LinMot®

Documentation of the Command Table IO interface for the following Controllers:

- **E1100-GP, E1100-GP-HC, E1100-GP-XC**

Command Table IO Interface
V3.9
User Manual

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1 System Overview

The Command Table IO Interface SW is an easy to use SW with the following functionality:

- Smart Control Word behavior (Enable, Home and Error Acknowledge over one single IO possible)
- Mapping of the X6 inputs to access the motion command table
- Mapping of the X6 outputs for system feedback of its state

All this functionality can be wired to the X6 connector that is available on the E1100-GP servo controllers.

2 Activating and Deactivating of the Command Table IO Interface

Over the interface switch on the S3.4 the command table IO interface SW can be activated (switched on) or deactivated (switch off), like all other interface SW on the E1100 servo controller series.

S3
On - Off

Interface	▮ 4
CAN Term	▯ 3
RS485 Term	▯ 2
RS485/232	▯ 1

3 Smart Control Word Behavior

All control word actions, which are configured in the EasySteps software, affect the interface control word bits. So if a control word bit is mapped to a X4 IO or is forced by parameter, this still has priority and the behavior rests unchanged.

5.1 Intf Switch On Flag Behavior

It is strongly recommended to influence the control word bit 0 'Switch On' over a serial bus connection or a digital input. For a test system it might be helpful if the system starts up automatically when switched on. For this case the switch on flag can be set to autostart.

5.2 Intf Home Flag Behavior

Setting the Intf Home Flag Behavior to 'Autohome' starts automatically the homing if the state 8 'Operation Enabled' is reached and the status word bit 11 'Homed' is cleared. When the homing procedure has finished the interface control word bit 11 'Home' is cleared and the state 8 is entered again.

5.3 Intf Error Acknowledge Flag Behavior

Setting the Intf Error Acknowledge Flag Behavior to '/Switch On Flag' sets the interface control word bit 7 'Error Acknowledge' when releasing the 'Switch On' Flag.

5.4 Intf Go To Initial Pos Flag Behavior

Setting the Intf Go to Initial Pos Flag Behavior to 'Enter Operation Enabled' sets the interface Control Word bit 13 'Go To Initial Position' in state 'Ready to Operate' (State: 6), normal operation of this behavior is to move to the 'Initial position' after enabling.

4 Motion Command Table

The second and main functionality of the command table IO interface SW is to access the command table through the X6 inputs. Two different evaluation modes are available:

- Coded States 0..255 with settling time
- Coded States 0..255 with Eval on X6.5

In both modes the table below defines the mapping of the inputs to the command table ID bits.

X6 input pin	Command Table ID bit
X6.1	Bit 0
X6.14	Bit 1
X6.2	Bit 2
X6.15	Bit 3
X6.3	Bit 4
X6.16	Bit 5
X6.4	Bit 6
X6.17	Bit 7

In the first mode with the settling time parameter, the inputs have to be stable for the defined settling time (UPID: 2300h) until the command is evaluated.

In the second mode the ID inputs are captured on a rising edge of the input X6.5. The input X6.5 can be filtered (UID: 2301h) and inhibited (UPID 2302h).

5 X6 Output Feedback

The eight output signals on the X6 connector can be configured for different demands to the feedback. The table below shows the default configuration of the X6 outputs

X6 output pin	UPID	Command Table ID bit
X6.9	2400h	Op. Main State Bit 0
X6.22	2500h	Op. Main State Bit 1
X6.10	2600h	Op. Main State Bit 2
X6.23	2700h	Op. Main State Bit 3
X6.11	2800h	None
X6.24	2900h	Status Word bit 'Motion Active'
X6.12	2A00h	Status Word bit 'In Target Position'
X6.25	2B00h	Status Word bit 'Event Handler Active'

With the first four output bits (X6.9, X6.22, X6.10 and X6.22) a direct monitoring of the main state is possible. Also a transition to the error state can be detected. The output X6.24 is high if a motion is active, X6.12 is high if no motion is active and the target position is reached within the configurable limit (UPID 1470h, 147Ch and 1471h). The output X6.25 indicates if the event handler is active, e.g. during a sequence of motion commands in the motion command table.

5.5 Override Functions for Outputs on X6

For the inputs X6.18 and X6.6 override functions for the X6 outputs can be defined, e.g. if the input on X6.18 is high the outputs on X6 have not the configured mapping but show the error code.
The table below shows the default configuration of the override function.

X6 input pin	UPID	X6 output Override function
X6.18	2230h	Show error code
X6.6	2240h	None

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