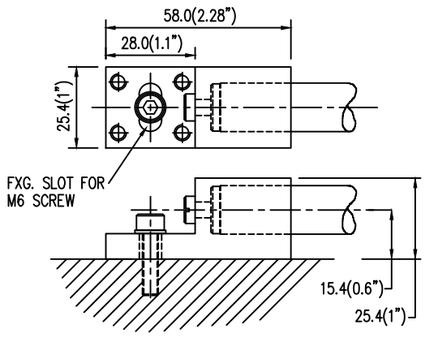
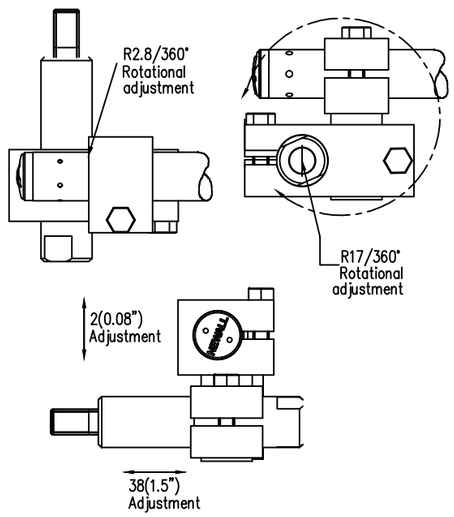
DRAWING NUMBER	316-87290	REV. ISS.	O

