



## ***EC Motors with LinMot Drives***

**Documentation of how to control EC Motors with  
LinMot Drives**



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**EC Motors with  
B1100 / C1100 / C1200 / E1100 / E1200  
Series Drives**

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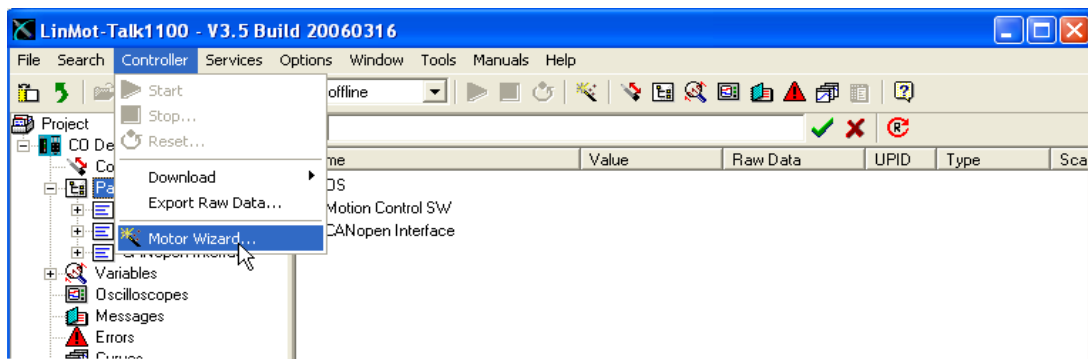
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## 1 Introduction

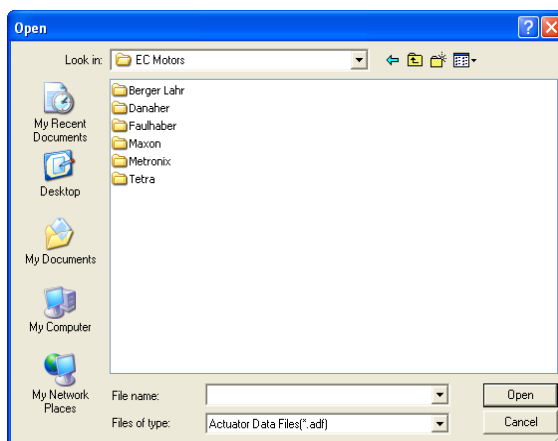
Since LinMot-Talk software release 3.4 it is possible to run 3 phase rotary EC motors on E1100 series drives. B1100 drives support this feature as well since software release 3.7. E1200 series drives can control EC motors from software release 3.11.

## 2 Configuration

The rotary EC motors are configured by using the LinMot-Talk software. For a couple of motor types LinMot provides actuator definition files (\*.adf). With such an ADF-file the motor configuration can be done by using the *Motor Wizard* tool of the LinMot-Talk software.



You will find the EC motor ADF-files in the subdirectory \Motors\Other Motors\EC Motors of your LinMot-Talk installation.



After you have selected an EC motor ADF-file, the *Motor Wizard* will guide you step by step through the configuration.

### 3 Motors with ADF-File

#### 3.1 Berger Lahr RECM

Supported Types: RECM 372/4 DC048 xl  
 RECM 374/4 DC048 xl  
 RECM 375/4 DC060 xl  
 RECM 377/4 DC060 xl

Feedback: Hall switches & ABZ encoder

Commutation: - Based on hall switches until first Z pulse from encoder  
 - Based on encoder signals afterwards (sine commutation)

Position Control: - Based on feedback from ABZ encoder

Wiring:

	B1100	C1100 C1200	E1100	E1200
Motor Phases U,V,W and PE Earth	X2 or X3	X2 or X3	X2 or X3	X2
Hall Switches U, V, W	X13	X13	X10 U → A V → B W → Z	X13
RS422 ABZ Encoder Signals	X13	X13	X12	X13
Sensor supply (5V) from	X13	X13	X12	X13

See also chapter 4 "Sensor and differential Hall Switches Wiring".

