ETHERCAT MODULE LABELS

Each EtherCAT terminal requires a set of labels to represent its signal and power contacts as well as its module identification. A list of available labels is presented below.

Product Number	Label	Color	Usage
BZ1210	0...9	orange	Module identification
BZ1211	10...19	orange	Module identification
BZ1212	20...29	orange	Module identification
BZ1213	30...39	orange	Module identification
BZ1214	40...49	orange	Module identification
BZ1215	50...59	orange	Module identification
BZ1104	24V	red	24V supply voltage
BZ1100	0V	blue	Return of 24V supply voltage
BZ1155	5V	red	5V supply voltage
BZ1162	GND	blue	Return of 5V supply voltage
BZ1521	COM	blue	Common return for converters
BZ1108	PE	green	Power earth
BZ1134	S	green	Shield connection
BZ1000		white	Blank label
BZ1451	I1	yellow	Binary and single-ended analog inputs
BZ1452	I2	yellow	Binary and single-ended analog inputs
BZ1453	I3	yellow	Binary and single-ended analog inputs
BZ1454	I4	yellow	Binary and single-ended analog inputs
BZ1592	I5 I6	yellow	Binary and single-ended analog inputs
BZ1593	I7 I8	yellow	Binary and single-ended analog inputs
BZ1446	O1	yellow	Binary and single-ended analog outputs
BZ1447	O2	yellow	Binary and single-ended analog outputs
BZ1448	O3	yellow	Binary and single-ended analog outputs
BZ1449	O4	yellow	Binary and single-ended analog outputs
BZ1651	O5 O6	yellow	Binary and single-ended analog outputs
BZ1652	O7 O8	yellow	Binary and single-ended analog outputs
BZ1795	I1+ I2+	yellow	Differential analog inputs
BZ1796	I3+ I4+	yellow	Differential analog inputs
BZ1797	I1– I2–	yellow	Differential analog inputs
BZ1798	I3– I4–	yellow	Differential analog inputs
BZ1799	Q1+ Q2+	orange	Differential outputs
BZ1800	Q3+ Q4+	orange	Differential outputs
BZ1801	Q1– Q2–	orange	Differential outputs
BZ1802	Q3– Q4–	orange	Differential outputs
BZ1360	+R1...+R4	red	4-wire measurement, positive supply
BZ1361	–R1...–R4	blue	4-wire measurement, negative supply
BZ1481	–R1...–R4	yellow	4-wire measurement, differential input
BZ1482	+R1...+R4	yellow	4-wire measurement, differential input

BZ1318	A1	yellow	Motor output
BZ1319	A2	yellow	Motor output
BZ1734	B1	yellow	Motor output
BZ1735	B2	yellow	Motor output

Figure 1: Available Labels.

1. General

A standard EtherCAT module has 10 locations for attaching labels. They are arranged in 2 columns and 5 rows. The top row is used to denote the module number and we only use one location. This leaves 8 locations for marking input, output and power contacts.

0	
1	**2**
3	**4**
5	**6**
7	**8**

Figure 2: Label location on standard EtherCAT module.

2. Module Number

We are using an orange number at location 0 to denote the EtherCAT module number, or its position within the stick. This is the same number referenced in the schematics.

3. Signal and Supply Contacts

We list each module and its corresponding labels. We mostly follow the examples given in the manual. Some of the communication terminals do not have label positions and stay as they are.

3.1. Coupler: EK1100, EK1101, EK1501

These are usually labeled by the factory. We use the same.

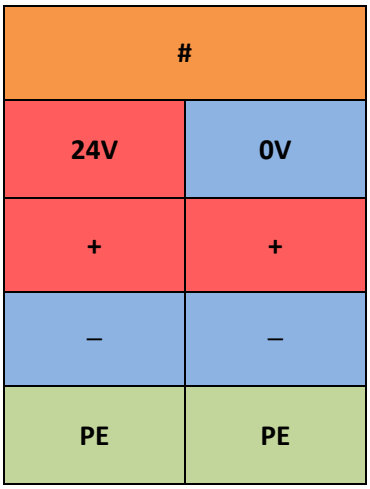

Figure 3: Labels for EtherCAT couplers.

If the terminal is not labeled, the “+” and “-“ labels should be replaced by the supply voltage labels as is described for the power supply terminal EL9400.

