

6.0 TABLES

Typical Motor FLC (3ph 50Hz)

KW	415V	KW	415V	KW	415V
0.55	1.5	22	41	186	325
1.1	2.5	30	55	200	340
1.5	3.5	37	69	220	385
2.2	5.0	45	80	250	425
4.0	8.4	55	100	280	475
5.5	11	75	140	315	535
7.5	14	90	166	355	580
11	21	110	200	400	650
15	28	150	268	500	820

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TQM2KD—30KW TO 90KW



INSTALLATION AND TECHNICAL INSTRUCTIONS



1.0 Safety

1.1 SAFETY CONSIDERATIONS The TQM2KD range of soft starters have been designed for application in industrial electrical power installations. Any safety instructions relating to installation or use of this device are described so that they can be understood by persons trained in Electrical Engineering. Such Personnel should have at their disposal the appropriate tools and test equipment to enable safe installation.

Such Personnel must obtain any particular or general permits relating to local regulations and meet any requirements regarding; *safety of personnel *environmental protection * product disposal * packaging disposal

NOTE

The safety measures outlined must remain in force at all times. Should questions or uncertainties arise please contact your supplier.

1.2 USERS RESPONSIBILITY

Dangerous voltages exist within the soft start unit always isolate the power before any service or maintenance work is carried out

- ◆ Do not MEGGER any part of the soft start unit
- ◆ Do not fit power factor capacitors on the output side of the soft starter
- ◆ Do not remove any terminal covers before isolating the power.
- ◆ Always refit any covers on the live side of the isolator

The TQM2KD series is pre-set with the correct settings in order to start and protect the motor. In the case of anything other than a 4 pole motor the user may need to alter the full load current setting to match the actual motor name-plate. In this case follow the instructions in section **3.0**

1.3 Standards

The unit is manufactured in accordance with the following standards

- ◆ IEC 947-4-2
- ◆ EN 60 204-1
- ◆ EN 50081-2 EMC Emissions
- ◆ EN 50081-1 EMC Emissions with by-pass
- ◆ EN 50082-2 EMC Immunity

5.0 Trouble shooting guide

5.1 LCD display does not 'light-up'

- ⇒ Check control fuses.
- ⇒ Check display lead is not damaged or come loose.

5.2 motor does not start with the pushbutton.

- ⇒ Check that the multicore cable is connected at the door and the PCB
- ⇒ Check the control fuses.

5.3 Display shows 'firing fault' or 'phase fault'

- ⇒ Check all three phases are present
- ⇒ Check that the motor is connected

5.4 Display shows 'shearpin trip'

- ⇒ Check that the motor is not stalled
- ⇒ Check that the internal by-pass contactor is not siezed
- ⇒ Check that there is no cable damage.

5.5 Display shows 'overload fault'

- ⇒ Check that the ratings of motor and starter are matched.
- ⇒ Is the motor exceeding it's full load current

5.6 Display shows 'too many starts'

- ⇒ The starter has exceeded it's duty cycle of starts.