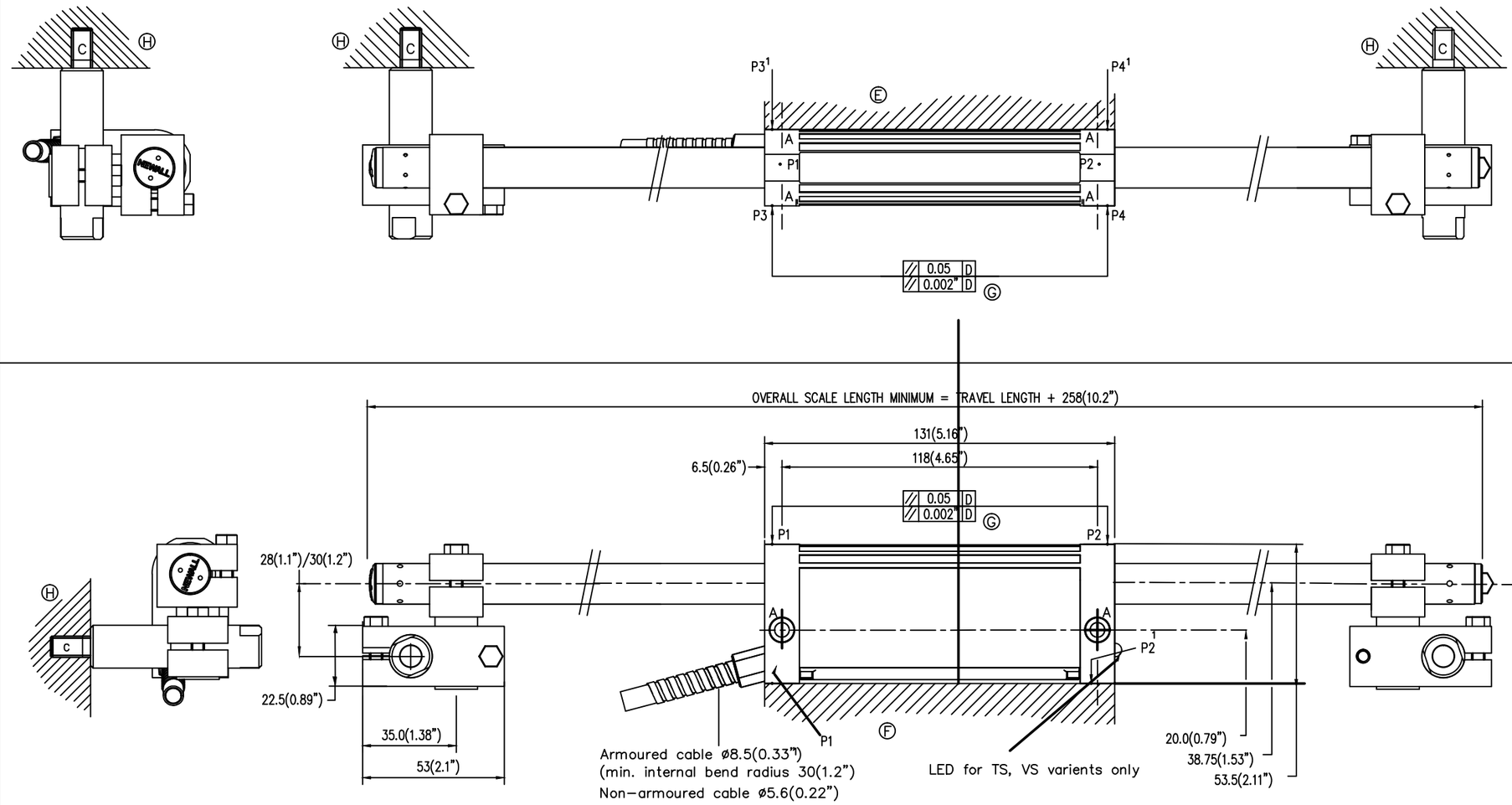
DO NOT SCALE | THIRD ANGLE PROJECTION | IF IN DOUBT ASK

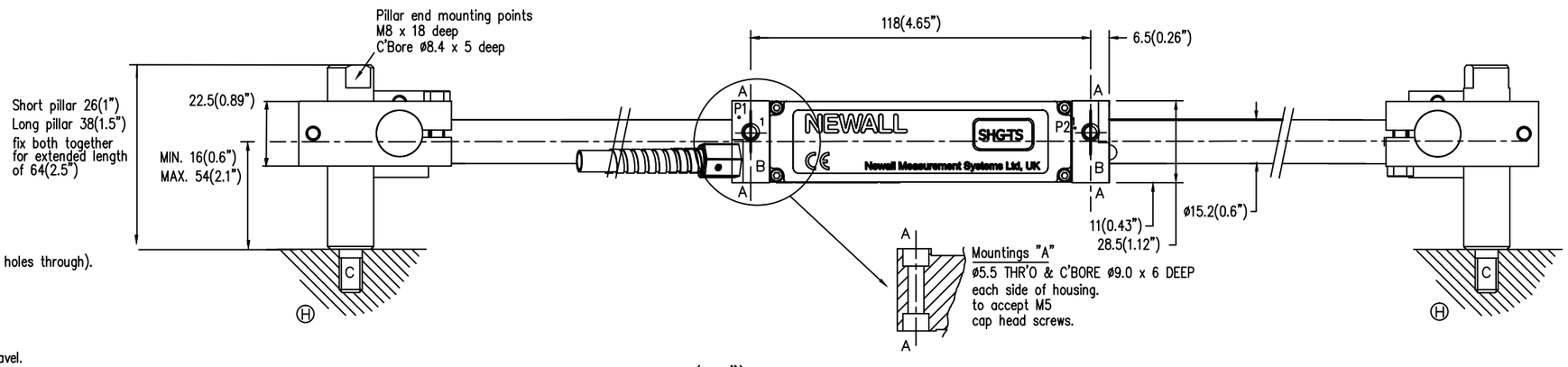


Optional Single End Scale Mounting Kit



SCALE MOUNTING BRACKET ADJUSTMENT





A – Encoder head mounting points 2off for M5 cap head screws (clearance holes through).
B – Encoder head mounting points 2off for M5 screws (thread depth 12).
C – Scale pillar mounting studs M8 x 15 (use spacer washer as required).
D – Machine Guideway.
E/F – Encoder head mounting faces.
G – Indicating parallel alignment required between encoder head and axis travel.
H – Scale end mounting points to machine bed.
P – Installation alignment points.

