



Guide to interfacing Newall Incremental Linear Encoders (SHG and MHG series) with PLC, CNC, and PC Controls

Our Incremental Linear Encoders are capable of interfacing with many types of controls. This is a partial compatibility list detailing some commonly found models. If you need assistance interfacing with a piece of equipment that does not appear on this list, please contact Newall Tech Support at 1-800-229-4376.

<u>Manufacturer</u>	<u>Control Model #</u>	<u>Counter Card</u>	<u>Compatibility</u>	<u>Interfacing Notes</u>
ACS Tech80	IBM Compatible PC	5312B	TTL Compatible	For ISA slot of PC. 5312B-1 (1-axis) 5312B-2 (2-axes) 5312B-3 (3-axes) 5312B-4 (4-axes)
ACS Tech80	IBM Compatible PC	5638 Servo Controller Card	TTL Compatible	
ACS Tech80	PC/104	5640	TTL Compatible	
ACS Tech80	PC/104	5912	TTL Compatible	5912-1 (1-axis) 5912-2 (2-axes) 5912-3 (3-axes) 5912-4 (4-axes)
ACS Tech80	PC/104	Model 5640IP Carrier Board with Model 28 IP Servo Controller	TTL Compatible	
Acu-Rite	Millpower CNC	NA	TTL Compatible	Encoder resolution must be the same as the scale you are replacing. If connector is 6-pin round, adapter 3852-10102 is needed. If connector is 9-pin D, the pinout is the same as Newall's.
Aerotech	IBM Compatible PC	Unidex-100	TTL Compatible	This is a stand alone single axis motion controller that connects to a PC via RS232.
Allen Bradley	8200 CNC	NA	TTL Compatible	

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Allen Bradley	8400 CNC	NA	TTL Compatible	
Allen Bradley	Control Logix PLC	1756-HSC High Speed Counter Module	TTL Compatible	
Allen Bradley	MicroLogix 1500 PLC	1769-HSC - High Speed Counter Module	TTL Compatible	
Allen Bradley	Series 9 CNC	8520-ASM3 Analog Servo Module (3-axis)	TTL Compatible	Two methods to connect encoder to servo module: (1) Connect directly to the 26-pin connectors on the servo module (J1-J3). (2) Connect to encoder term panel. A cable connects the encoder term panel to the J1-J3 plugs on servo mod.
Allen Bradley	Series 9 CNC	8520-ENC4 - Digital Servo Module (4-axis)	TTL Compatible	Two methods to connect encoder to servo module: (1) Connect directly to the 44-pin connectors on the servo module (J1-J4). (2) Connect to encoder term panel. A cable connects the encoder term panel to the (J1-J4) plugs on servo mod.
Allen Bradley	Series 9 CNC	8520-SM4 Analog Servo Module (4-axis)	TTL Compatible	Two methods to connect encoder to servo module: (1) Connect directly to the 44-pin connectors on the servo module (J1-J4). (2) Connect to encoder term panel. A cable connects the encoder term panel to the (J1-J4) plugs on servo mod.
Allen Bradley	Series 9 CNC	8520-ENC3 - Digital Servo Module (3-axis)	TTL Compatible	Linear encoders are connected to the CN14F-CN16F ports on Optional Feedback Module. Optional Feedback Module is connected directly to the servo module. Connector type on CN14F-CN16F ports is Honda MR-16MRF2.
Allen Bradley	Series 9 CNC - 9/440HR	NA	TTL Compatible	Optional Feedback Ports J9-J12 on system module.
Allen Bradley	SLC500 PLC	1746-HSCE - High speed counter module	TTL Compatible	
Andron	AE-88 CNC	Translator board	TTL Compatible	Resolution is inch based. There are chips on the translator board that define input resolution.
Anilam	Commando 1100 CNC	NA	TTL Compatible	
Anilam	Crusader Series CNC	NA	TTL Compatible	
Bosch Rexroth / Indramat	CLM01.3-A	NA	TTL Compatible	25-pin D connector for linear encoder port
Bosch Rexroth / Indramat	CLM1.4	NA	TTL Compatible	25-pin D connector for linear encoder port