3.2. Extension: EK1110

This terminal has no contacts. Cover empty locations with white or gray blank labels.

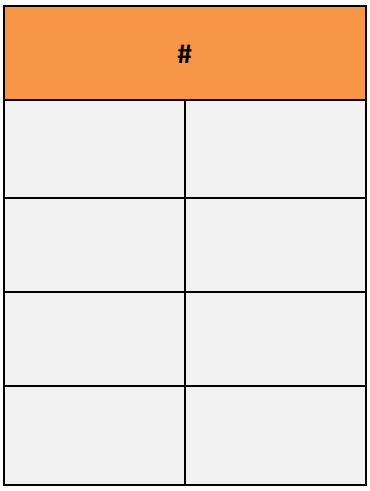

Figure 4: Labels for the extension terminal EK1110.

3.3. Power Supply Terminal: EL9400

The power contacts can be used for different voltages. We distinguish 5V supply terminals and 24V supply terminals.

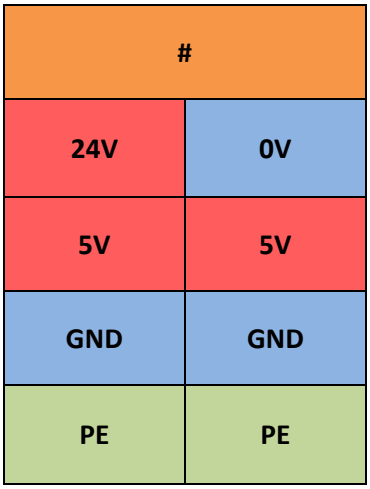

Figure 5: Labels for 5V power supply terminal.

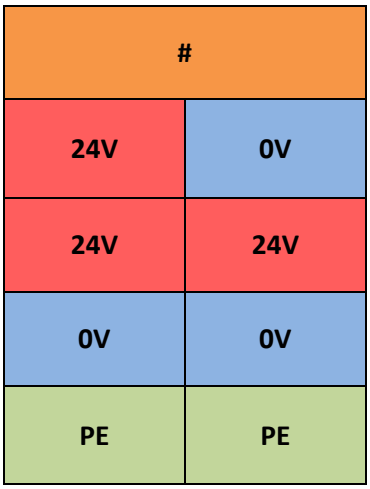

Figure 6: Labels for 24V power supply terminal.

3.4. Feed Terminal: EL9190

The power contacts can be used for different voltages. We distinguish 5V feed terminals and 24V feed terminals. Cover empty locations with white or gray blank labels.

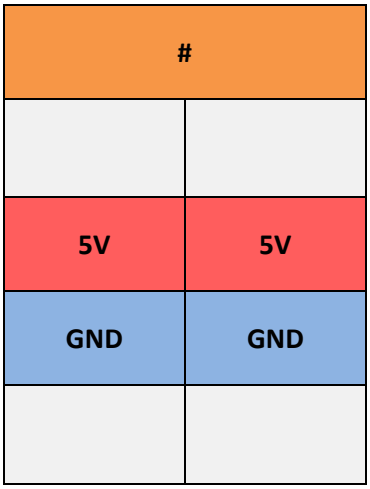

Figure 7: Labels for 5V power supply terminal.

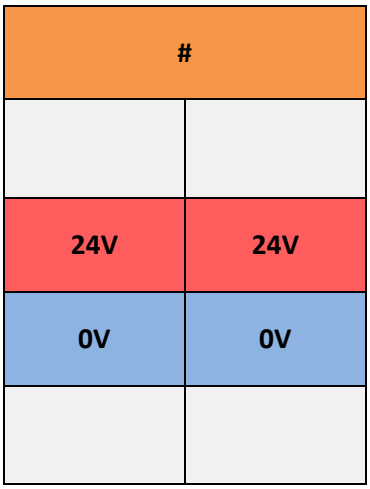

Figure 8: Labels for 24V power supply terminal.

3.5. Analog Input: EL3102

This terminal has a separate common contact to set the ground voltage of the internal converter.