DIMENSIONS – mm (ins")

FOR FURTHER INFORMATION REFER TO INSTALLATION MANUAL

REV.ISS.	DATE	C.N.No.	ALTERATION

TITLE	DIMENSIONAL DETAILS for SHG-TT, SHG-PV, SHG-TS, SHG-VP and SHG-VS Encoders (<100")	MATERIAL/FINISH	SCALE 1=1

DRAWN	C.WHITMORE	25–11–14
CHECKED		
APPROVED		

NEWALL Leicester England

THIS DRAWING IS THE PROPERTY OF NEWALL MEASUREMENT SYSTEMS LIMITED. THE INFORMATION THEREON MAY NOT BE COPIED OR USED WITHOUT WRITTEN PERMISSION

UNLESS OTHERWISE STATED :– DIMENSIONS ARE IN MM.

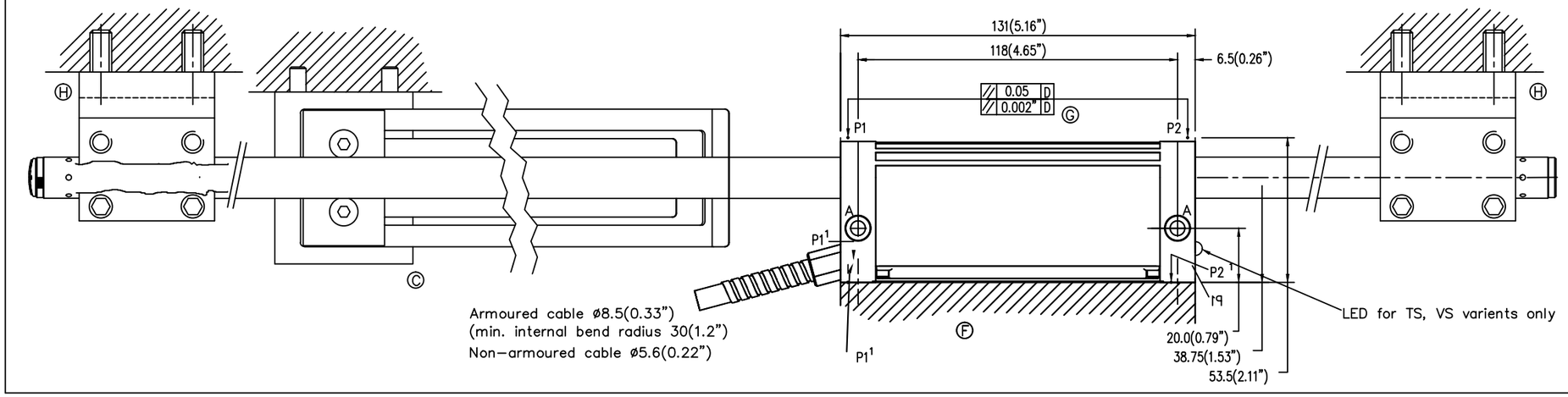
TOLERANCES: – 0 DECIMAL PLACES ±0.5; 1 DECIMAL PLACE ±0.2; 2 DECIMAL PLACES ± 0.1; ANGULAR ±1°

