

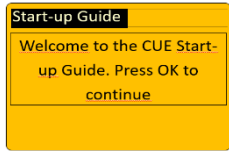
Start-up guide

**Check that equipment connected is ready for start-up, and that the CUE has been connected to the power supply.
Have nameplate data for motor, pump and CUE at hand.**

Use the start-up guide for main settings.

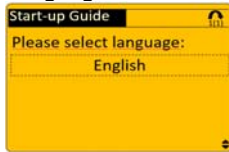
The start-up guide is started the first time when the CUE is connected to the power supply. It can be restarted from FAVOURITE menu. (sub-menu Q5 Start-up Guide)

Welcome screen



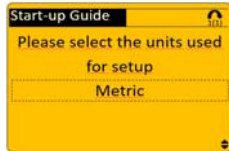
Press OK. You will now be guided through the start-up guide.

Language



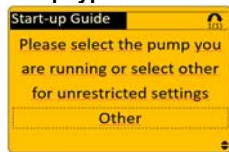
Press the OK button to choose the desired language and then down arrow key for the coming steps.

Units



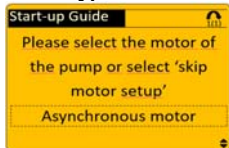
Select the unit dependant on the region CUE is installed.

Pump types



Bundle the settings via selecting specific pump type or unrestricted them by selecting "Other".

Motor types

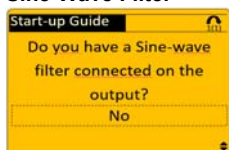


Select the required motor type and follow the start-up guide.

1. Asynchronous motor
 2. PM Assisted Sync. Reluctance motor
 3. IPM motor
 4. SPM motor
- It is possible to skip the motor settings and thermal protection parameters.

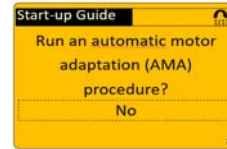
Based on motor type, the related parameters will appear for adjustment. (Not shown in this guide as there are different possibilities)

Sine-Wave Filter



If there is mounted a sine wave filter, then by selecting YES, switching frequency need to be defined in next screen.
Here it's been assumed that there is no sine wave filter installed.

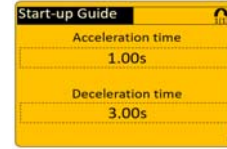
Run AMA



Motor should be properly connected to CUE. AMA, Measure the electrical characteristics of the motor to provide an accurate electronic model of motor and doesn't cause the motor to run.

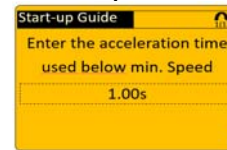
By selecting "Yes" wizard, guides user to the next steps.

Acceleration & Deceleration time



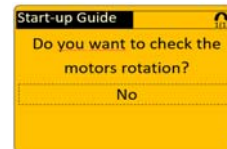
Enter Acc. & Dec. time from 0 RPM to rated motor speed and from rated motor speed to 0 RPM.

Initial ramp time



Ramp time between 0 RPM and minimum speed.

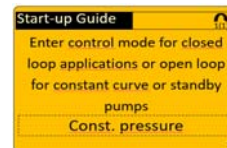
Direction of rotation check



It's been put in the CUE as a default. Double check the direction of rotation by selecting Yes if it's needed and follow the steps after that.

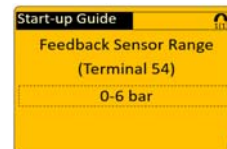
- In case that pump family selected to "other", there will be two screens after direction check:
 - o Min frequency
 - o Max frequency

Control Mode



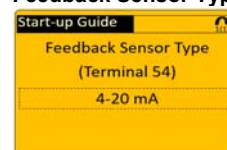
Select the relevant control mode for desired application. It's been pre-set according to the pump family which user has selected already.

Feedback Sensor Range



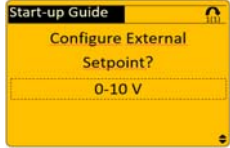
This screen will be shown if user has chosen one of the closed loop control modes.

Feedback Sensor Type



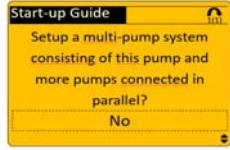
After choosing sensor range, user needs to select electrical signal range which should be selected according to dip switch adjustment.

External Setpoint configuration



The setpoint can be influenced by the external setpoint input and the electrical signal must be configured in this step.

