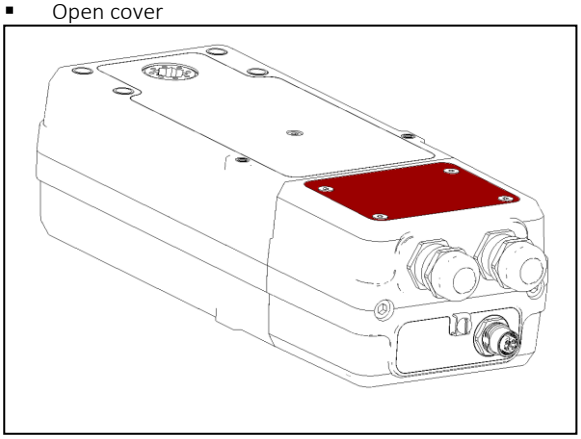
ELECTRICAL CONNECTION

The integrated, electrical terminal box allows direct connection of the supply and the analog outputs. According to IEC 61010-1, protect the supply in the case of a fault against excessive high power consumption from the mains, e.g. with a fuse.

- Disconnect and check the voltage
- Check the power supply voltage, which corresponds to the power supply label
- Loosen the screws M4 of the cover



- Open cover

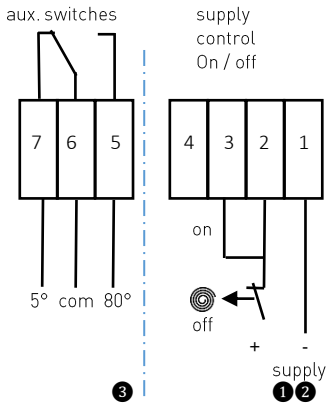


- Remove the cable gland protection
- Insert the cable
- Strip insulation (6 mm)
- Open the clamp by pressing with a screwdriver
- Insert the wire (s)
- Remove the screwdriver
- Close the cover
- An Tighten the cable glands
- Close unused opening with blind plugs

The supply, auxiliary switches and outputs are galvanically isolated, which offers a high degree of interference immunity. However, exchanging the connections can destroy the electronics.

WIRING DIAGRAMS

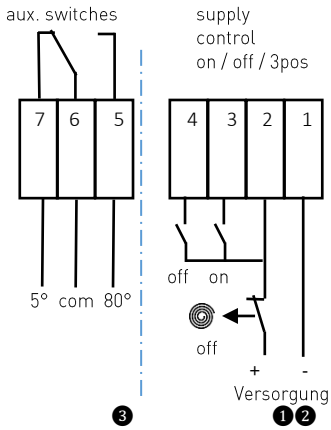
ON / OFF



ON	bridge from 2 to 3 supply ON
OFF	supply OFF, actuator closes by spring

wiring diagram A

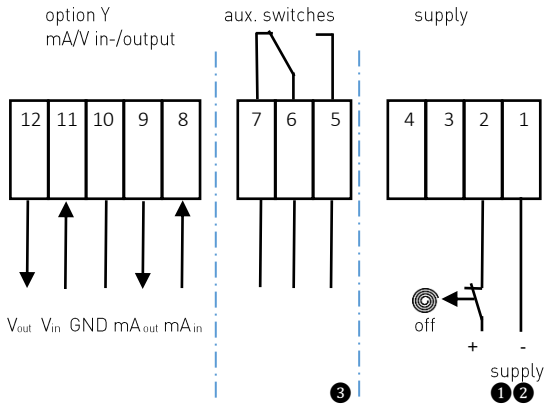
ON / OFF / 3POS



ON	bridge from 2 to 3 supply ON
OFF	bridge from 2 to 4 supply ON
OFF	supply OFF, actuator closes by spring

