AMK

AMKASYN

VARIABLE SPEED DRIVES

AMKASYN

Digital inverters in modular construction

AW Option card AW-IWA
„Pulse transmission“
(for motors with A type encoder)

Important advice:

Touching of the electrical connections on the card must be avoided, otherwise electronic components could be destroyed through static discharge.

Take card directly out of packing and install it in the assigned AW module.

4997.3E Part No.: 26838

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AW Option card AW-IWA „Pulse transmission“ (only for AW modules AW 1,3/2,6, AW 2,5/5, AW 4,5/9 and redesigned AW modules AW xx/yy-2 with AW-R01 controller card.)

The option card AW-IWA may only be used together with a motor with A type encoder.

The AW-IWA card is used to transmit motor encoder signals to a higher ranking controller.
The sine-wave encoder signals are converted into square-wave pulses (two channels in quadrature and a reference pulse). The square wave output can serve as actual position feedback for an external CNC or as master pulses for a separate drive system in synchronous control.
The AW-IWA card can also be used to adapt the A type encoder signals to the required internal signal levels.

AW-IWA feature „Pulse transmission“:

The sinusoidal signal from the A type motor encoders are converted into square wave and can be multiplied by factor 1, 2 5 or 10 for transmission.

The AW-IWA outputs are optically isolated, short-circuit protected line drivers according to EIA standard RS422. The 5V-voltage for the output signals must be supplied by the customer.

Output signal level:	U_{high}	>=	2V at $-I_{aHigh}$	=	40mA
	U_{low}	<=	0,4V at I_{aLow}	=	40mA
Output load capability:	$-I_{high}$	<=	40 mA		
	I_{low}	<=	40 mA		
Switching times:	Rise time	<=	20 ns		
	Fall time	<=	20 ns		
External voltage supply:	5V / 150 mA				

Max. output frequency: 250 kHz.
With 10-fold evaluation the max. input frequency from motor encoder is limited to 25 kHz (max. input frequency without limitation: 100 kHz).
The minimum pulse-edge interval at 250 kHz is $\geq$ 500ns.

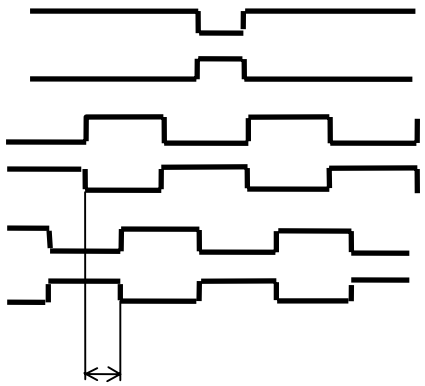
The outputs are led to a 9-pole D-SUB connector (X60). The mating connector is interlocked by 2 screws with UNC4-40 thread.

Under usage of shielded, twisted-pair cable, the maximum distance between inverter and follower electronics is limited to 100 m (325 ft). The cable shield has to be grounded (PE) at the receiver end throug the metallized D-SUB shell.
(For pulse transmission within one AMKASYN system the shield must be grounded at both ends!)

Pulse transmission multiplier:

The required factor must be entered into ID 32890. Only the factors 1, 2, 5 or 10 are permitted. Other factors will generate an error during system booting.

Pin assignment X60 (female connector)

D-Sub-Pin	Signal designation		Output signals after multiplication
1	Reference pulse inverted	Ua0-	
2	Reference pulse	Ua0	
3	Channel 1 inverted	Ua1-	
4	Channel 1	Ua1	
5	Channel 2 inverted	Ua2-	
6	Channel 2	Ua2	
7	+5V external supply	V+	
8	Signal common 0V ext	V-	>500ns
9	-	-	

AW-IWA feature „A type encoder adaption:

Parametrization:
To select „A type encoder“ a „1“ must be entered in ID 32953. The number of periods per motor revolution must be entered in ID 32776 (50/100).
With „A“ type encoder configuration optioncard AW-IWA must be installed.
Incorrect configuration or board fault will result in error code „2328“.

