Product description
Option module AP-IF3

Version: 2017/27
Part No.: 202902

1 Imprint

Title **PDK_202902_Option_AP-IF3_de**

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Office hours:
Mon.-Fri. 7:30 - 16:30, on weekends and public holidays the phone number of the standby service personnel is available on the answering machine.

You can assist us in finding a fast and reliable solution for the malfunction by providing our service personnel with the following:

- Information located on the ID plate of the devices
- The software version
- The device setup and the application
- The type of malfunction, suspected cause of the failure
- The diagnostic messages (error codes)

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2 Safety advice

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

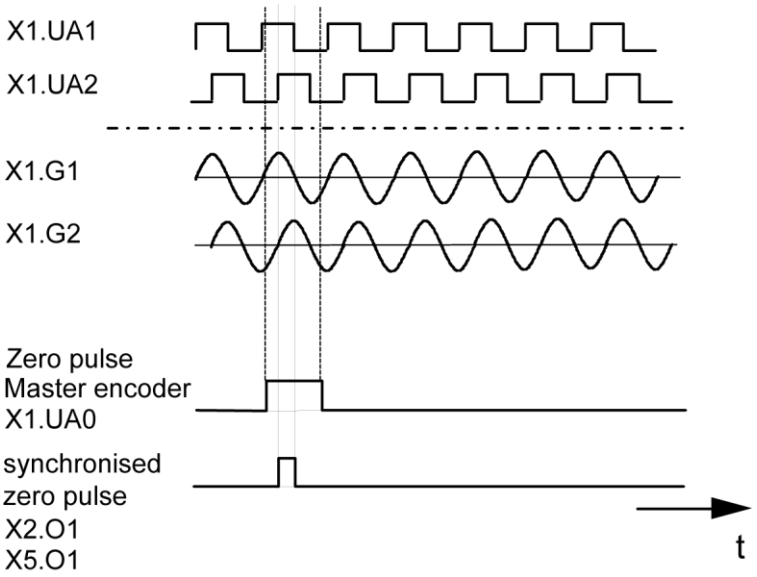
3 AP-IF3 Option module description

With the option module AP-IF3 a zero pulse signal will be synchronised to the related encoder signals and shortened to 90°.

The AP-IF3 board is installed on a PHOENIX UMB frame (dimensions: 68 mm x 77 mm/ 2.68” x 3.03”). The module is snap-mounted on a DIN rail in the electrical cabinet.

The synchronised zero pulse is outputted on X2 for connection to the inverter and outputted on X5 for potential free pulses forwarding. (see “Time diagram”)

