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for Future Generations

## IQT Range

IQT3 and IQT3 Pro

Instructions for  
battery backup options

 This manual must be consulted wherever this symbol is marked. This manual contains important safety information. Please ensure it is thoroughly read and understood before installing, operating or maintaining the equipment.

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### **Note:**

For simplicity, 'IQT3' and 'IQT3 Pro' actuators are referenced within this document as 'IQT'. All instructions in this manual apply to both product ranges.

## 1. Introduction

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The IQT battery backup actuator provides electrical operation after loss of main AC electrical supply, allowing the valve to be operated to a safe position or controlled for a period of up to 30 minutes. On loss of AC supply, power is provided from integral batteries located in an extended version of the terminal cover. With AC power applied to the actuator, the batteries are recharged from the actuator.

The IQT battery does not support analogue control, analogue position feedback or serial network control/communication during the backup condition. The monitor relay will de-energise on loss of AC supply.

There are five possible backup actions that can be customer configured using the actuator setting tool:

**Stop** - The actuator will not move and will not respond to standard remote control signals but local operation, indication and the status of the S1 – S4 configurable relays will continue to function.

**ESD** - The actuator will respond as if an ESD signal has been applied. Refer to PUB002-040, section 2.4 for full details. The ESD action will operate in local or remote modes plus local stop if the applicable override is configured.

**Close** - Close valve on loss of AC supply when actuator is in remote mode.

**Open** - Open valve on loss of AC supply when actuator is in remote mode.

**Disabled** - Not move on loss of AC supply.

The actuator can be directed to operate via local or standard remote control signals\* within 30 minutes of AC power being removed.

\*Remote signals must be applied to standard remote control inputs, close on terminal 33, open on terminal 35 or ESD on terminal 25. On loss of AC supply the IQT battery does not support customer nominal 24 VDC supply on terminals 4 (-ve) and 5 (+ve) and therefore if remote control is required during loss of AC supply (Disabled action), remote control signals must be externally powered. Refer to wiring diagram.

## **WARNING: Contains batteries**

**Fire, explosion and severe burn hazard. Do not short circuit. Do not incinerate. Do not disassemble battery pack. Recharge only as part of the actuator. Do not expose batteries to ambient temperatures above 60°C.**

**The IQT battery backup actuator contains high capacity batteries which are connected to actuator terminals 14 (+) and 21 (-). DC battery power may be supplied to these terminals when the AC electrical supply is switched on and switched off.**

For safety the IQT battery pack is shipped with DC power fuses FS3 and FS4 removed. It is essential that the fuses are removed before any maintenance work is carried out on the actuator or the battery assembly. Before fitting fuses FS3 and FS4 the IQT actuator must be commissioned in accordance with section 8, of PUB002-065.

## 2. Battery backup specification

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### **Environmental:**

Operating temperature -30 to + 60°C.  
Enclosure (IQT battery actuator):  
Watertight IP68 – 7m / 72 Hrs.

### **Battery pack:**

Type:  
Sealed lead–acid batteries located in a vented enclosure.  
Voltage & capacity: 28 V – 2.5 Ah.  
Float life: 8 years at 20°C, 3 years at 40° C.  
Storage life:  
2 years at 23°C, 2 months at 60° C.  
Battery pack assembly weight: 5.5 kg.

### **Charger:**

The IQT battery is despatched with the batteries in a charged state, however once the actuator is connected to AC power the batteries will automatically begin charging to bring them to the float charge state. For correct battery charging, the actuator supply voltage must not be less than 90% of nominal.

### **Charging time:**

Typically 4 hours from a discharged state (depending on ambient temperature).

**Charge state:**

The upper line of the main display will indicate charge status, along with the Battery Back Up menu. On loss of AC power, the state of the battery is not displayed.

**DC power supply:**

Fuses FS3 and FS4 are rated at 20A, automobile type ATO fast acting.

**Charge/control:**

Fuses FS1 and FS2 are rated 2 A, 20 mm quick blow. The battery supply will auto disconnect at 20 V or 30 minutes after AC supply is removed from the actuator to prevent damage caused by deep discharge of batteries.