### 3.2 Faulhaber EC Motors

Supported Types: 1628 T 024 B K1155  
 2036 U 024 B K1155  
 2036 U 036 B K1155  
 2444 S 024 B K1155  
 2444 S 048 B K1155  
 3056 K 024 B K1155  
 3056 K 036 B K1155  
 3564 K 024 B K1155  
 3564 K 036 B K1155  
 4490 H 024 B K1155  
 4490 H 048 B K1155

LM 1247 – 020 - 01  
 LM 1247 – 080 - 01  
 LM 1247 – 120 - 01

LM 2070 – 040 - 01  
 LM 2070 – 120 - 01

Feedback: Analog hall sensors & optional encoder

Commutation: - Based on hall sensor signals

Position Control: - Based on hall sensor signals or optional encoder

Wiring:

	B1100	C1100 C1200	E1100	E1200
Motor Phases A,B,C A → U B → V C → W	X2 or X3	X2 or X3	X2 or X3	X2
Hall Sensors A,B,C A → X3.4 B → X3.9 C → do not connect!	X3	X3	X3	X3
Optional Encoder	X13	X13	X12	X13

### 3.3 Metronix APM Servo Motors (e.g. from Elmo Motion Control)

Supported Types: APM SA01ACN-9  
APM SB03ADK-9

Feedback: Hall switches & ABZ encoder

Commutation: - Based on hall switches until first Z pulse from encoder  
- Based on encoder signals afterwards (sine commutation)

Position Control: - Based on feedback from ABZ encoder

Wiring:

	B1100	C1100 C1200	E1100	E1200
Motor Phases U,V,W and Ground	X2 or X3	X2 or X3	X2 or X3	X2
Hall Switches U, V, W	X13	X13	X10 U → A V → B W → Z	X13
RS422 ABZ Encoder Signals	X13	X13	X12	X13
Sensor supply (5V) from	X13	X13	X12	X13

See also chapter 4 “Sensor and differential Hall Switches Wiring”.

### 3.4 Motor Power Company Tetra Brushless Servo Motors

Supported Types: T56SR1.35.E.L.08  
T85SR2.2.E.L.12

Feedback: Hall Switches & ABZ Encoder

Commutation: - Based on Hall Switches until first Z pulse from Encoder  
- Based on Encoder signals afterwards (Sine Commutation)

Position Control: - Based on feedback from ABZ encoder

Wiring:

	B1100	C1100 C1200	E1100	E1200
Motor Phases U,V,W and Earth	X2 or X3	X2 or X3	X2 or X3	X2
Hall Switches U, V, W	X13	X13	X10 U → A V → B W → Z	X13
RS422 ABZ Encoder Signals	X13	X13	X12	X13
Sensor supply (5V) from	X13	X13	X12	X13



### 3.5 Siboni Motors

Supported Types: B60L 585, B60C 596

Feedback: Hall Switches & ABZ Encoder

Commutation: - Based on Hall Switches until first Z pulse from Encoder  
- Based on Encoder signals afterwards (Sine Commutation)

Position Control: - Based on feedback from ABZ encoder

Thermal protection: - PTC

Wiring:

	B1100	C1100 C1200	E1100	E1200
Motor Phases U, V, W and Earth U → W V → V W → U	X2 or X3	X2 or X3	X2 or X3	X2
Hall Switches U, V, W	X13	X13	X10 U → A V → B W → Z	X13
RS422 ABZ Encoder Signals Supply +5V red GND black SHIELD SHIELD CH A blue CH /A blue/black CH B green CH /B green/black CH Z yellow CH /Z yellow/black Hall U brown Hall /U brown/black Hall V grey Hall /V grey/black Hall W white Hall /W white/black	X13	X13	X12	X13
Sensor supply (5V) from	X13	X13	X12	X13
PTC			X4.10/X4.11	X4.10/X4.11

See also chapter 4 "Sensor and differential Hall Switches Wiring".

## 4 Sensor and differential Hall Switches Wiring

Signal	B1100, C1100, C1200 & E1200	E1100	
		X13 - Pin	X12 - Pin
+5V	1	1	
/A	2	2	
/B	3	3	
/Z	4	4	
GND	5	5	
/U	6		2
/V	7		6
/W	8		5
A	9	6	
B	10	7	
Z	11	8	
Enc. Alarm	12	9	
U	13		1
V	14		3
W	15		4
Shield	case	case	case

Figure 1: B1100, C1100, C1200, E1100 and E1200 sensor and differential hall switches wiring