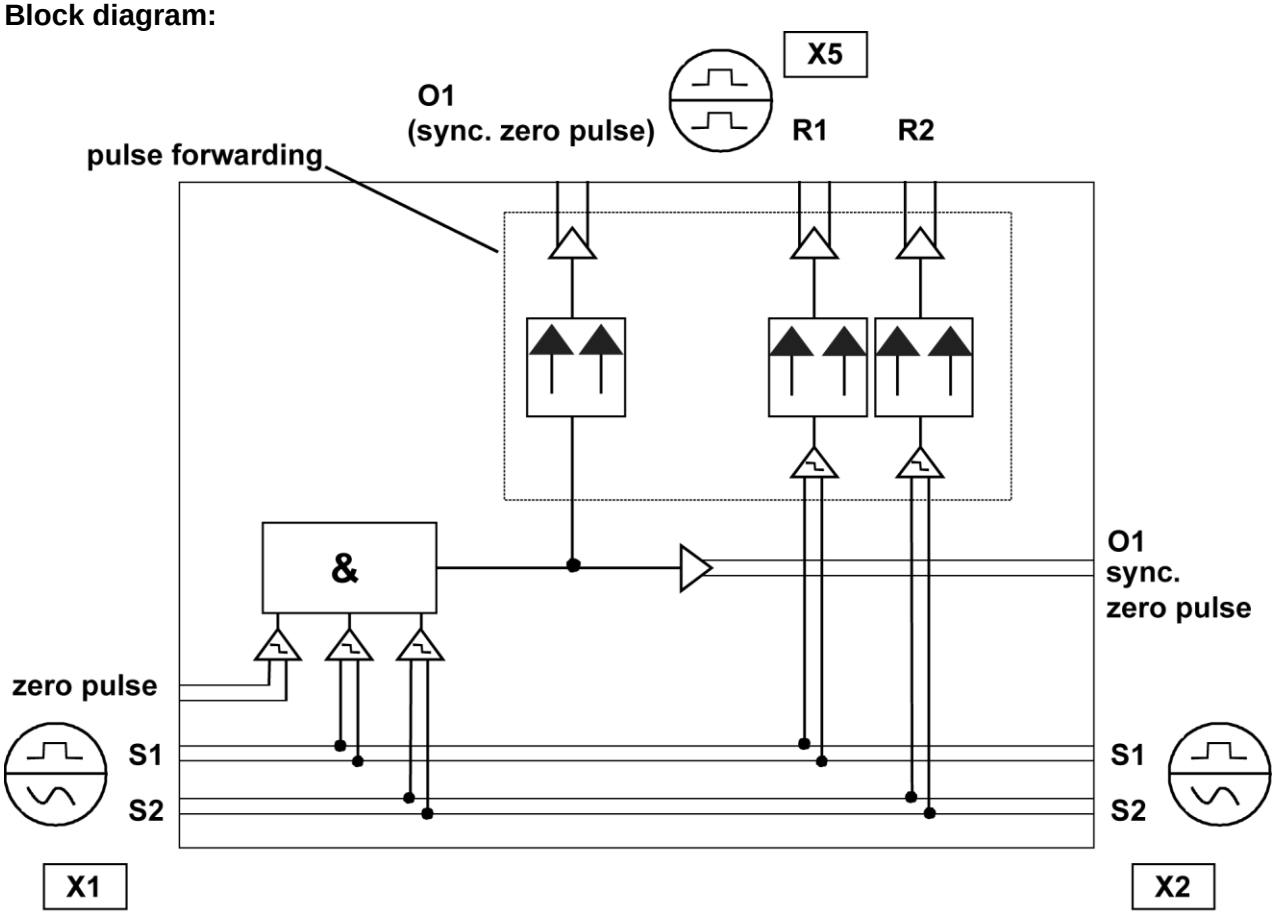
Timing diagram:



Sine wave encoder signals **(only from I type encoder)** or square wave signals can be fed through input X1 of the AP-IF3 module.

The AP-IF3 module additionally provides an optically isolated square wave output (X5) for pulse transmission with a fan-out of 2. **This is only available for square wave input signals.**

Block diagram:



Legend:

Optocoupler

Comparator

Driver

4 AP-IF3 Interfaces

Interface	Designation	Connector
Pulse input	X1	9pole D-SUB (male)
Output: Square wave pulse transmission (amplified, fan-out= 2):	X5	9pole D-SUB (female)
Pulse output (connect through signals)	X2	9pole D-SUB (female)
24V input: External trigger signal	X3 [1)]	2pole PHOENIX terminals
24V input: Activate encoder reference pulse	X4 [1)]	2pole PHOENIX terminals

[1)] X3, X4 function deactivated

4.1 X1 Pin assignment: Signal input

Pin No.	Signal	Description
1	G0I	Sine or square wave encoder signal: zero pulse inverted
2	G0N	Sine or square wave encoder signal: zero pulse not inverted
3	G1I	Sine or square wave encoder signal: Track 1 inverted
4	G1N	Sine or square wave encoder signal: Track 1 not inverted
5	G2I	Sine or square wave encoder signal: Track 2 inverted
6	G2N	Sine or square wave encoder signal: Track 2 not inverted
7	5P	+5V Power supply
8	GND	Signal Ground (ground reference)
9	PE	Protective earth connection through connector shell