SHEET 1 OF 1

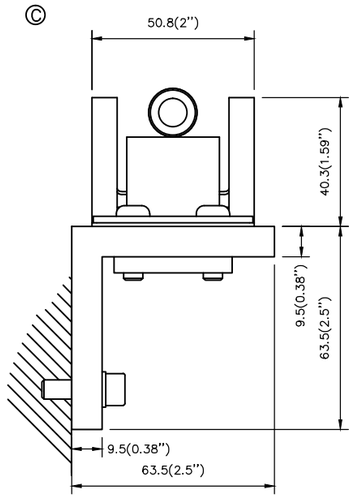
DRAWING NUMBER 316-87290 REV. ISS. O

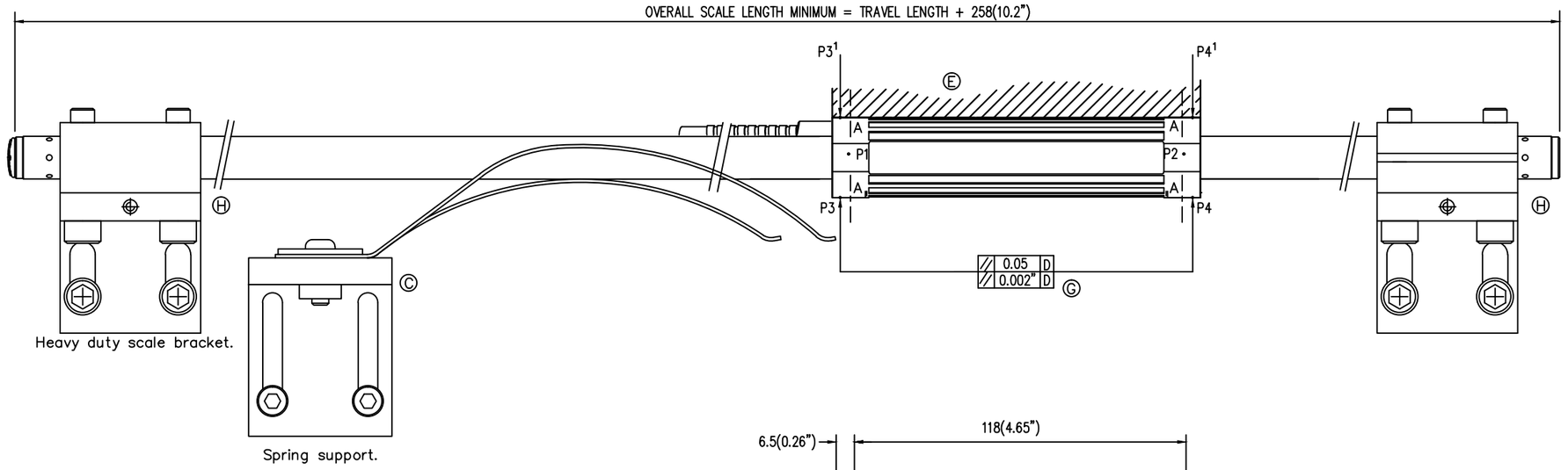
DRAWING NUMBER	316-87295	REV. ISS.	0

DO NOT SCALE | THIRD ANGLE PROJECTION | IF IN DOUBT ASK

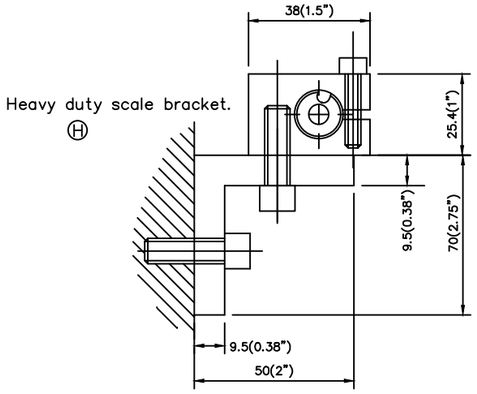


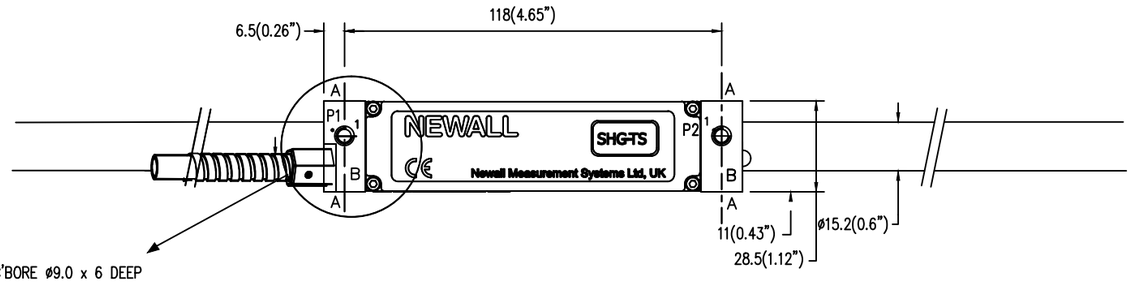
Spring support.