## 5 Hall Switches vs. Commutation Angle

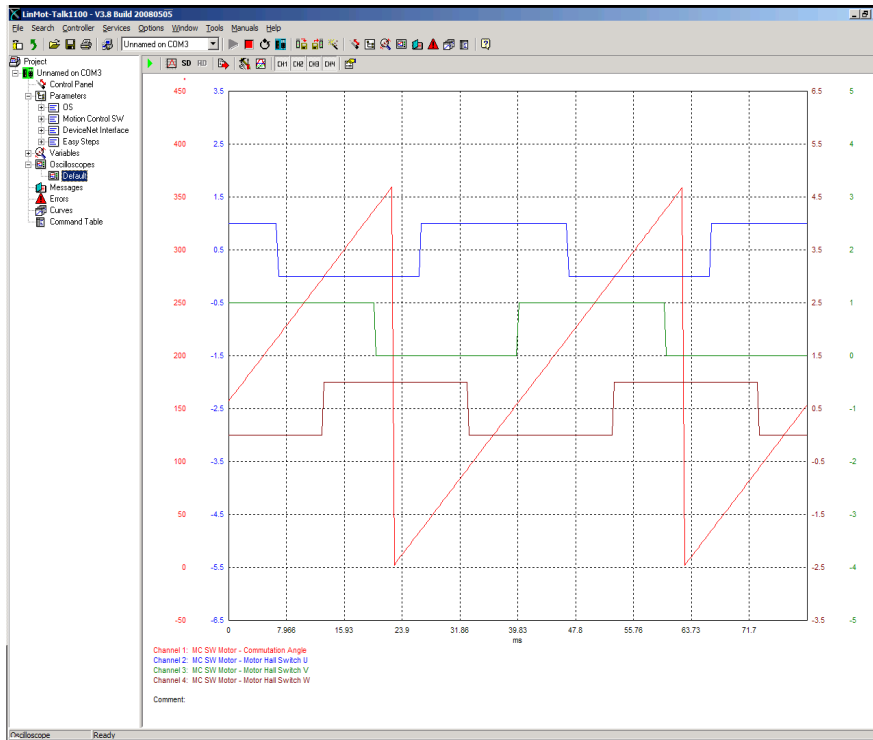


Figure 2: Hall switches vs. commutation angle situation 1

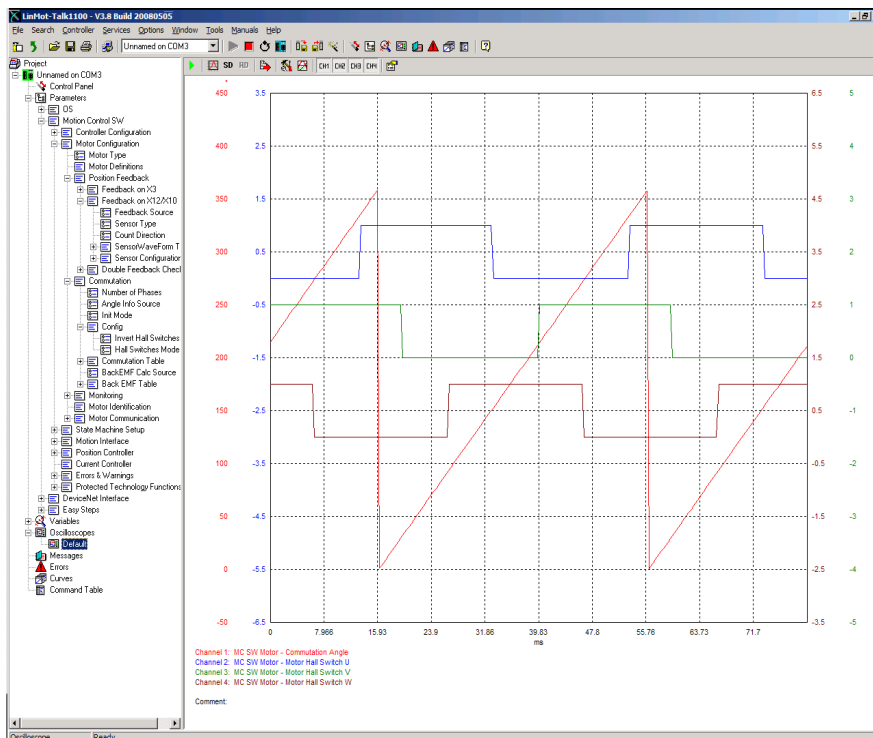


Figure 3: Hall switches vs. commutation angle situation 2 with changed direction

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