4.2 X2 Pin assignment: Signal output (connect through signals)

Pin No..	Signal	Description
1	G0I	Zero pulse or external trigger signal inverted
2	G0N	Zero pulse or external trigger signal not inverted
3	G1I	Sine or square wave signal: Track 1 inverted
4	G1N	Sine or square wave signal: Track 1 not inverted
5	G2I	Sine or square wave signal: Track 2 inverted
6	G2N	Sine or square wave signal: Track 2 not inverted
7	5P	+5V Power supply
8	GND	Signal Ground (ground reference)
9	PE	Protective earth connection through connector shell

4.3 X5 Pin assignment: Square wave signal output (transmission)

Pin No.	Signal	Description
1	G0I	Square wave signal; zero pulse inverted
2	G0N	Square wave signal; zero pulse not inverted
3	G1I	Square wave signal; track 1 inverted
4	G1N	Square wave signal; track 1 not inverted
5	G2I	Square wave signal; track 2 inverted
6	G2N	Square wave signal; track 2 not inverted
7	5P	+5V Power supply
8	GND	Signal Ground (ground reference)
9	nc	-

PE is not connected

4.4 X3 Pin assignment: Not supported!

External trigger signal

Pin No.	Signal	Description
1*)	NK+	External trigger signal +24V
2*)	NK -	0V ext.

*) deactivated

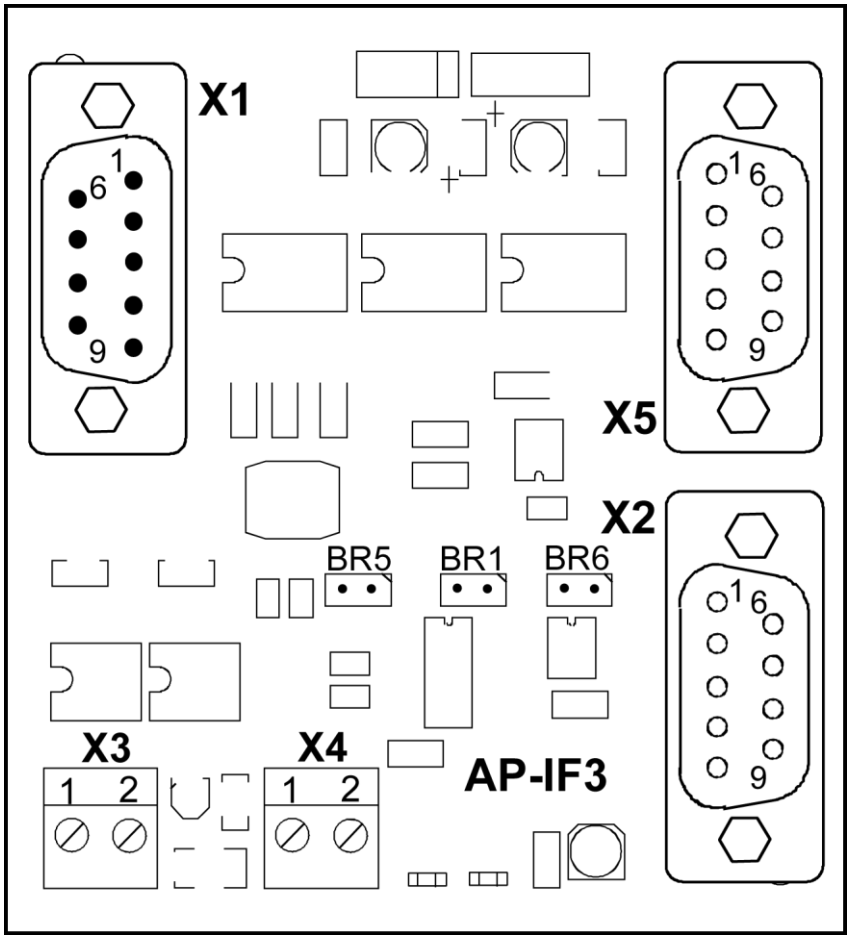
4.5 X4 Pin assignment: Not supported!