**Maintenance:**

Ensure the two vents located in the battery pack cover are not removed, plugged or covered. The batteries are sealed lead acid type and require no maintenance. Refer to PUB002-065, section 9 for IQT range maintenance.

**Backup operation performance: Number of operations at 75% rated torque.**

Temp °C	IQT125	IQT250	IQT500	IQT1000	IQT2000
-30	15	12	6	3	1
-20	50	40	20	10	5
0	63	50	25	12	6
20	75	60	30	15	7
40	75	60	30	15	7
60	75	60	30	15	7

### 3. Battery backup commissioning instructions

Before commissioning the battery backup operation it is essential that the IQT actuator has first been commissioned in accordance with the instructions in PUB002-065.

#### 3.1 Fitting battery pack fuses

For safety the IQT battery pack is shipped with DC power fuses FS3 and FS4 removed. It is essential that the fuses are removed before any maintenance work is carried out on the actuator or the battery assembly.



Fig. 1

#### Remove cover

Ensure the AC power supply to the actuator is switched OFF. Using a 6mm Allen (hex.) key remove the four screws securing the IQT battery cover and remove cover from actuator housing (fig 1). The cover houses the battery pack and charging / control circuitry and care must be taken that it does not drop. Ensure the two 20 A fuses located in the parking terminal are kept safely (fig. 2).

The cover is restrained with an external chain to support its weight (approximately 5.5 kg) and prevent interconnecting cables being damaged. The battery cover assembly is supported by the restraining chain during commissioning.



Fig. 2

#### Fit battery fuses

Referring to the label, locate 20 A fuses FS3 and FS4 holders on the battery pack assembly. Remove 20 A fuses from parking terminal and fit into fuse holders FS3 and FS4 as shown (fig. 3)



Fig. 3

#### Refit cover

Make sure cover O-ring is fitted and the cover spigot is lightly greased. Refit cover making sure no field or interconnecting wires are trapped between cover and gearcase. Tighten the 4 fixing bolts using a 6 mm Allen (hex.) key. The battery pack is now electrically connected however, to enable operation, settings within the IQT actuator must now be made.

### 3.2 IQT actuator battery backup settings

For instructions on using the Bluetooth® commissioning tool and password entry, refer to PUB002-065. The actuator can be operated by standard remote control signals (open/close/interlocks/ESD) under AC supply control. On AC supply loss, the actuator will automatically perform as set in the Battery Back Up menu settings using battery power.

Navigate to Settings > Control > Battery Back Up to configure the required loss of power operation.

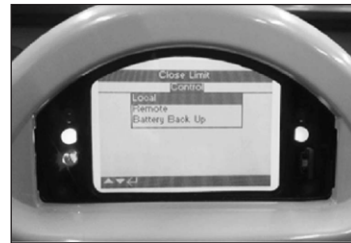


Fig. 4

The Battery Back Up submenu states the condition of the battery charge (fig. 5).



Fig. 5

### Select Mode

Enter the password if requested. The Mode setting allows the required AC supply loss function to be selected from the five options in the dropdown list (fig. 6).



Fig. 6

### Stop

The actuator will not move and will not respond to standard remote control signals but local operation, indication and the status of the S1 – S4 configurable relays will continue to function.

### ESD

The actuator will respond as if an ESD signal has been applied. The ESD action will operate in local or remote modes plus local stop if the applicable override is configured. Refer to PUB002-040, section 2.4 for full details.

### Close

Close valve on loss of AC supply when actuator is in remote mode.

### Open

Open valve on loss of AC supply when actuator is in remote mode.

### Disabled

Not move on loss of AC supply. The actuator can be directed to operate via local or standard remote control signals\* within 30 minutes of AC power being removed.

Highlight the required mode and press the enter key to select. To test the function, switch off AC supply to the actuator. The actuator will perform the configured action.

### NOTES

If ESD is being used for AC supply control the user must decide if ESD is to override local stop. If ESD override local stop is required this will need to be configured. Refer to PUB002-040, section 2.4 for full details.



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