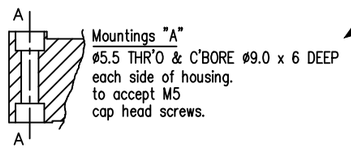




Heavy duty scale bracket.







A – Encoder head mounting points 2off for M5 cap head screws (clearance holes through).
B – Encoder head mounting points 2off for M5 screws (thread depth 12).
C – Spring support.
D – Machine Guideway.
E/F – Encoder head mounting faces.
G – Indicating parallel alignment required between encoder head and axis travel.
H – Scale end mounting points to machine bed.
P – Installation alignment points.

SPRING SUPPORTS ARE INTENDED FOR USE WHERE THE READER HEAD IS MOVING AND THE SCALE TUBE IS STATIONARY.

REFER TO INSTALLATION MANUAL FOR RECOMMENDED NUMBER AND POSITONAL DETAILS OF SPRING SUPPORTS

DIMENSIONS – mm (ins")

FOR FURTHER INFORMATION REFER TO INSTALLATION MANUAL

REV.ISS.	DATE	C.N.No.	ALTERATION

REV.ISS.	DATE	C.N.No.	ALTERATION

TITLE: *DIMENSIONAL DETAILS for SHG-IT, SHG-PV, SHG-TS, SHG-VP and SHG-VS series encoders (>100")*

MATERIAL/ FINISH

SCALE (ON A1)

UNLESS OTHERWISE STATED :- DIMENSIONS ARE IN MM.

TOLERANCES:- 0 DECIMAL PLACES ±0.5; 1 DECIMAL PLACE ±0.2; 2 DECIMAL PLACES± 0.1; ANGULAR ±1°

DRAWN	C.WHITMORE	25-11-14	
CHECKED			
APPROVED			

Leicester NEWALL England

THIS DRAWING IS THE PROPERTY OF NEWALL MEASUREMENT SYSTEMS LIMITED. THE INFORMATION THEREON MAY NOT BE COPIED OR USED WITHOUT WRITTEN PERMISSION

SHEET 1 OF 1 | DRAWING NUMBER 316-87295 | REV. ISS. 0

NEWALL

Guide to interfacing Newall SHG & MHG series incremental linear encoders with PLC, CNC, PC controls and drives

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 equipment that does not appear on this list, please contact Newall Tech Support at 1-800-229-4376.

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
ACS Tech80	IBM Compatible PC	5312B	SHG-TT MHG-TT SHG-TS	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	SHG-TT MHG-TT SHG-TS	
ACS Tech80	PC/104	5640	SHG-TT MHG-TT SHG-TS	
ACS Tech80	PC/104	5912	SHG-TT MHG-TT SHG-TS	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	SHG-TT MHG-TT SHG-TS	
Aerotech	IBM Compatible PC	Unidex-100	SHG-TT MHG-TT SHG-TS	This is a stand alone single axis motion controller that connects to a PC via RS232.
Allen Bradley	8200 CNC	NA	SHG-TT MHG-TT SHG-TS	

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Allen Bradley	8400 CNC	NA	SHG-TT MHG-TT SHG-TS	
Allen Bradley	Control Logix PLC	1756-HSC High Speed Counter Module	SHG-TT MHG-TT SHG-TS	
Allen Bradley	Kinetix 6000 Drive	NA	SHG-TT MHG-TT SHG-TS	
Allen Bradley	MicroLogix 1000 PLC	Built in High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 24V quadrature. *Requires SPV converter module
Allen Bradley	MicroLogix 1200 PLC	Built in High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 24V quadrature. *Requires SPV converter module
Allen Bradley	MicroLogix 1400 PLC	Built in High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 24V quadrature. *Requires SPV converter module
Allen Bradley	MicroLogix 1500 PLC	Built in High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 24V quadrature. *Requires SPV converter module
Allen Bradley	MicroLogix 1500 PLC	1769-HSC - High Speed Counter Module	SHG-TT MHG-TT SHG-TS	
Allen Bradley	Series 9 CNC	8520-ASM3 Analog Servo Module (3-axis)	SHG-TT MHG-TT SHG-TS	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)	SHG-TT MHG-TT SHG-TS	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)	SHG-TT MHG-TT SHG-TS	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.