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Cutler-Hammer	D200	Separate Counter Module	TTL Compatible	
Deva	IBM Compatible PC	DEVA001	TTL Compatible	3-axes Incremental Encoder Interface Card. Available in ISA or PCI.
Deva	IBM Compatible PC	DEVA004	TTL Compatible	2/4 Axes Motion Control Interface Card
DRC	IBM Compatible PC	Model PC - PC Interface Counter Module	TTL Compatible	9-pin D connector for encoder input does not have the same pinout as Newall's 9-pin D connector.
Dynapath	Delta 10T CNC	Servo / Transducer Card	TTL Compatible	Connector on Servo / Transducer card is 37-pin D type.
Dynapath	Delta 2000M CNC	NA	TTL Compatible	
Fagor	8050 CNC	NA	TTL Compatible	
Fagor	8055 CNC	NA	TTL Compatible	
Galil	DMC-2000 Series Stand Alone Motion Controller	ICM-2908 Interconnect Module	TTL Compatible	
Galil	IBM Compatible PC	DMC 1740	TTL Compatible	
Galil	IBM Compatible PC	DMC 1760	TTL Compatible	
Galil	IBM Compatible PC	DMC-1410	TTL Compatible	
Galil	IBM Compatible PC	DMC-1417	TTL Compatible	
Galil	IBM Compatible PC	DMC-1700 Series Motion Controller Cards	TTL Compatible	
Galil	IBM Compatible PC	DMC-1800 Series Motion Controller Cards	TTL Compatible	
Galil	PC/104	DMC-1200 Series Motion Controller Cards	TTL Compatible	
Galil	PC/104	DMC-1411	TTL Compatible	

Manufacturer	Control Model #	Counter Card	Compatibility	Interfacing Notes
GE Fanuc	9030 PLC	DSM314 Motion Controller Module	TTL Compatible	
GE Fanuc	9030 PLC	IC693APU300	TTL Compatible	
GE Fanuc	OCS-200 PLC	IC300HSC601 (High Speed Counter Card)	TTL Compatible	
GE Fanuc	Series 15 Model A CNC	A16B-1212-0030 Separate Detector Adapter	TTL Compatible	
GE Fanuc	Series 15MA CNC	A16B-1212-0030 Separate Detector Adapter	TTL Compatible	
GE Fanuc	Series 16 Model B CNC	A16B-2202-0400 Option 2 Board (For Main A)	TTL Compatible	
GE Fanuc	Series 18 Model C CNC	A16B-3200-0210 Main CPU Series 18C	TTL Compatible	
GE Fanuc	CNC	A02B-0236-C203 Separate Detector Interface Module	TTL Compatible	
GE Fanuc	CNC	A02B-0236-C205 Separate Detector Interface Module	TTL Compatible	
GE Fanuc	CNC	A02B-0259-C180 (Analog Servo I/F Unit)	TTL Compatible	
GE Fanuc	Series 6 CNC	High Speed Counter	TTL Compatible	
Giddings & Lewis	MMC PLC	Analog Servo Module	TTL Compatible	
Heidenhain	IBM Compatible PC	IK 121A	SCC-100 Compatible	Accepts 11uA (100kHz max) analog signal from two encoders.
Heidenhain	IBM Compatible PC	IK 121V	SCC-100 Compatible	Accepts 1vp-p (400kHz max) analog signal from two encoders.

