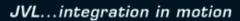# Test Box PA0160 for MAC and MIS Motors

The Test Box PA0160 is designed to test set-ups with Integrated MAC ac servo motors and Integrated MIS QuickStep stepper motors.

The Test Box includes possibility for IO encoder simulation and an analog input which can be used to simulate the IO´s of the machine.

A variety of special cables are available for connection of the DSUB connector on the test box to MAC motors with various modules and to the QuickStep motors.

The test box has 8DI + 4DO, offers encoder emulation and an analog potmeter. Using it with MIS23x QuickStep motors, 5DI are available. (Encoder emulation takes 2IO and the potmeter takes 1IO)

The 8 switches on the PA0160 for input signals can be activated either as a switch or as a push button depending whether they are activated to the left or the right. In the middle they are neutral.

The output LEDs can either be activated by a user program or the motor can be set up to activate these if the motor is in position or has an error.

The analogue signal from the PA0160 may be used for many purposes like adjustment of velocity, positioning, torque etc. The signal is connected to AIN at MAC motors and at IO3 at MIS motors.

The encoder signal from the PA0160 may be used for testing gear mode in the MAC00-Bx Expansion module or in the MIS motor - or as a counter.
The encoder signal is a non differential PNP-signal.
The MAC00-Bx Expansion module has to be set up for this kind of signal and is connected to A+ and B+ at the module
The MIS motors are made for this kind of encoder signal, why nothing special has to be configured except that input 1 and 2 are inputs. The signals have to be connected to input 1 and 2.

WI0032 Cable DSUB26 – Expansion Module MAC00-R1

WI0034 Cable DSUB26 – Expansion Module MAC00-R4

WI0035 Cable DSUB26 – open end for customized use.

WI0036 Cable DSUB26 – Integrated Stepper Motor MIS23x, 2x8pin M12

WI0038 Cable DSUB26 – Expansion Module MAC00-B1

PA0160 Connections

Cable / Pin	PA0160 Test Box	WI0032 MAC00-R1 MAC Exp. Mod.	WI0034 MAC00-R4 MAC Exp. Mod.	WI0035 Open end (no connector)	WI0036 MIS (QuickStep) Stepper Motor	WI0038 MAC00-B1 MAC Exp. Mod.
1	IN1	J1.1	J1.1 (White)	Red/Blue		
2	IN2	J1.2	J1.2 (Brown)	White/Green		
3	IN3	J1.3	J1.3 (Green)	Orange/Blue		
4	IN4	J1.4	J1.4 (Yellow)	Yellow/Blue	J1.7x (Blue)-1kOhm	
5	IN5	J1.5	J2.1 (White)	Red/Brown	J2.1 (White)-1kOhm	
6	IN6	J1.6	J2.2 (Brown)	Blue	J2.2 (Brown)-1kOhm	
7	IN7	J1.7	J2.3 (Green)	Green	J2.3 (Green)-1kOhm	
8	IN8	J1.8	J2.4 (Yellow)	Brown	J2.7 (Blue)-1kOhm	
9	ICM	J1.9	J1.8 (Red)	White		J1.5 (White)
10	O+	J1.10	J1.7 (Blue)	Red/Black		J1.9 (Red/Black)
11	O1	J1.11	J1.5 (Gray)	White/Red	J2.1 (White)-1kOhm	J1.7 (Red/White)
12	O2	J1.12	J1.6 (Pink)	Orange/Green	J2.2 (Brown)-1kOhm	J1.8 (Black/Orange)
13	O3	J1.13	J2.5 (Gray)	White/Blue	J2.3 (Green)-1kOhm	
14	O4	J1.14	J2.6 (Pink)	Green/Brown	J2.7 (Blue)-1kOhm	
15	OCM	J1.15	J1.8 (Red)	Blue/Black		
16	AOUT (+/-10V)	J2.2	J2.7 (Blue	Light Blue	J1.3 (Green)-10kOhm	J2.2 (Violet)
17	Enc. A (5V)			Yellow	J1.1 (White)-Diode	J1.1 (White)
18	Enc. B (5V)			Yellow/Green	J1 2 (Brown)-Diode	J1.3 (Black/White)
19	12-48Vin	J2.1 J3.1 (Black/ white)	J3.1 (Brown) J4.1	Red	J2.8 (Red)	J2.1 (Red)
20	12-48Vin	J2.1	J3.2 (White) J4.1	Pink	J1.8 (Red)	
21						
22	12Vout			Orange		
23	12Vout			Violet		
24				Yellow / Red		
25	Gnd	J2.3	J3.3 (Green) J4.2	Gray	J2.4 (Yellow)	
26	Gnd	J2.3 J3.2 (Black)	J3.5 (Yellow) J4.2	Black	J1.4 (Yellow)	J2.3 (Black)
Housing	Shield			Shield		
Connectors J1	J1	DS-15S	WI1000-M12F8A05N		WI1000-M12M8T05N	DS-09S
Connectors J2	J2	AKZ1550/3-381	WI1000-M12M8T05N		WI1000-M12M8T05N	AKZ1550/3-381
Connectors J3	J3	WI0033	WI1000-M12F5T05N			WI0033
Connectors J4	J4		WI0033			