



**Documentation of the MasterSlave Application of the  
following Controllers:**

- E1100-GP (-HC)
- E1130-DP (-HC, -XC)
- E1100-RS (-HC, -XC)
- E1100-DN (-HC, -XC)
- E1100-CO (-HC, -XC)



**MasterSlave V3.7**  
User Manual

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## 1. System Overview

The MasterSlave Application SW is an easy to use SW for following applications:

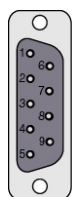
- Current master motor with one current slave motor to double force
- Gantry master motor with one gantry slave motor which has the same position setpoint

The MasterSlave Application SW supports the Master/Slave linked either Over the CAN-Bus (X7/X8 or X10/X11) or over the RS485 (only X7/X8). For the CAN-Bus interfaces like CAN-Open or DeviceNet the RS485 based linked has to be used for all other interfaces the CAN-Bus linked mode should be used, the RS232-maintenance link on X5 Connector is still available.

## 2. Connecting the CAN bus

### Pin Assignment of the COM Connector:

DSBU 9 male:



Pin 1	RS-485 Y	Pin 6	RS-485 B
Pin 2	RS-232 TX	Pin 7	RS-485 Z
Pin 3	RS-232 RX	<b>Pin 8</b>	<b>CAN L</b>
Pin 4	RS-485 A	<b>Pin 9</b>	<b>CAN H</b>
<b>Pin 5</b>	<b>GND</b>		

### Pin Assignment of the CMD Connectors X7/X8 :

The CMD connector exists only at the E1100-DP(-HC) and E1100-RS(-HC) controllers, 2xRJ45 with 1:1 connected signals. Standard twisted pairs: 1/2, 3/6, 4/5, 7/8. Use Ethernet cables according the EIA / TIA 568A standard (Art. Nr. 0150-1853). Over the X7/X8 the CAN-Bus linked or the RS485 linked Master/Slave mode could be used.



Pin 1	RS485 A
Pin 2	RS485 B
Pin 3	RS485 Y
<b>Pin 4/5</b>	<b>Ground</b>
Pin 6	RS485 Z
<b>Pin 7</b>	<b>CAN H</b>
<b>Pin 8</b>	<b>CAN L</b>

## Pin Assignment of the Master Encoder Connectors X10/X11 for the GP servos:

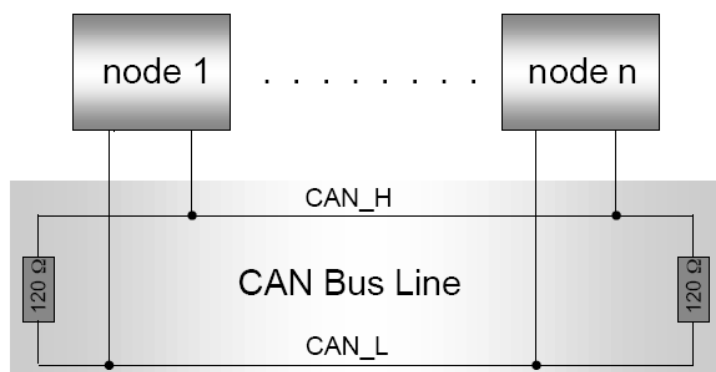
With the E1100-GP(-HC) controllers, the CAN bus is also available on the two RJ45 connectors X10 (ME IN) and X11 (ME OUT) with 1:1 connected signals. Standard twisted pairs: 1/2, 3/6, 4/5, 7/8. Use Ethernet cables according the EIA / TIA 568A standard to loop through the CAN bus over this connector (Art. Nr. 0150-1852). Over the X10/X11 connection only the CAN-Bus linked Master/Slave mode could be used!



