

Conveyor system X45

Parameter settings tool

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1 Summary

This application is used for the integrated motor units only. It can be used for downloading the application program and also for adjusting parameters in order to change the behaviour of the units.

2 Hardware

To be able to use this software you need a laptop with an ability to connect to a CANopen network.

The laptop must meet the following requirements to work properly:

- Windows XP
- Minimum one USB connection (2.0)

This software is also a part of a FlexLink article called Parameter setting tool kit which consists of the following components:

- CANopen USB cable: Kvaser Leaf Light HS
- Adapter cable: FBA-CO-SUB-9-M12
- CD-ROM with software and documentation

3 Software

The latest version of the Parameter setting tool can be downloaded from www.flexlink.com.

4 Installation

With this accessories kit the software with all the appropriate files are included.

In order to make the parameter software to work properly follow these steps:

- 1 Copy the folder called F-ECO to the target computer.
- 2 Kvaser leaf light – USB CANopen cable

Please install the drivers then install your Kvaser hardware:

- Run the driver installation program and follow the on-screen instructions
- Plug in your Kvaser hardware
- The found New Hardware Wizard will detect and install your kvaser hardware
- Confirm hardware installation by opening the Control Panel applet “Kvaser Hardware” and checking that your hardware is in the list. Here you can also check the hardware’s firmware version to determine if an update is available.

After this you can use the cable but only using this USB port. If the cable is connected to another port these steps has to be completed all over again.

3 Parameter software

The next step is to install the parameter software. Double click on the following file:

...\F-ECO\feg_exe\lv86runtime.msi and follow the instruction to complete the installation

After this step you are asked to reboot your system.

5 Connect

There are two possibilities to connect to the motors.

5.1 Internal bus, B-bus

The first alternative is to connect directly to each motor's internal bus, B-bus. Then you connect the laptop with the USB dongle to the motor (connection X2) via the adapter cable (Festo, D-sub to M12). In the parameter software you chose B-bus on the interface menu. The tool can only reach the connected motor. In order to download the ECO software you have to use this alternative.

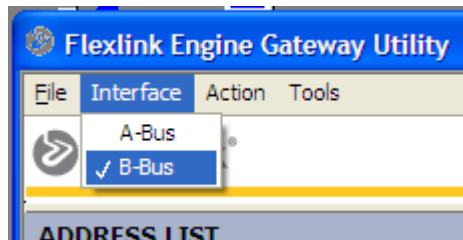


Figure 1 B-Bus

5.2 External bus, A-bus

The second alternative is to connect to the external bus (A-bus) instead. In this case you have to disconnect a line control master because there has to be only one CANopen master on the network simultaneously. It is important to keep the network powered up if the line controller master is disconnected.

Picture: Power on CANopen network

5.3 Scan for units

After the appropriate cables are in place we need to identify active units on the network. This is done by the command “Scan for units” and can be reached from the Tools-menu or direct with the function button F12. If the A bus is used every motor has one function controller showing on the display. If the B-bus is used only the function controller of the connected is showing. On the other hand the drive controller of this motor is also displayed. These node status are displayed regardless of which menu is chosen later on.

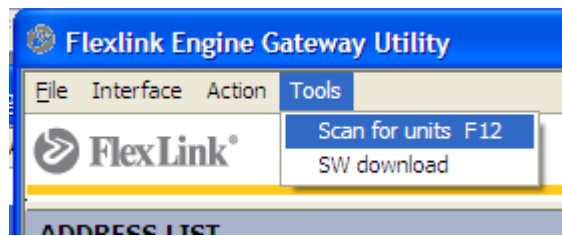


Figure 2 Picture: Scan for units

6 Software download

If we want to download the software to either the drive control or the function control it is possible with the SW download command. This can be reached from the tools-menu. When this command is sent we reach the Software download screen. Here we can chose which file to download to the function control software (FEG SW) and which to download to the drive control (ECO SW).

	Function motor	Drive Motor
FEG SW	<i>Feg_R32C_release.mot</i>	<i>Feg_R32C_release.mot</i>
ECO SW	<i>A_STEP_A_7.mot</i>	<i>A_PM_A_8.mot</i>

Table 1 Software file names

During the downloading of the software there is a feedback from the LEDs on the motor.

	Function motor	LED colour	Interval
1	Downloading FEG SW	<i>green/red</i>	<i>fast flashing</i>
2	Downloading FEG SW	<i>green</i>	<i>fast flashing</i>
3	Rebooting	<i>green</i>	<i>slow flashing</i>
4	Running	<i>green</i>	<i>fixed</i>

Table 2 Feedback from the LED

7 Adjusting parameters

7.1 Get Parameters

In the menu Action it is possible to choose get parameters. This command has also a function key, F9. After succeeding with this operation all parameters of the motor are shown in the window under the column “online value”. If several motors are interconnected together with the computer on the external bus all parameters from all motors are shown.

7.2 Set parameters

In order adjust the parameters you can write a new value under the column “New value” and chose Set parameters in the menu Action.

7.3 List of parameters

NodeId	
MotorType	
FunctionMode	
PDOTimer	
Calibrate	
Homing	
HomingSpeed	
HomingType	
Speed	
Torque	
ReceiveAngleA	
ReceiveAngleB	
ReleaseAngleA	
ReleaseAngleB	
WaitAngleAfterARel	
WaitAngleAfterBRel	
IncRamp	
DecRamp	
EnableDrive	
ClearErrors	
SlaveOpMode	
TestModes	
FunctionParameter1	
FunctionParameter2	
FunctionParameter3	
FunctionParameter4	
TimeA	
TimeB	

This table will be completed with detailed information on each of these parameters in the next revision.

7.4 Parameter files

The parameters corresponding to the one or more motors can be saved in an .xml-file for later use. Mark every node you want to receive parameters from. Choose the get parameter command. Then you can choose Save or Save as command for saving these parameters into an .xml-file. There is also a possibility to change the comment column directly in the window. This is also saved in the file.

In order to store a previously saved parameter file in a single motor or a system, open the file with the open command under the File menu. Then the column New value are updated from the file. Execute the parameter setting by the command set parameters. Then the New value column disappears and the same data appears under the column online value.

8 Calibration

All M2 motors has to be calibrated in order to receive a known zero position.

- 1 The *Calibrate* page can be found under the menu *Tools*.
- 2 In the address field the correct motor address should be filled in.
- 3 When the button
- 4 *enable calibration* is pressed the calibrate function is activated.
- 5 The motor unit can then be set in the accurate position by stepping up and down with the arrows. Look in the user documentation for the correct angle for each function.
- 6 To save this value the button
- 7 *set home position* is pressed.

After this the default parameter file can be downloaded and the unit should work fairly well. In order to achieve higher performance the parameters can be fine tuned manually.

9 Diagnosis

The *Diagnosis* page can be found under the menu *Tools*.

This functionality work only when the motor is reached via the external bus, A-bus.

Set the address of the unit to be examined.

9.1 Digital inputs

All four digital inputs (DI 1 – DI 4) are monitored. These green indicators are lit up when the input receives a signal.

9.2 State

All function motors (stepper motors) have an internal state handling in the software.

This can be monitored by reading out the state of the program continuously.

0	Idle
1	Init
2	Pre turn
3	During turn
4	Post turn
5	Calibration

9.3 In position

The motor has always a wanted position (setpoint) and a actual position (feedback sensor). If these two are close within a set tolerance the green *In position* indication is lit up.