wiring diagram B

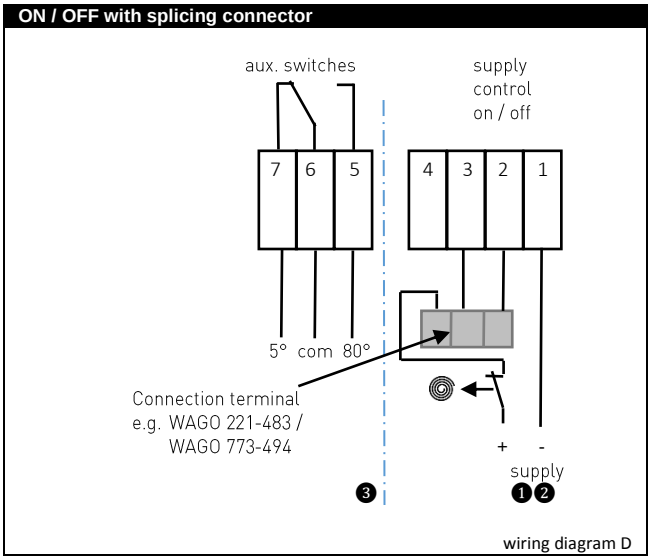
Y / continuous mode



V out	V output 0-10 V
V in	V input 0-10 V
GND	common ground input / out put
mA out	mA output 4-20 mA
mA in	mA input 4-20 mA

wiring diagram C

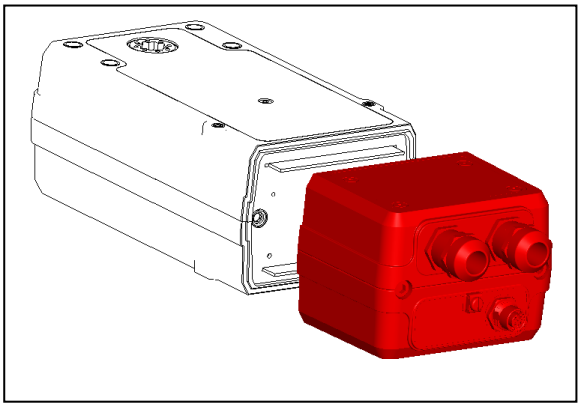
ON / OFF with splicing connector



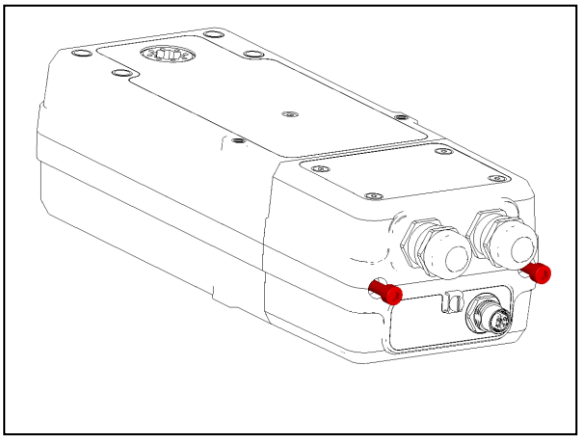
wiring diagram D

ELEKTRONIC LOOK

- attach the electronics carefully
- lock it together

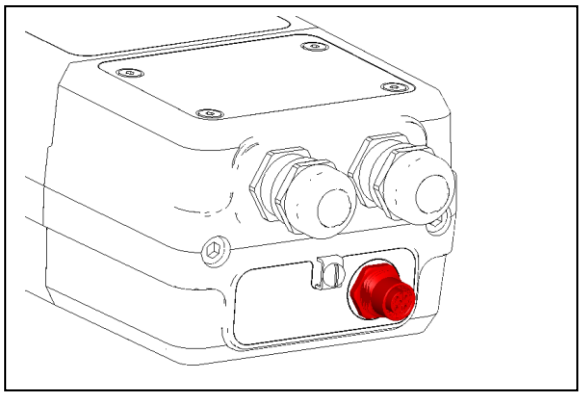


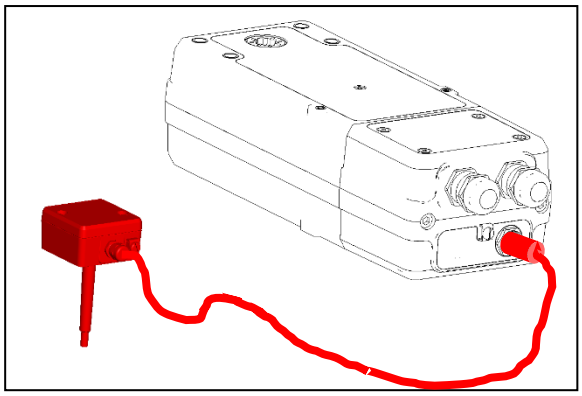
- Tighten the fastening screws. max. 3 Nm