“Change-over” signal

Pin No.	Signal	Description
1*)	UM+	Activate encoder reference pulse +24V
2*)	UM -	0Vext.

*) deactivated

5 Layout diagram

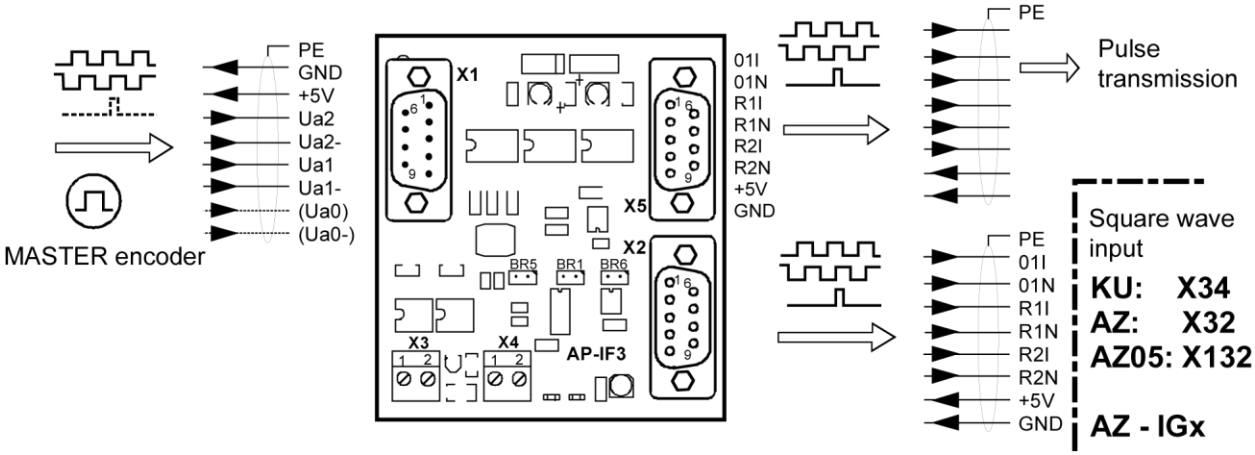


6 AP-IF3 Connections

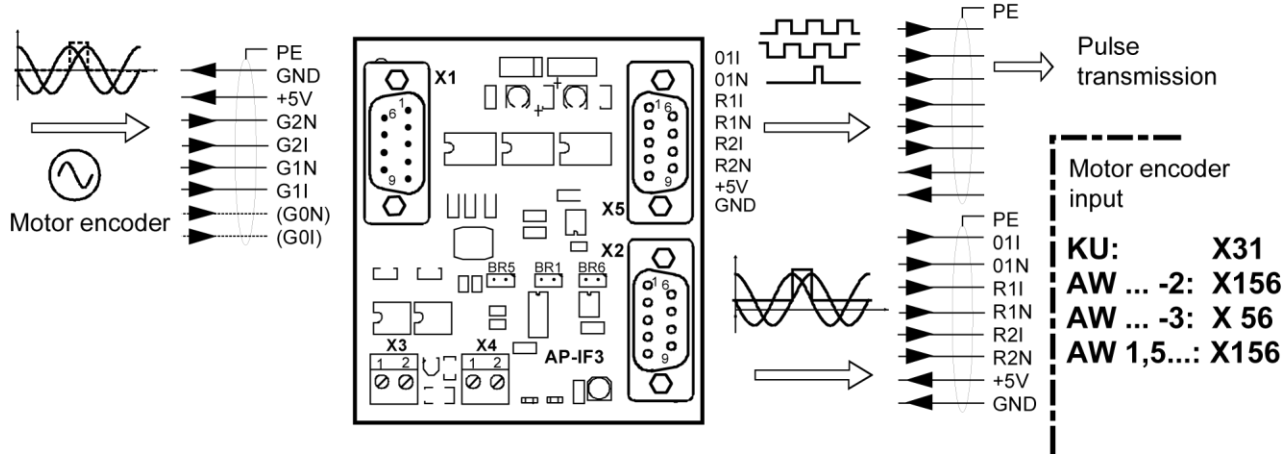
Note: AP-IF3 mainly is designed for pulse forwarding of square wave pulses.
For signal input X1 a 9-pole D-SUB connector (male) is used.
For connection of a standard encoder cable for KU-devices a “Gender Changer” (D-SUB-9-changer) is required.