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Allen Bradley	Series 9 CNC	8520-ENC3 - Digital Servo Module (3-axis)	SHG-TT MHG-TT SHG-TS	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-16MRFD2.
Allen Bradley	Series 9 CNC - 9/440HR	NA	SHG-TT MHG-TT SHG-TS	Optional Feedback Ports J9-J12 on system module.
Allen Bradley	SLC500 PLC	1746-HSCE - High speed counter module	SHG-TT MHG-TT SHG-TS	
Allen Bradley	Ultra 3000 Digital Servo Drive	NA	SHG-TT MHG-TT SHG-TS	
Andtron	AE-88 CNC	Translator board	SHG-TT MHG-TT SHG-TS	Resolution is inch based. There are chips on the translator board that define input resolution.
Anilam	Commando 1100 CNC	NA	SHG-TT MHG-TT SHG-TS	
Anilam	Crusader Series CNC	NA	SHG-TT MHG-TT SHG-TS	
Bosch Rexroth / Indramat	CLM01.3-A	NA	SHG-TT MHG-TT SHG-TS	25-pin D connector for linear encoder port
Bosch Rexroth / Indramat	CLM1.4	NA	SHG-TT MHG-TT SHG-TS	25-pin D connector for linear encoder port
Cutler-Hammer	D200	Separate Counter Module	SHG-TT MHG-TT SHG-TS	
Deva	IBM Compatible PC	DEVA001	SHG-TT MHG-TT SHG-TS	3-axes Incremental Encoder Interface Card. Available in ISA or PCI.
Deva	IBM Compatible PC	DEVA004	SHG-TT MHG-TT SHG-TS	2/4 Axes Motion Control Interface Card
DRC	IBM Compatible PC	Model PC - PC Interface Counter Module	SHG-TT MHG-TT SHG-TS	9-pin D connector for encoder input does not have the same pinout as Newall's 9-pin D connector.

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Dynapath	Delta 10T CNC	Servo / Transducer Card	SHG-TT MHG-TT SHG-TS	Connector on Servo / Transducer card is 37-pin D type.
Dynapath	Delta 2000M CNC	NA	SHG-TT MHG-TT SHG-TS	
Fagor	8050 CNC	NA	SHG-TT MHG-TT SHG-TS	
Fagor	8055 CNC	NA	SHG-TT MHG-TT SHG-TS	
Galil	DMC-2000 Series Stand Alone Motion Controller	ICM-2908 Interconnect Module	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC 1740	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC 1760	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC-1410	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC-1417	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC-1700 Series Motion Controller Cards	SHG-TT MHG-TT SHG-TS	
Galil	IBM Compatible PC	DMC-1800 Series Motion Controller Cards	SHG-TT MHG-TT SHG-TS	
Galil	PC/104	DMC-1200 Series Motion Controller Cards	SHG-TT MHG-TT SHG-TS	
Galil	PC/104	DMC-1411	SHG-TT MHG-TT SHG-TS	
GE Fanuc	9030 PLC	DSM314 Motion Controller Module	SHG-TT MHG-TT SHG-TS	

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

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Heidenhain	IBM Compatible PC	IK 200	SHG-VP MHG-VP SHG-VS SHG-VM MHG-VM	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	SHG-VP MHG-VP SHG-VS	
Indramat (Rexroth Bosch)	DIAX04 Drive Controller	DEF Plug In Module (Model DEF01.1M)	SHG-TT MHG-TT SHG-TS	
Keyence	KV Series PLC	NA	SHG-TT MHG-TT SHG-TS	
Kollmorgen	S600 Series Digital Servo Amp	NA	SHG-VP MHG-VP SHG-VS	
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	H0-CTRIO High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 9-30V quadrature. *Requires SPV converter module
Koyo Electronics	DL06 Series PLC	H0-CTRIO High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 9-30V quadrature. *Requires SPV converter module
Koyo Electronics	DL205 Series PLC (D2-240, D2-250-1, D2-260)	H2-CTRIO High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 9-30V quadrature. *Requires SPV converter module
Koyo Electronics	DL405 Series PLC (D4-450)	H4-CTRIO High Speed Counter	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 9-30V quadrature. *Requires SPV converter module

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Koyo Electronics	Various	T1H-CTRIO	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 9-30V quadrature. *Requires SPV converter module
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	SHG-PV SHG-TT* SHG-TS* MHG-TT*	Input requirement 5-30V quadrature. *Requires SPV converter module
MEI (Motion Engineering Incorporated)	IBM Compatible PC	LC / DSP	SHG-TT MHG-TT SHG-TS	For ISA slot of IBM Compatible PC.
MEI (Motion Engineering Incorporated)	IBM Compatible PC	PCX / DSP	SHG-TT MHG-TT SHG-TS	For ISA bus of an IBM compatible PC.
MEI (Motion Engineering Incorporated)	IBM Compatible PC	XMP-PCI	SHG-TT MHG-TT SHG-TS + others	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	SHG-TT MHG-TT SHG-TS	For PCI slot of an IBM compatible PC.
MEI (Motion Engineering Incorporated)	PC/104	104 / DSP	SHG-TT MHG-TT SHG-TS	
MEI (Motion Engineering Incorporated)	PC/104	104X / DSP	SHG-TT MHG-TT SHG-TS	
Mesa Electronics	PC/104	Model 4I30 Quad Counter Board	SHG-TT MHG-TT SHG-TS	

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Milltronics	Centurion 5 CNC	NA	SHG-TT MHG-TT SHG-TS	
Milltronics	Centurion 6 CNC	NA	SHG-TT MHG-TT SHG-TS	
Mitutoyo	Millstar CNC	NA	Not Compatible	Required input signal is 2Vpp.
National Instruments	IBM Compatible PC	PCI-7334	SHG-TT MHG-TT SHG-TS	Motion controller card for PCI slot of an IBM compatible PC. Labview.
National Instruments	IBM Compatible PC	PCI-7344	SHG-TT MHG-TT SHG-TS	Motion controller card for PCI slot of an IBM compatible PC. Labview.
National Instruments	IBM Compatible PC	PXI-7334	SHG-TT MHG-TT SHG-TS	For PXI bus. Labview.
National Instruments	IBM Compatible PC	PXI-7344	SHG-TT MHG-TT SHG-TS	For PXI bus. Labview.
National Instruments	IBM Compatible PC	NI PCI-6601	SHG-TT MHG-TT SHG-TS	Labview software.
National Instruments	IBM Compatible PC	NI PCI-6602	SHG-TT MHG-TT SHG-TS	Labview software.
National Instruments	IBM Compatible PC	NI PXI-6602	SHG-TT MHG-TT SHG-TS	Labview software.
National Instruments	IBM Compatible PC	NI PXI-6608	SHG-TT MHG-TT SHG-TS	Labview software.
National Instruments	NA	FW-7344	SHG-TT MHG-TT SHG-TS	IEEE-1394 bus. Labview.
Omron	CJ1 Series PLC	CJ1W-CT021 - High Speed Counter Module	SHG-TT MHG-TT SHG-TS	
Panasonic	Minas A-Series AC Servo Motor Drive	NA	SHG-TT MHG-TT SHG-TS	