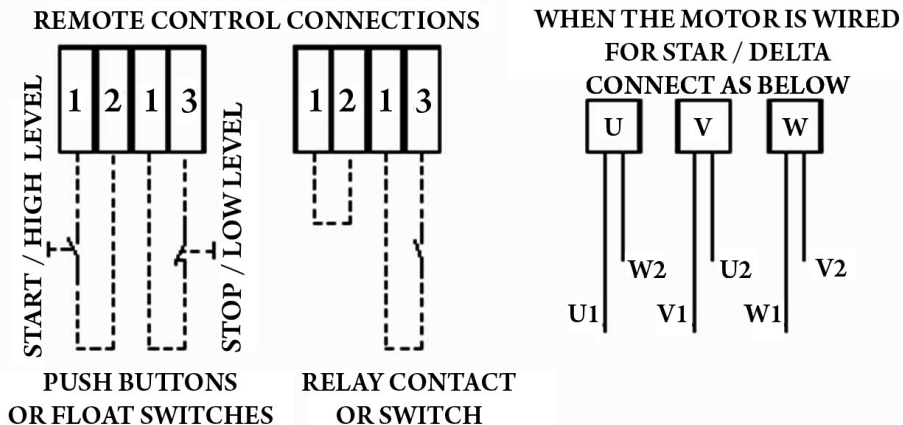
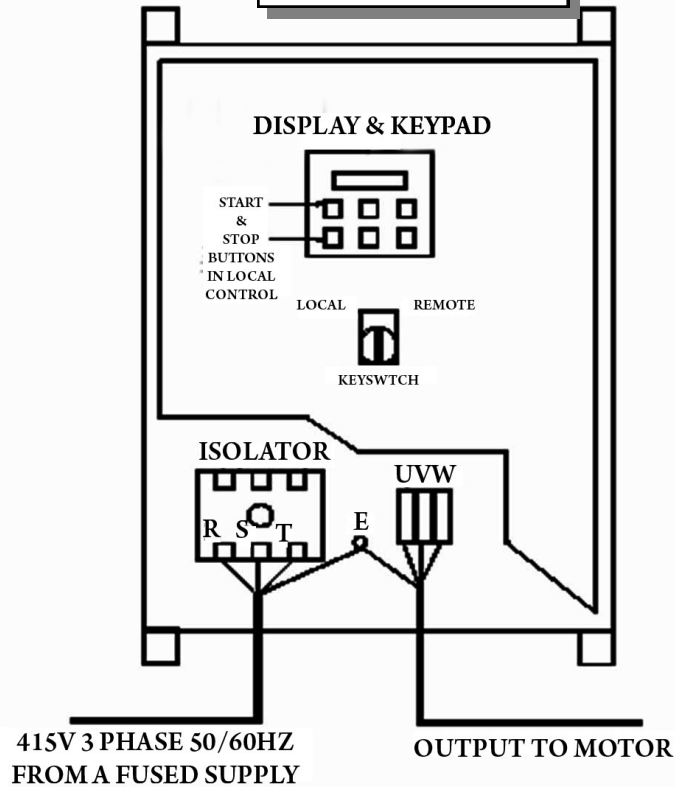
There are other displays that may show, but the above covers most of the common trip and fault messages

Please note that there are many more features contained within the Ralspeed soft starter but the TQM2KD range is designed as a stand alone starter .

The stop\start push button on the front of the starter is the local means of control and is at 24v+ potential .

The remote connections are also at 24v+ and should not be taken too far from the panel. Consult Ralspeed if in any doubt

4.0 Diagrams



2.0 Installation

2.1 UNIT TYPE After unpacking the soft starter the user should check the following:

- ◆ No obvious damage
- ◆ That the unit is of the correct power (details inside the panel)
- ◆ The 'T' bar type door key is not missing.
- ◆ Check that the test certificate is included with the documentation.

2.2 LOCATION The TQM2KD range is designed as a wall or frame mounting unit. It has a protection class of IP54 and care should be taken when drilling the gland plate that this protection is not compromised.

The starters are quite heavy and the user must ensure that the correct fixings are used in order to provide a safe and secure installation.

The starter should be mounted in a vertical position and not subjected to extremes of temperature, vibration or direct water splashes.

2.3 CABLING Mains input and motor output cables are terminated at the bottom of the starter through the removable gland plate.

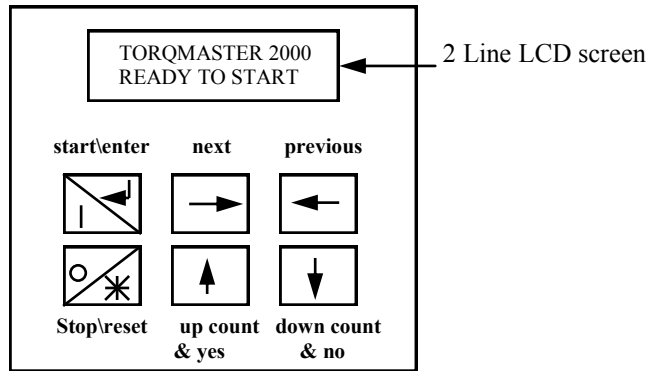
The starter is designed to accept **380 – 415v + or – 10% 50/60 HZ** from a fused supply, although lower voltages may not cause damage, voltages above 456v may cause severe damage to the PCB and/or the Thyristors.