Manufacturer	Control Model #	Counter Card	Compatibility	Interfacing Notes
Heidenhain	IBM Compatible PC	IK 200	SCC-100 Compatible	Accepts 11uA (33kHz max) and 1Vp-p (500kHz max) signals. PCI bus (plug and play). Accepts 2 encoder inputs. Connector type is 15-pin D.
Heidenhain	TNC 310 CNC	NA	SCC-100 Compatible	An external 5VDC power supply may be needed to supply sufficient power to Newall Digital reader head / SCC-100.
Indramat (Rexroth Bosch)	DIAX04 Drive Controller	DEF Plug In Module (Model DEF01.1M)	TTL Compatible	
Keyence	KV Series PLC	NA	TTL Compatible	
Kollmorgen	S600 Series Digital Servo Amp	NA	SCC-100 Compatible	
Koyo Electronics	205 PLC	D2-CTRINT or H2-PBC	Contact Newall Tech Support for an interface solution	No counter modules are available for this PLC that will accept our digital or analog signals.
Koyo Electronics	DL05 Series PLC	F0-04AD-1 Four Channel Analog Input Module	Contact Newall Tech Support for an interface solution	Jumper selectable 0-20mA or 4-20mA input signal requirement.
Koyo Electronics	DL105 Series PLC	Built in High Speed Counter	Contact Newall Tech Support for an interface solution	10-26.4 VDC input voltage requirement. Current sink or source.
Koyo Electronics	DL305 Series PLC	D3-HSC (High Speed Counter Module)	Contact Newall Tech Support for an interface solution	This module requires 1 up counting input, and 1 down counting input. It will not count quadrature pulses.
Koyo Electronics	DL405 Series PLC	D4-HSC (High Speed Counter Module)	Contact Newall Tech Support for an interface solution	5V-30V input signal requirement
MEI (Motion Engineering Incorporated)	IBM Compatible PC	LC / DSP	TTL Compatible	For ISA slot of IBM Compatible PC.
MEI (Motion Engineering Incorporated)	IBM Compatible PC	PCX / DSP	TTL Compatible	For ISA bus of an IBM compatible PC.

Manufacturer	Control Model #	Counter Card	Compatibility	Interfacing Notes
MEI (Motion Engineering Incorporated)	IBM Compatible PC	XMP-PCI	TTL Compatible and SCC-100 Compatible	For PCI slot of an IBM compatible PC. An optional Scale Interpolation Module can be ordered with this card. Module # 3007-0001 accepts 11uA. Module # 3007-0002 accepts 1Vpp.
MEI (Motion Engineering Incorporated)	IBM Compatible PC	XMP-Pulse-PCI	TTL Compatible	For PCI slot of an IBM compatible PC.
MEI (Motion Engineering Incorporated)	PC/104	104 / DSP	TTL Compatible	
MEI (Motion Engineering Incorporated)	PC/104	104X / DSP	TTL Compatible	
Mesa Electronics	PC/104	Model 4130 Quad Counter Board	TTL Compatible	
Milltronics	Centurion 5 CNC	NA	TTL Compatible	
Milltronics	Centurion 6 CNC	NA	TTL Compatible	
Mitutoyo	Millstar CNC	NA	Not Compatible	Required input signal is 2Vpp.
National Instruments	IBM Compatible PC	PCI-7334	TTL Compatible	Motion controller card for PCI slot of an IBM compatible PC.
National Instruments	IBM Compatible PC	PCI-7344	TTL Compatible	Motion controller card for PCI slot of an IBM compatible PC.
National Instruments	IBM Compatible PC	PXI-7334	TTL Compatible	For PXI bus.
National Instruments	IBM Compatible PC	PXI-7344	TTL Compatible	For PXI bus.
National Instruments	NA	FW-7344	TTL Compatible	IEEE-1394 bus
Omron	CJ1 Series PLC	CJ1W-CT021 - High Speed Counter Module	TTL Compatible	
Panasonic	Minas A-Series AC Servo Motor Drive	NA	TTL Compatible	
Parker	6K Series Motion Controller (Includes 6K2, 6K4, 6K6, 6K8)	NA	TTL Compatible	Encoder inputs come standard on this control.
Parker	Model 4000 Motion Controller - Compumotor	NA	TTL Compatible	Connector for linear encoders is 25-pin D sub.
Reliance	Automax PLC	RX-57C422B	TTL Compatible	
RTD USA (Real Time Devices)	PC/104	DM5810	TTL Compatible	Bus type: XT
RTD USA (Real Time Devices)	PC/104	DM5812	TTL Compatible	Bus type: XT
RTD USA (Real Time Devices)	PC/104	DM6810	TTL Compatible	Bus type: AT
RTD USA (Real Time Devices)	PC/104	DM6812	TTL Compatible	Bus type: AT
SBS - Greenspring	IBM Compatible PC	IP-Encoder-6 (IndustryPack 6)	TTL Compatible	Max input freq: 1.3MHz
Schneider Electric (Square D or Modicon in USA, Telemecanique in UK)	TSX 37-22 PLC	NA	TTL Compatible	Encoder inputs come standard with the TSX 37-22 (They are not on a plug in card). Connectors for encoders are 15-Pin D. Max input freq 10kHz. Pinout details are available from Newall.
Schneider Electric (Square D or Modicon in USA, Telemecanique in UK)	TWIDO PLC	NA	Not Compatible	No modules are currently available to accept TTL feedback.