Make sure that the gear unit and power supply unit are tightly closed when screwed together to prevent water or dust from entering.

MOUNTING THERMO TRIGGER FT.NC....





6. Maintenance

Ensure that the unit has been properly installed and connected in accordance with the chapters before, and that the voltage supply matches the specifications on the nameplate.

Switch on the power supply, the LED lights green, the device is ready for operation.

When the unit is installed for the first time on the damper / valve, a setting angle adjustment must be carried out by pressing the button for 3 seconds (INIT). This results in gentle motor start-up or braking in the spring return in the end positions. Failure to do so will result in premature wear. In the case of Y mode, the outputs are also calibrated to the angle of rotation. In the case of modulating mode, also pay attention to how often the actuator moves too short and too fast regulation can also lead to premature wear.

When operating at low temperatures (- 20 ° C ... -40 ° C), the actuator requires up to 30 minutes to heat up.
If the actuator is then under continuous voltage, the heating automatically regulates the power. An integrated thermostat switches off the heating.

7. Manual operation

The actuator can only be manually operated (3 mm hex key) in the de-energized state and moved in any position. If the manual override is used when the supply voltage is applied, the motor will try to work against the force of the manual adjustment. Too large forces can be a mechanical destruction.

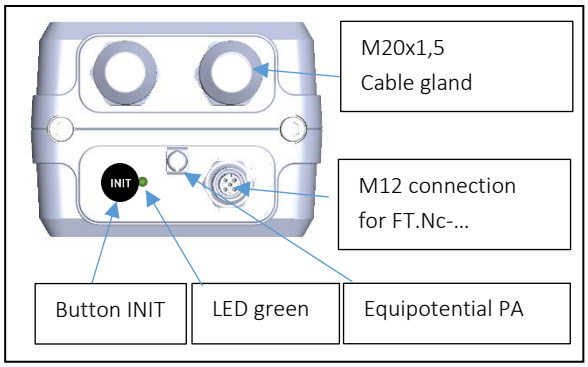
There is no automatic unlocking of the manual adjustment.

The hexagon key is to be removed in motor / spring operation, otherwise there is a risk of injury

8. Internal auxiliary switch

The actuator has two fixed microswitches for end position feedback. The electrical contacts of these microswitches have a special alloy that is suitable for lower (mA range) currents. When using, make sure that the contacts can no longer be used in the lower (mA range) after a single use with larger currents.

9. Operation



10. Heating

When operating at low temperatures (-20 ° C ... -40 ° C), the actuator requires up to 30 minutes to heat up.
If the actuator is then under continuous voltage, the heating automatically regulates the power. An integrated thermostat switches off the heating.

Please note that the actuator must not be operated below -40°C without power supply.

When used in extreme low temperatures, we recommend an additional housing, which additionally isolates the actuator and encases it even more robustly by using stainless steel.
See accessories

When using the thermal jacket (TJ.Va-M), make sure that it is an insulating housing and the heat by the self-heating convection no longer takes place. The permissible continuous operating temperature of the actuator is reduced to +40°C instead of +70°C. Duty cycle S6 10% = 2 x on/off per 10 min.