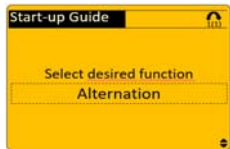
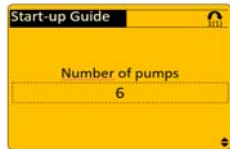
Multi-pump Configuration (via Modbus RTU)



Here is possible to set up a multi pump in parallel.

1. Variable speed pumps only: Alternation, Backup, Cascade
2. Variable and Fixed speed pumps

According to configuration no.1 and number of pumps select one the following setps for:



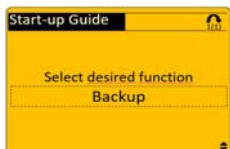
Pre-defined settings via choosing "Alternation":

Set-up 1 (master – closed loop):

Par. 0-10 Active Set-up = Multi Set-up
Par. 0-12 Linked to = Set-up 2
Par. 0-24 Display Line 3 = Cascade system status
Par. 8-30 Protocol = [23] Modbus Multi Master
Par. 27-10 = Master / Follower
Par. 27-11 Number of drives = 2
Par. 27-13 Max no of pumps running = 1
Par. 27-52 Alternation Time = 1440min (24hours)

Set-up 2 (follower – Open loop):

Par. 0-12 Linked to = Set-up 1
Par. 0-21 Display Line 1.2 = None
Par. 0-24 Display Line 3 = None
Par. 200-08 Control Mode = Open Loop
Par. 200-44 Factor Fmax/Fnom = 100%
Par. 200-06 Operating mode = Stop



Pre-defined settings "Backup":

Set-up 1 (master – closed loop):

Par. 0-10 Active Set-up = Multi Set-up
Par. 0-12 Linked to = Set-up 2
Par. 0-24 Display Line 3 = Cascade system status
Par. 8-30 Protocol = [23] Modbus Multi Master
Par. 27-10 = Master / Follower
Par. 27-11 Number of drives = 2
Par. 27-13 Max no of pumps running = 1
Par. 27-52 Alternation Time = 0 (Disabled)

Set-up 2 (follower – Open loop):

Par. 0-12 Linked to = Set-up 1
Par. 0-21 Display Line 1.2 = None
Par. 0-24 Display Line 3 = None
Par. 200-08 Control Mode = Open Loop
Par. 200-44 Factor Fmax/Fnom = 100%
Par. 200-06 Operating mode = Stop



Pre-defined settings via choosing "Cascade":

Set-up 1 (master – closed loop):

Par. 0-10 Active Set-up = Multi Set-up
Par. 0-12 Linked to = Set-up 2
Par. 0-24 Display Line 3 = Cascade system status
Par. 8-30 Protocol = [23] Modbus Multi Master
Par. 27-10 = Master / Follower
Par. 27-11 Number of drives = 2
Par. 27-13 Max no of pumps running = 2
Par. 27-52 Alternation Time = 0 (Disabled)

Set-up 2 (follower – Open loop):

Par. 0-12 Linked to = Set-up 1
Par. 0-21 Display Line 1.2 = None
Par. 0-24 Display Line 3 = None
Par. 200-08 Control Mode = Open Loop
Par. 200-44 Factor Fmax/Fnom = 100%
Par. 200-06 Operating mode = Stop

In case that there are more than 2 pumps needed and MCO101 has been mounted, the settings will be applied is in below:

Set-up 1 (master – closed loop):

Par. 0-10 Active Set-up = Multi Set-up
Par. 0-12 Linked to = Set-up 2
Par. 0-24 Display Line 3 = Cascade system status
Par. 8-30 Protocol = [23] Modbus Multi Master
Par. 27-10 = Master / Follower

Set-up 2 (follower – Open loop):

Par. 0-12 Linked to = Set-up 1
Par. 200-08 Control Mode = Open Loop
Par. 200-44 Factor Fmax/Fnom = 100%
Par. 200-06 Operating mode = Stop

If variable & fixed speed is needed, the configuration in below will be pre-defined:

Set-up 1:

Par. 0-24 Display Line 3 = Cascade system status

Par. 27-10: Mixed Pump

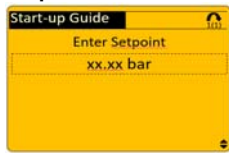
Par. 27-11: Number of drives = 1

Par. 27-70 [0] = Pump 2 to Mains //Relay 1

Par. 5-40 [0] = Cascade Extension

Set-up 2 not needed.

Setpoint



Enter the setpoint value based on selected control mode and feedback sensor.

Finish screen



By pressing OK button, drive is ready to run the pump(s).