



AMKASYN

VARIABLE SPEED DRIVES

Application Note No. AP 2002/21-3

Date: July 2002

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Installation of motor position encoder screen

respect to:	A type encoder	magnetic sine wave encoder
	E type encoder	SINGLE TURN absolute position encoder ENDAT
	F type encoder	MULTI TURN absolute position encoder ENDAT
	I type encoder	optical sine wave encoder
	R type encoder	Resolver
	S type encoder	SINGLE TURN absolute position encoder RS485
	T type encoder	MULTI TURN absolute position encoder RS485

The actual AMKASYN installation procedure lay out the following for the screen of the motor encoder cable. The screen has to be connected on the side of the Power stage only to earth. For the S- and the T-type encoder Pin 8 of the motor connector is used in addition. Also the use of a twisted pair wires is recommended.

With this installation class 3 of the burst susceptibility test according to IEC 1000-4-4 will be achieved.

With **connecting the cable screen to both sided with earth**, it is possible to achieve class 4.

Therefore, for all new machine it's strongly recommended, different to the actual AMK installation procedure, to connect both end of the cable screen to earth.

The screen connection needs the use of the a **suitable connector with screen mounting mechanism**. This connector can be ordered by AMK under the part number 49163.

Unless application note AP 2002/21-1 (Motors with I type encoder "H") is not to observe, old system don't need to be updated.

Appendix:

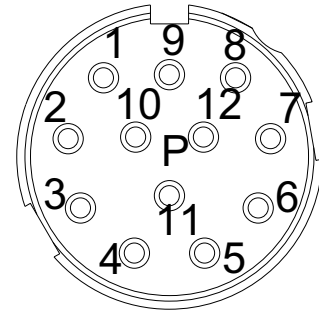
Extract from the updated installation procedure (Application AP 2002/21-3)

Pin out Encoder connector (motor side):

A- / I- / T- / S-Type encoder, Resolver:

Screen Cable LiYCY 4 x 2 x 0,5 mm ² (AWG 20), twisted pair					
Pin Nr.	Pair Nr.	colour	Encoder A / I Signal	Encoder T / S (RS485) Signal	Resolver Signal
1	1a	white	G2N	G2N	+Sine (S1)
2	1b	brown	G2I	G2I	-Sine (S3)
3	2a	green	G1N	G1N	+Cosine (S2)
4	2b	yellow	G1I	G1I	-Cosine (S4)
5	-	-	-	-	-
6	4a	blue	GND	GND	-
7	-	-	-	-	-
8	-	-	-	screen*	-
9	3a	gray	G0N	+RS485	+U _{ref} (R1)
10	3b	pink	G0I	-RS485	-U _{ref} (R2)
11	4b	red	05P	08P	-
12	-	-	-	-	-
Shell		Screen			

View: crimp side

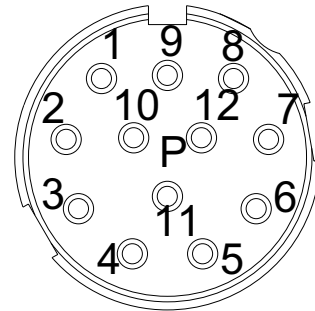


* Because the T-/S-type encoder is mounted isolated inside the motor, the cable screen has to be connected to pin 8.

Absolute position encoder with EnDat-Interface: Type E (singleturn), Type F (multiturn)

Screened cable Kabel (12-wires) 4 x 2 x 0,25mm ² twisted pair/ 4 x 0,5mm ²		
Pin Nr.	Colour (wire size)	Encoder E / F Signal
1	white (0,25mm ²)	G2N
2	brown (0,25mm ²)	G2I
3	green (0,25mm ²)	G1N
4	yellow (0,25mm ²)	G1I
5	violet (0,5mm ²)	05P
6	blue (0,5mm ²)	GND
7	grey/pink (0,25mm ²)	CLK+
8	red/blue (0,25mm ²)	CLK-
9	grey (0,25mm ²)	DAT+
10	pink (0,25mm ²)	DAT-
11	red (0,5mm ²)	05P
12	black (0,5mm ²)	GND
Shell	wire blank	screen

View: crimp side



Important for all encoders:

The screen of the encoder cable has to be connected on both side to chassis via the connector shell.

Maximum length of the encoder cable: 100m (for E-/F-type encoder in the moment 25m!)

A connector set consist of the connector and 12 crimp pins can be ordered from AMK under the part number 49163.