11. Parameterization

	ACTION		FUNCTION	DESCRIPTION
ADJUSTMENT	INIT	QT...-M...	Adjustment drive	Soft motor start, soft stopp in end position
	INIT	QT...-M...Y	Adjustment drive	Soft motor start, soft stopp in end position 0-10V / 4-20mA output signal calibrated to angle of rotation

12. Error Message

No green LED
- Check power supply
- Check the power supply module with the gear module has been properly installed

No rotary movement of the output shaft
- Check the direction of rotation of the valve / fitting and that of the actuator
- Check the wiring diagram. The actuator requires a contact for the run command.
  Bridge from 2 to 3 OPEN
  Bridge from 2 to 4 CLOSE

LED indication

▪ duration green	normal operation
▪ Blinkink 0.75 son / off	initialization run
▪ Blinking 0.12 s on / 1 s off	Overtemperature electronics
▪ Blinking 0.25 s 2x on / 1 s off	Heating mode
▪ Blinking 0.25 s 3xon / 1 s off	FT.Nc trigger triggered
▪ Flash 0.1 s on / 1 s off	check the Power supply for DC (DC) supply is + and - terminals 1 and 2 reversed
▪ Flash 0.1 s 2xon / 1 s off	spring return

13. Maintenance

The device is maintenance-free, a functional test and regular cleaning of dust and dirt with a damp cloth is recommended. The functional check (open-close) increases safety. A monthly functional check is to be carried out. The actuators are designed according to the specification for regular function checks. Notes on the regular function check can be found in the European Product Standard. Furthermore, other requirements such from the operating instructions of the damper/valve manufacturer are to be followed.

14. Repair

Return of a device to claim services. The installation and operation of the QT.Nc in accordance with this manual are very unproblematic. Should the unlikely event occur that a device has to be returned for repair or testing to our service department, a return form is provided under “service address” on the last page.

15. Demounting

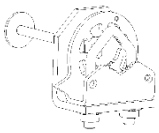
- Disconnect and check the voltage
- Open the screw terminal box cover 4x
- Remove the cable
- Loosen screws of gear unit
- Pull out the electronics module
- Loosen the screws of the gear unit
- Remove the gearbox assembly

16. Disposal

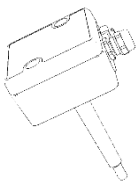
Every year, thousands of tons of polluting electronic components land on landfills around the world. To ensure the best possible disposal or recovery of electronic components, the European Union has adopted the WEEE Directive. (Waste Electrical and Electronic Equipment) Please return these products directly to us at the end of their lifecycle so that we can dispose of them properly. The WEEE is an important contribution to the environment and we are happy to help protect the environment with this disposal concept.

17. Accessories

Title	
KR.Vz-12	clamping block for axles Ø 10-20 mm, ☐ 10-16 mm incl. anti-twist lock plate steel galvanized



WS.Va-M	Weather shield as additional protection under adverse conditions made of stainless steel
TJ.Va-M	Thermo jacket as additional protection under cold conditions down to -55°C made of stainless steel Note chapter 10 Heating
FT.Nc-72	Thermal Fire Trigger 72°C for Fire Damper Actuators (QT.Nc-MFD..)



Revision

VERSION	DATE	SUPPLEMENT / CHANGE / REMARK
01		First edition

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE

petz industries GmbH & Co. KG ▪ Mühlenweg 2 ▪ 96358 Teuschnitz / Haßlach ▪ Germany

erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
declares as manufacturer under sole responsibility, that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit

QT.Nc-M...
FT.Nc-...

den Vorschriften folgender Europäischer Richtlinien durch Anwendung harmonisierter Normen entspricht:
conforms with the provisions of the following European Directives by applying the harmonised standards:
est conforme aux prescriptions des Directives Européennes suivantes par l'application des normes harmonisées :

Richtlinien/Directives/Directives		Normen/Standards/Normes	
2014/35/EU	(LVD)	EN 61010-1	(2010)
2014/30/EU	(EMC)	EN 60529	(2012)
2012/19/EU	(WEEE)	EN 61326-1	(2006)
2011/65/EU	(RoHs)	EN 61326-2-3	(2006)
		EN 55011 Class A	(2016)
		EN 50581	(2012)

petz industries GmbH & Co. KG

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Le Directeur

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