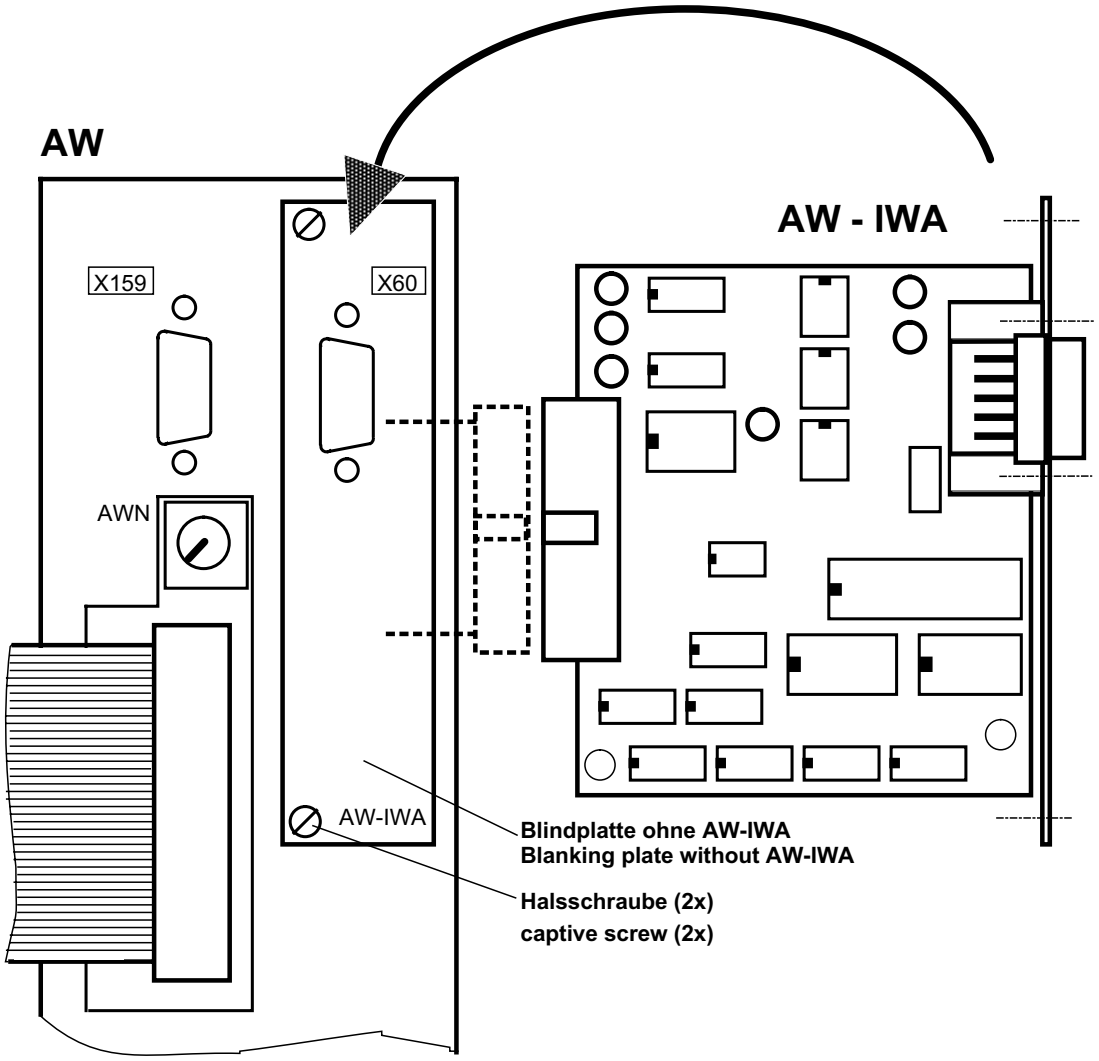
The A type encoder compensation must be activated by setting bit 1 of ID 32773 to „1“. Associated with the standard monitoring the hexadecimal value „1007“ must be entered into ID 32773.
On start-up the encoder adjustment procedure must be carried out. The automatic encoder compensation will then ensure a constant signal level.

Connection and installation of the option card AW-IWA in AW modules AW 1,3/2,6, AW 2,5/5, AW 4,5/9 and AW xx/yy-2:

The AW-IWA card must be inserted into the slot at the top right of the AW module. The slot normally is covered by a blanking plate:

1. Open the blanking plate by loosening the 2 captive screws.
2. Disconnect the ribbon cable from the socket on the back of the blanking plate, then remove the blanking plate.
3. Carefully connect the ribbon cable to the socket on AW-IWA card. Ensure that it is firmly connected.
4. Carefully insert AW-IWA card into the slot. Don’t squeeze or buckle the ribbon cable! Tighten the captive screws on the AW-IWA card.

Connection and installation of option card AW-IWA in AW modules AW 1,3/2,6, AW 2,5/5, AW 4,5/9:



Connection and installation of option card AW-IWA in AW modules AW xx/yy-2: