

Elwood Corporation: SX-Series

Servo Motors for Hazardous Locations

Connections for EnDat 2.2/01 feedback to Siemens S120 & SMC20

October 2019 - jh

Feedback Device Definition:

Heidenhain EQN 425, ID NO. 1109258-49

EnDat 2.2/01 (512 1Vpp sin/cos cycles/rev incremental, 13b Digital, 4096 rev abs)

Motor Feedback

SMC20		SX-Series	
Signal name	X520 Pin	Feedback Conductor Color	Feedback Conductor Description
P encoder	1	Green w/ White	Up (3.6 - 14VDC, ≤800mW)
M encoder	2	White w/ Green	0V
A	3	White w/ Blue	Output A+
A*	4	Blue w/ White	Output A-
Ground (Shield)	5		
B	6	White w/ Orange	Output B+
B*	7	Orange w/ White	Output B-
Ground (Shield)	8		
N/C	9		
Clock	10	White w/ Brown	Clock
N/C	11		
Clock*	12	Brown w/ White	Clock*
+Temp	13	Blue	Over-temp Limit Sensor (18AWG) ¹
P sense	14	Blue w/ Red	Up Sensor
Data	15	Gray w/ White	Data
M sense	16	Red w/ Blue	0V Sensor
R	17		
R*	18		
C	19		
C*	20		
D	21		
D*	22		
Data*	23	White w/ Gray	Data*
Ground (Shield)	24	Drain Wire	Drain Wire (Shield)
-Temp	25		Over-temp Limit Sensor (18AWG) ¹

¹ Over-temp functions similarly to a thermostat and resistance correlates to a PTC

Motor Power

S120 X1	SX-Series Power Leads		
U	Black (Phase A) ²	Black leads	Red leads White for clockwise rotation (viewed from motor shaft/drive end)
V	Red (Phase C) ²	Red leads	
W	White (Phase B) ²	White leads	

² Power conductor size depends on motor current.

M43x, M44x: 16AWG
M46x, M47x: 12AWG

Motor Brake (if equipped)

S120 X1	SX-Series Power Leads		
Brake Release	BR+	Brown, 18AWG	Brake(+), 24VDC
Brake Common	BR-	Orange, 18AWG	Brake Option-

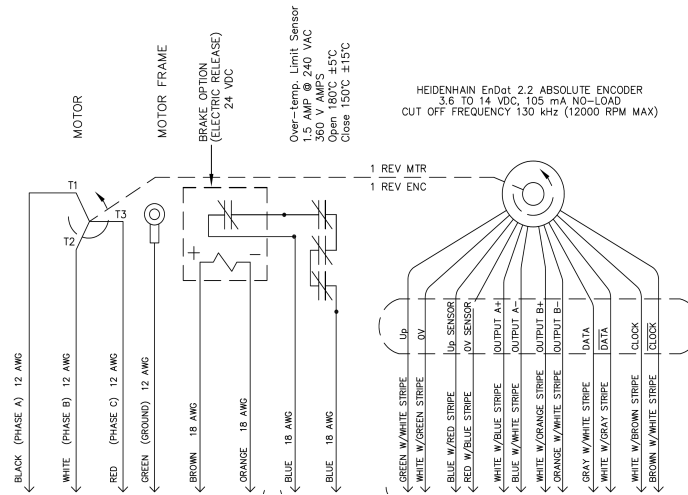


Table 4- 9 X520 encoder system interface

Pin	Signal name	Technical specifications
1	P encoder	Encoder power supply
2	M encoder	Ground for encoder power supply
3	A	Incremental signal A
4	A*	Inverse incremental signal A
5	Ground	Ground (for internal shield)
6	B	Incremental signal B
7	B*	Inverse incremental signal B
8	Ground	Ground (for internal shield)
9	Reserved, do not use	
10	Clock	Clock, EnDat interface, SSI clock
11	Reserved, do not use	
12	Clock*	Inverted clock, EnDat interface, inverted SSI clock
13	+Temp	Motor temperature measurement KTY84-1C130 (KTY+) Temperature sensor KTY84-1C130 / PTC
14	P sense	Sense input encoder power supply
15	Data	Data, EnDat interface, SSI data
16	M sense	Ground sense input encoder power supply
17	R	Reference signal R
18	R*	Inverse reference signal R
19	C	Absolute track signal C
20	C*	Inverse absolute track signal C
21	D	Absolute track signal D
22	D*	Inverse absolute track signal D
23	Data*	Inverse data, EnDat interface, Inverse SSI data
24	Ground	Ground (for internal shield)
25	-Temp	Motor temperature measurement KTY84-1C130 (KTY-) Temperature sensor KTY84-1C130 / PTC

Connector type: 25-pin SUB D connector
Measuring current via temperature sensor connection: 2 mA