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Parker	6K Series Motion Controller (Includes 6K2, 6K4, 6K6, 6K8)	NA	SHG-TT MHG-TT SHG-TS	Encoder inputs come standard on this control.
Parker	Model 4000 Motion Controller - Compumotor	NA	SHG-TT MHG-TT SHG-TS	Connector for linear encoders is 25-pin D sub.
Reliance	Automax PLC	RX-57C422B	SHG-TT MHG-TT SHG-TS	
RTD USA (Real Time Devices)	PC/104	DM5810	SHG-TT MHG-TT SHG-TS	Bus type: XT
RTD USA (Real Time Devices)	PC/104	DM5812	SHG-TT MHG-TT SHG-TS	Bus type: XT
RTD USA (Real Time Devices)	PC/104	DM6810	SHG-TT MHG-TT SHG-TS	Bus type: AT
RTD USA (Real Time Devices)	PC/104	DM6812	SHG-TT MHG-TT SHG-TS	Bus type: AT
SBS - Greenspring	IBM Compatible PC	IP-Encoder-6 (IndustryPack 6)	SHG-TT MHG-TT SHG-TS	Max input freq: 1.3MHz
Schneider Electric (Square D or Modicon in USA, Telemechanique in UK)	TSX 37-22 PLC	NA	SHG-TT MHG-TT SHG-TS	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, Telemechanique in UK)	TWIDO PLC	NA	Not Compatible	No modules are currently available to accept TTL feedback.
Servo Systems	Servo II	DRO Interface Kit # 6626	SHG-TT MHG-TT SHG-TS	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	SHG-TT MHG-TT SHG-TS	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.

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Siemens	840D CNC with Simodrive 611 Digital	FDD Module	SHG-VP MHG-VP SHG-VS	
Siemens	840D CNC with Simodrive 611 Digital	HLA Module	SHG-VP MHG-VP SHG-VS	
Siemens	840Di CNC	ADI4 Encoder Card	SHG-TT MHG-TT SHG-TS	
Siemens	Acramatic 2100 CNC	Servo Interface Card	SHG-TT MHG-TT SHG-TS	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	SHG-TT MHG-TT SHG-TS	
Southwestern Industries	Prototrak AGE CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak AGE II CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak AGE III CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak DPM CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
Southwestern Industries	Prototrak M2 CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak M3 Sport CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak MX2 CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak MX3 CNC	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
Southwestern Industries	Prototrak VM	NA	SHG-TT MHG-TT	These reader heads come ordered with the Southwestern Prototrak connecter on the end of the cable.
US Digital	IBM Compatible PC	PC7166	SHG-TT MHG-TT SHG-TS	For ISA slot of PC.
US Digital	IBM Compatible PC	PC7166-FH10 (Differential)	SHG-TT MHG-TT SHG-TS	For ISA slot of PC. The encoder connectors are Molex #15-47-1101 (10-Pin)
US Digital	IBM Compatible PC	PC7166-FH5 (Single Ended)	SHG-TT MHG-TT SHG-TS	For ISA slot of PC. The encoder connectors are AMP #103634-4 (5-Pin)
US Digital	IBM Compatible PC	PC7266-D (Differential)	SHG-TT MHG-TT SHG-TS	For ISA slot of PC. The encoder connectors are 8-Pin modular (telephone type).

Manufacturer	Control Model #	Counter Card	Compatible Newall Models	Interfacing Notes
US Digital	IBM Compatible PC	PC7266-S (Single Ended)	SHG-TT MHG-TT SHG-TS	For ISA slot of PC. The encoder connectors are 6-Pin modular (telephone type).
US Digital	IBM Compatible PC	USB1-D (Differential)	SHG-TT MHG-TT SHG-TS	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)	SHG-TT MHG-TT SHG-TS	External unit that connects to PC via USB port. OS must be Windows 98 or 2000.
Vigilant Technologies	IBM Compatible PC	PCI-ENCDAC	SHG-TT MHG-TT SHG-TS	For a PCI slot of an IBM compatible PC.
Yaskawa	SMC-2000 Multi Axis Motion Controller	NA	SHG-TT MHG-TT SHG-TS	
Yaskawa	Yasnac PC NC CNC	SGDC-**-AGAF Servo Drive	SHG-TT MHG-TT SHG-TS	