The mains power is wired direct to the isolator and the motor to terminals or in the case of the 75 and 90kw units to the contactor extension bus-bars. No control supply is required as this is derived internally through the two control fuses. Please note after connections are complete any terminal shrouds must be re-fitted. Please note the starter **must be earthed**. Under no circumstances should the starter be run without a proper earth connection.

There is a 40mm deep cable 'tunnel' running down the back of the starter and this may be used to run power cables. The heatsink which is also in this same 'tunnel' does not get hot.

2.4 MOTOR CONFIGURATIONS In some retrofit situations the motor will have been controlled from a star/delta starter and there will be 6wires to the motor. In this case the user will either have to run new cables or as is more usual double-up the wires into a **DELTA** configuration. The sequence should be U1&W2 V1&U2 W1&V2

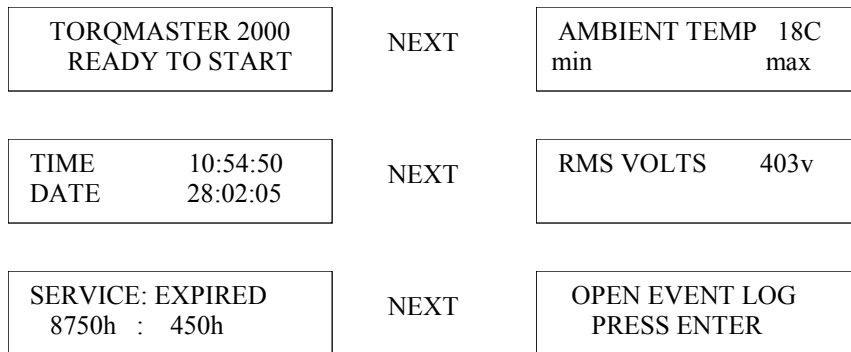
3.0 LCD Display & menus



3.1 POWER-UP When power is applied the screen will show as above. This shows that the starter has done a power-up check and is ready to start. At this point the user has a choice of accessing further information screens, starting the unit or entering the user menu in order to make changes.

3.2 INFORMATION SCREENS

From this first screen press NEXT and the following screens will appear



The last screen enables the user to open the event log and view up to 1000 events. Each event is timed and dated. To exit the log and return to the READY TO START screen press the STOP/RESET button once

3.0 LCD Display & menus-cont

3.3 MENU SETTINGS The TQM2KD range of soft starters comes ready set up with the correct full load current setting and a 10 second voltage ramp. These settings will run the majority of applications and in most cases need never be changed.

If it becomes necessary to alter any of the settings proceed as follows: From the READY TO START screen hold down the STOP/RESET key for 4 seconds – the display changes and asks for a PIN No

Use the UP arrow key to increment the display to 17 and then press NEXT

TORQ-MASTER 2000
ENTER PIN NO 17

NEXT

In this screen the user can alter the FLC setting by using the UP/DOWN keys

TORQ-MASTER 2000
SET FLC 1 85A

NEXT

Unless the user is having trouble with over-load trips during ramping these settings should not be altered.

CHOOSE O/L CURVE
A B C D E

NEXT

The next three screens show the settings for the voltage ramp. The voltage ramp is set at the factory and the user must consult the supplier before attempting any changes

RAMP TYPE
VOLTAGE Y

RAMP UP 10S
KICK TIME 0mS

PEDESTAL 40%
TARGET 100%

The last two screens in the USER MENU are concerned with LOCAL/REMOTE control and SOFT STOP. The unit is set for a free-wheel stop but this can be changed to soft stop. Please consult your supplier

START \ STOP
TERMINAL

STOP MODE E