Pin 1	A
Pin 2	/A
Pin 3	B
Pin 4	Z
PIN 5	/Z
Pin 6	/B
<b>Pin 7</b>	<b>CAN H</b>
<b>Pin 8</b>	<b>CAN L</b>

## CAN/RS 485 Termination

The CAN bus must be terminated by two 120 Ohm resistors at both ends of the bus line, according the following scheme:



For easy installation, the LinMot E1100 controllers have built in termination resistors, which have to be activated on both the master and the slave servo, using the Master/Slave application SW over CAN bus and the RS 485 link.

S3	
<u>On-Off</u>	
Interface	<input type="checkbox"/> 4
CAN Term	<input type="checkbox"/> 3
RS485 Term	<input type="checkbox"/> 2
RS485/232	<input type="checkbox"/> 1

The built in termination resistor for the CAN bus can be activated by setting the dip switch “CAN Term” to “ON”. The built in termination resistor for the RS 485 bus can be activated by setting the dip switch “RS485 Term” to “ON”.

### **3. Using the Master/Slave SW**

To install the Master/Slave Application SW start the LinMot-Talk1100 SW, or if already started and logged in logout, then push the Install Firmware button, select the installation script under:

```
//Firmware/Applications/MasterSlave/MasterSlave_V3Sxxyy.sct
```

The same Master/Slave application SW has to be loaded to both the master servo controller and the slave servo controller.

Select the needed serial link CAN or RS 485 (UPID3100).

After the Master/Slave application SW is installed log in the Servo and Select the correct Master Slave Mode (UPID 30D4h) on both servo controllers. The rest could be leave as configured as default.

After power up the master servo controller try to connect to its slave controller, when it succeed to connect to the slave, the application Warn Flag bit 15 vanish ant the connection state (UPID 3A98h or 3A99h) changes to 1 which means 'Data Exchange'.

The state of the slave servo controller could be monitored over the variable Slave State Var (UPID 3B70h).

Though the slave servo is in a streaming mode (current or position) in state 8 'Operation Enabled' the bit 5 'Motion Active' normally is set and bit 6 'In Target Position' is cleared in the Slave State Var. But bit 8 'Homed ' indicates if the slave servo has correctly homed or not.

The slave state machine is controlled from the master, so if connecting a serial fieldbus link to the slave servo for monitoring reasons, take care to **not write to the control word of the slave**. So with Profibus DP interface do not configure the control status module, the status word could be monitored word over a monitoring channel with UPID 1D51h.

#### 4. Master Slave Parameters

The Master/Slave Servo Controllers have an additional parameter tree branch, which can be configured with the distributed LinMot-Talk1100 software. With these parameters, the Master/Slave behaviour can be configured. The software LinMot-Talk1100 can be downloaded from <http://www.linmot.com> under the section download, software & manuals.

**Master Slave Mode** defines the master/slave behaviour of the controller.

Master Slave Appl\ Serial Link Selection	
CAN [0]	MasterSlave communication over CAN bus 1Mbaud.
RS485[1]	MasterSlave communication over RS485.

**Master Slave Mode** defines the master/slave behaviour of the controller.

Master Slave Appl\ Master Slave Mode	
Disable [0]	Servo controller runs without Master Slave behaviour.
Current Master[1]	Servo controller acts as current master
Current Slave [2]	Servo controller acts as current slave
Gantry Master [3]	Servo controller acts as gantry master
Gantry Slave [4]	Servo controller acts as gantry slave

**Master Config** In this section the further master configurations are done.

**Master MACID** The ID of the master servo, default = 1, should not be changed

**Slave Config** In this section the further master configurations are done.

**Slave MACID** The ID of the slave servo, default = 2, should not be changed

**Direction** Coose 'Normal' if the slave is mounted in the same way like the master and moves in the same direction as the master, otherwise 'Inverted'.

**CAN Baud Rate** In this section the CAN baud rate is configured.

#### Baud Rate Parameter Definition

The CAN Baud rate is fixed to 1M baud by this parameter.

## 5. Contact Addresses

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