Manufacturer	Control Model #	Counter Card	Compatibility	Interfacing Notes
Servo Systems	Servo II	DRO Interface Kit # 6626	TTL Compatible	Order Newall encoder with 9-pin D connector, 10um resolution. Two adapter cables will be needed for each axis (Part # 3852-10-102 and # 38-52-10-101 List Price \$69 each). If a Topaz Digital display is used, it must be single ended.
Servo Systems	Servo II	DRO Interface Kit # 6628	TTL Compatible	Order Newall encoder with 10um resolution and 25-pin D connector (Connector Part # 510-2004 List Price \$11). A Sargon interface cable will also be needed (\$69 list). If a Topaz Digital display is used, it must be single ended.
Siemens	840D CNC with Simodrive 611 Digital	FDD Module	SCC-100 Compatible	
Siemens	840D CNC with Simodrive 611 Digital	HLA Module	SCC-100 Compatible	
Siemens	840Di CNC	ADI4 Encoder Card	TTL Compatible	
Siemens	Acramatic 2100 CNC	Servo Interface Card	TTL Compatible	Connector type is 15-pin D. To have this connector installed on encoder cable by Newall, order connector part # 510-2002 (\$11 List Price).
Southwestern Industries	DPM-S3	NA	TTL Compatible	
Southwestern Industries	Prototrak AGE CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak AGE II CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak AGE III CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak DPM CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak M2 CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.

Manufacturer	Control Model #	Counter Card	Compatibility	Interfacing Notes
Southwestern Industries	Prototrak M3 Sport CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak MX2 CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak MX3 CNC	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
Southwestern Industries	Prototrak VM	NA	TTL Compatible	Spherosyn Digital (SHG-TT series) reader head part #: SHG050AMP035 (Add \$75 to list price). Microsyn Digital (MHG-TT series) reader head part #: MHG050AMP035 (Add \$100 to list price). These reader heads come equipped with the Southwestern Prototrak connector on the end of the cable.
US Digital	IBM Compatible PC	PC7166	TTL Compatible	For ISA slot of PC.
US Digital	IBM Compatible PC	PC7166-FH10 (Differential)	TTL Compatible	For ISA slot of PC. The encoder connectors are Molex #15-47-1101 (10-Pin)
US Digital	IBM Compatible PC	PC7166-FH5 (Single Ended)	TTL Compatible	For ISA slot of PC. The encoder connectors are AMP #103634-4 (5-Pin)
US Digital	IBM Compatible PC	PC7266-D (Differential)	TTL Compatible	For ISA slot of PC. The encoder connectors are 8-Pin modular (telephone type).
US Digital	IBM Compatible PC	PC7266-S (Single Ended)	TTL Compatible	For ISA slot of PC. The encoder connectors are 6-Pin modular (telephone type).
US Digital	IBM Compatible PC	USB1-D (Differential)	TTL Compatible	External unit that connects to PC via USB port. OS must be Windows 98 or 2000.
US Digital	IBM Compatible PC	USB1-S (Single Ended)	TTL Compatible	External unit that connects to PC via USB port. OS must be Windows 98 or 2000.
Vigilant Technologies	IBM Compatible PC	PCI-ENCDAC	TTL Compatible	For a PCI slot of an IBM compatible PC.
Yaskawa	SMC-2000 Multi Axis Motion Controller	NA	TTL Compatible	
Yaskawa	Yasnac PC NC CNC	SGDC-**-AGAF Servo Drive	TTL Compatible	