Twisted pair, shielded cables must be used for connection.
The length of the cable between the D-SUB connectors X2 / X5 and the inverter must not exceed 0,5 m / 1.64 ft !
The cable shield must be grounded double-ended.

AP - IF3 connections for square wave signals



AP - IF3 connections for sine wave signals

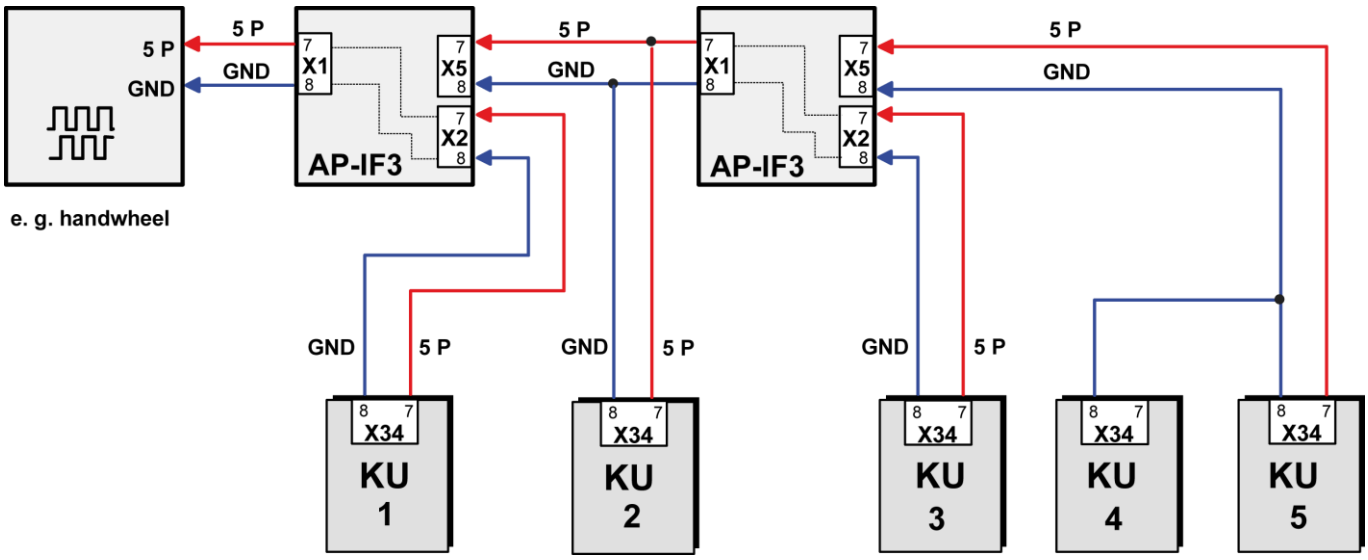


7 5V supply connection (5P)

The 5V supply for the AP-IF3 card must be applied through connector X2.
Internally the 5V are connected through to connector X1. Connector X1 then provides the 5V supply for the square wave or sine wave encoder.

For pulse transmission via the AP-IF3 (fan-out = 2), the 5V supply for the optically isolated section of the amplifier must come through connector X5.

Example:
Square wave pulses e.g. from a hand wheel are fed to 6 KU square wave inputs using two AP-IF3 cards.
Representation of the 5V supply for the different blocks.



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