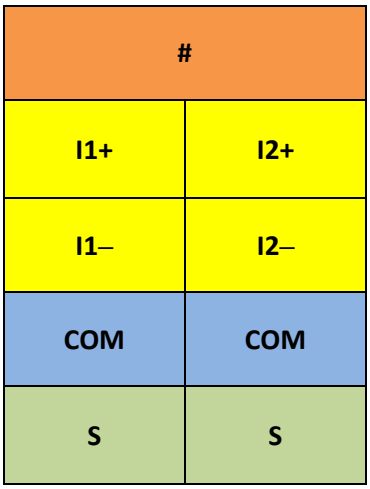

Figure 9: Labels for the 2-channel 16 bit analog input terminal EL3102.

3.6. Analog Input: EL3104

This terminal does not have a separate common contact to set the ground voltage of the internal converter. The converter ground is provided by the power contact ground (on the side).

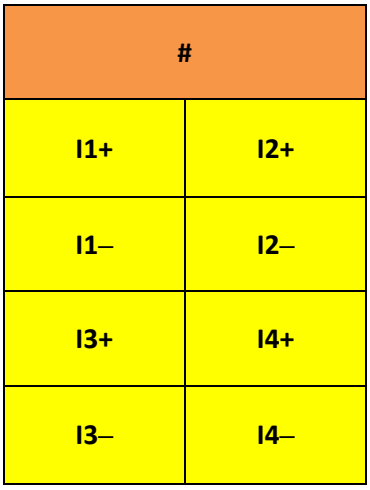

Figure 10: Labels for the 4-channel 16 bit analog input terminal EL3104.

3.7. Temperature Input PT100: EL3202-0010

This terminal uses a 4-wire hookup to accurately measure the resistance of a PT100 element. The supply voltage is provided by the red +R and blue –R contacts. The measurement is done between the yellow +R and –R contacts.

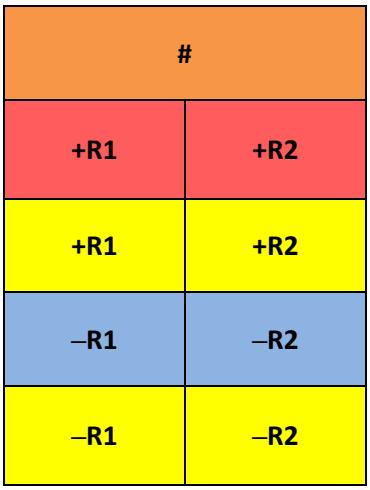

Figure 11: Labels for the 2-channel 16 bit analog input terminal EL3202-0010.

3.8. 4…20mA Analog Input: EL3154

This terminal uses the 24V supply on the power contacts (side) to provide power to the sensors. The current loop is closed through the measurement contacts (Ix).

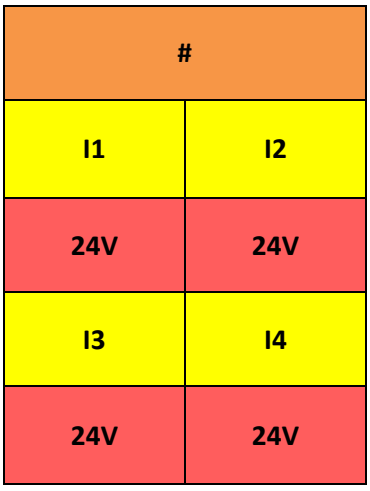

Figure 12: Labels for the 4-channel 16 bit 4...20mA analog input terminal EL3154.

3.9. Analog Output: EL4132

This terminal has a common contact that sets the ground voltage of the internal converter and is used as the ground of the signal output. It has to be wired to the ground of the connected device. Cover empty locations with white or gray blank labels.

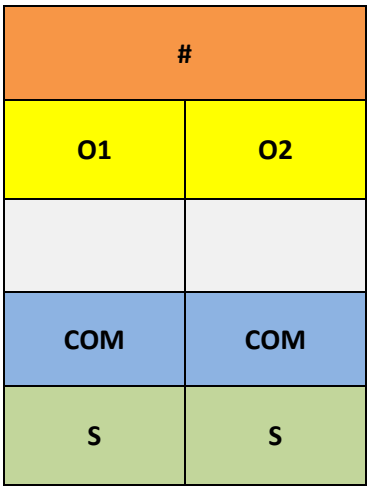

Figure 13: Labels for the 2-channel 16 bit analog output terminal EL4102.

3.10. Analog Output: EL4134

This terminal does not have a separate common contact. The converter ground is provided by the power contact ground (on the side). The output stages of the converter are powered by the power contact for 24V (on the side).

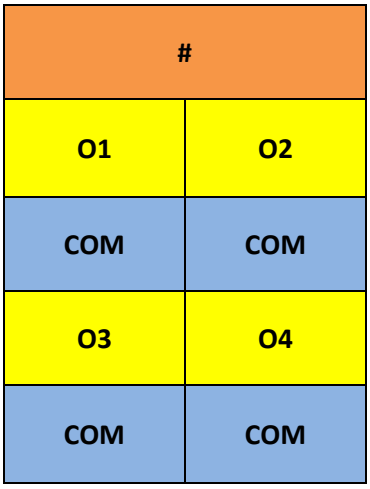

Figure 14: Labels for the 4-channel 16 bit analog output terminal EL4104.

3.11. Digital Input: EL1124

This terminal has to be supplied with 5V through the power feed side contacts.

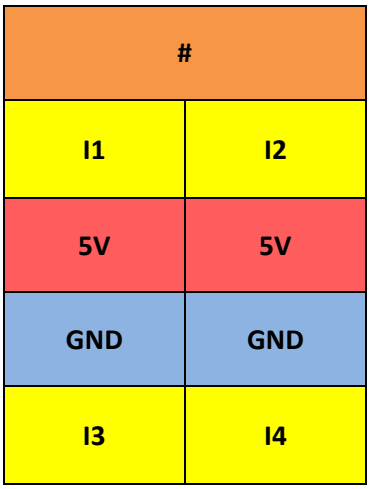

Figure 15: Labels for the 4-channel TTL digital input terminal EL1124.

3.12. Digital Input: EL1012

This terminal has to be supplied with 24V through the power feed side contacts.

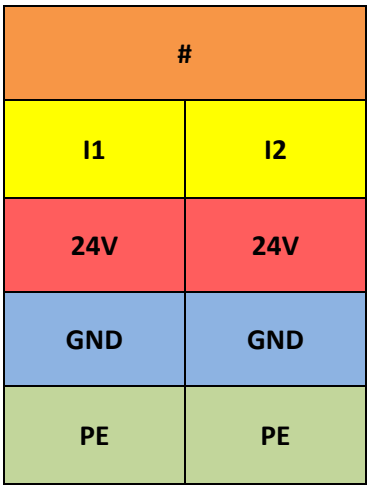

Figure 16: Labels for the 2-channel TTL digital input terminal EL1012.

3.13. Digital Input: EL1014

This terminal has to be supplied with 24V through the power feed side contacts.

#	
I1	I2
24V	24V
24V	24V
I3	I4

Figure 17: Labels for the 4-channel TTL digital input terminal EL1014.

3.14. Digital Input: EL1018

This terminal has to be supplied with 24V through the power feed side contacts.

#	
I1	I2
I3	I4
I5	I6
I7	I8

Figure 18: Labels for the 8-channel TTL digital input terminal EL1018.

3.15. Digital Input: EL1094

This terminal has to be supplied with 24V through the power feed side contacts.

#	
I1	I2
GND	GND
GND	GND
I3	I4

Figure 19: Labels for the 4-channel TTL digital input terminal EL1094.

3.16. Digital Input: EL1098

This terminal has to be supplied with 24V through the power feed side contacts.

#	
I1	I2
I3	I4
I5	I6
I7	I8

Figure 20: Labels for the 8-channel TTL digital input terminal EL1098.

3.17. Digital Output: EL2124

This terminal has to be supplied with 5V through the power feed side contacts.

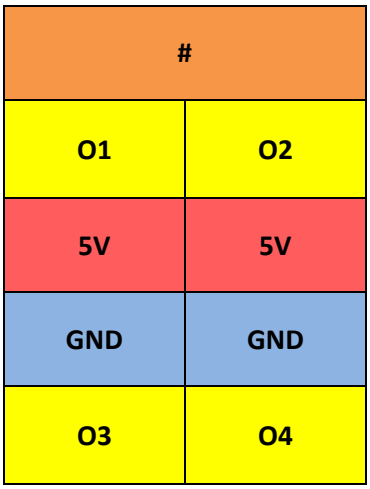

Figure 21: Labels for the 4-channel TTL digital output terminal EL2124.

3.18. Digital Output: EL2002

This terminal has to be supplied with 24V through the power feed side contacts.

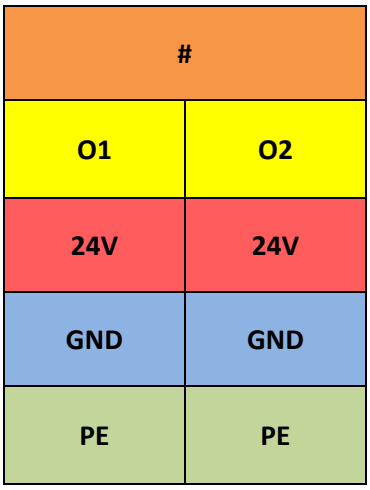

Figure 22: Labels for the 2-channel TTL digital output terminal EL2002.

3.19. Digital Output: EL2004

This terminal has to be supplied with 24V through the power feed side contacts.

#	
O1	O2
GND	GND
GND	GND
O3	O4

Figure 23: Labels for the 4-channel TTL digital output terminal EL2004.

3.20. Digital Output: EL2008

This terminal has to be supplied with 24V through the power feed side contacts.

#	
O1	O2
O3	O4
O5	O6
O7	O8

Figure 24: Labels for the 8-channel TTL digital output terminal EL2008.

3.21. Safety Digital Input: EL1904

This terminal has to be supplied with 24V through a power feed terminal.

#	
I1+	I2+
I1–	I2–
I3+	I4+
I3–	I4–

Figure 25: Labels for the 4-channel safety digital input terminal EL1904.

3.22. Safety Digital Output: EL2904

This terminal has to be supplied with 24V through a power feed terminal. Cover empty locations with white or gray blank labels.

#			
		Q1+	Q2+
24V	24V	Q1–	Q2–
GND	GND	Q3+	O4+
		Q3–	Q4–

Figure 26: Labels for the 4-channel safety digital output terminal EL2904.

3.23. Safety PLC Terminal: EL6900

This terminal has no contacts. Cover empty locations with white or gray blank labels.

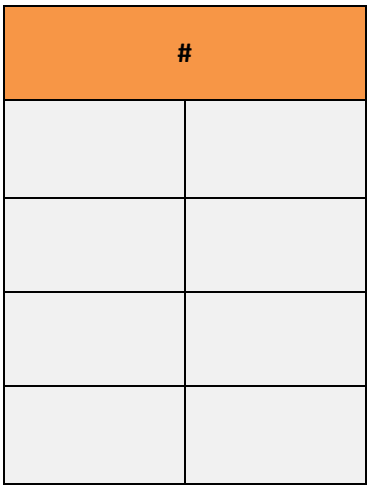

Figure 27: Labels for the safety PLC terminal EL6900.

3.24. Memory Terminal: EL6080

This terminal has no contacts. Cover empty locations with white or gray blank labels.

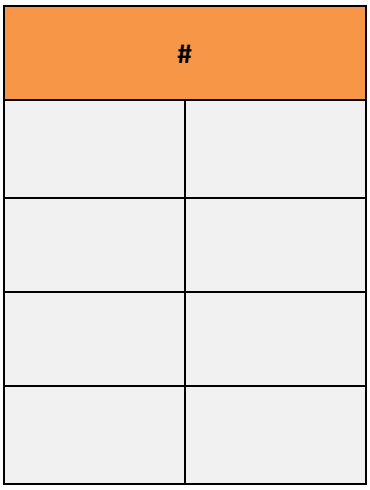

Figure 28: Labels for the memory terminal EL6080.

3.25. Motor Terminal: EL7332

This terminal requires a 24V supply.

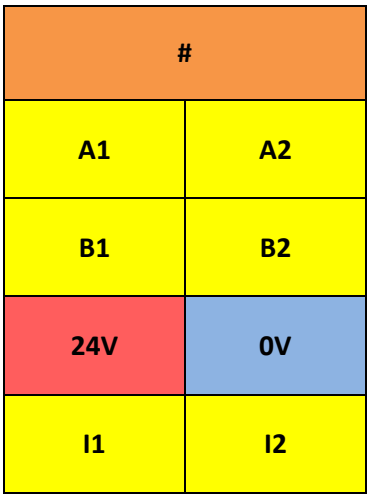

Figure 29: Labels for the motor terminal EL7332.