AMKASYN
USB/CAN Bus Converter
AMK Part-No. O755

Version: 2017/04
Part no.: 201244
Translation of the "Original Dokumentation"

Imprint

Name: PDK_201244_USB_TO_CAN_en

Version:

Version: 2017/04		
Chapter / Topic	**Change**	**Letter symbol**
	• Safety alert symbols changed to DIN EN ISO 7010	STL

Previous version: 2014/38

Product version:

Product AMK part no.	Description
O755	USB/CAN bus converter

Reservation: We reserve the right to modify the content of the documentation as well as the delivery options for the product.

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For fast and reliable troubleshooting, you can help us by informing our Customer Service about the following:

- Type plate data for each unit
- Software version
- Device configuration and application
- Type of fault/problem and suspected cause
- Diagnostic messages (error messages)

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Content

1 About this documentation

1.1 Structure of this document

Topic	Chapter	Chapter number
Validity, use and the purpose of the document	Imprint	-
	About this document	1
Safety	For your safety	2
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	Technical Data, EMC Notes	
	Pin Assignment	

1.2 Keeping this document

This document must permanently be available and readable at the place where the product is in use. If the product is used at another place or changed the owner, the document must be passed on.

1.3 Target group

Any person who is entitled and intends to carry out one of the following works must read, understand, and observe this document.

- Connection
- Startup
- Testing and maintenance
- Service and repair

1.4 Purpose

This document is addressed to any person who handles the product. It gives information about the following topics:

- Electrical connections
- Startup and operation
- Diagnosis

1.5 Display conventions

Display	Meaning
	This symbol points to parts of the text to which particular attention should be paid!
'Names'	e. g.: Calling up the function 'delete PLC program' Parameter names, e. g.: ID2 'SERCOS cycle time' Variable names, e. g.: The variable 'udAccel' contains the acceleration value. Diagnostic message, e. g.: 1042 'Mains phase fault' Safety parameters, e. g.: Prm67 'SMS safe maximum speed'

1.6 Appendant documents

Functional documentations

AMK part-no.	Title
202234	Software description AIPEX PRO (PC software for startup and parameterization)

2 For your safety

2.1 Basic notes

- At electrical drive systems, hazards are present in principle that can result in death or fatal injuries:
  - Electrical hazard (e. g. electric shock due to touch on electrical connections)
  - Mechanical hazard (e. g. crush, retract due to the rotation of the motor shaft)
  - Thermal hazard (e. g. burns due to touch on hot surfaces)
- These hazards are present while starting up and operating the unit, and also during servicing or maintenance work.
- Safety instructions in the documentation and on the product warn about the hazards.
- Personnel must have read and understood the safety instructions before installing and operating the product. In the documentation about the product the usage warnings pertain to direct hazards and must therefore be followed directly when operating or handling the product by the operator.
- AMK products must be kept in their original order, that means it is not allowed to do a significant constructional change on hardware side and software is not allowed to be decompiled and change the source code.
- Damaged or faulty products are not allowed to be integrated or put into operation.
- Do not start the system in which the AMK products are installed (begin of intended use) until you can determine that all relevant standards, laws, and directives have been complied with, e. g. low voltage directive, EMC directive, and the machinery directive, and possible further product standards. The plant manufacturer is responsible for the compliance with the laws, directives, and standards.
- The devices must be installed, electrically connected and operated as shown in the device description documentation. The technical data and the required environmental conditions must be observed at all times.

2.2 Safety rules for handling electrical systems

In particular on drive systems, the instructions pertaining to safety and the following five safety rules have to be kept in the specified sequence:

1. Switch off electrical circuits (also electronic and auxiliary circuits).
2. Secure against being switched on again.
3. Determine that there is no voltage.
4. Earth and short circuit.
5. Cover or close off neighbouring parts that are under voltage.

Reverse the measures taken in reverse order after completing the work.

2.3 Requirements for the personnel and their qualification

Only authorized and qualified personnel may work on and with the AMK drive systems.

Specialised personnel must:

- Perform mechanical and electrical work that is described in this documentation, such as mounting and connecting
- Observe all information in the documentation accompanying the product in order to work with the product safely and in an error-free manner
- Understand and know hazards that occur when handling the product
- Know connections and functions of the system
- Be familiar with the control concept in order to operate the drive system
- Be authorized to switch circuits and devices on and off, earth and label them
- Observe local specific safety requirements

2.4 CE mark

AMK products have been constructed using the "State of the Art" and are safe to operate. AMK issues an EC / EU declaration of conformity for each of its products in which the standards and guidelines relevant for the product are listed. AMK also designates the products with the CE mark which signifies conformity to the standards.

2.5 Warranty

- All information in the documents accompanying the product must be complied with for a safe and trouble-free operation.
- The assertion of warranty claims is excluded if the information in the documents is not observed completely.
- Hardware and firmware may not be modified except by personnel authorised by AMK and after consultation with AMK.
- The company AMK Arnold Müller GmbH & Co. KG is not liable for damages from unintended use, incorrect installation or operation, exceeding rated values and non-observance with the environmental conditions.

3 Installation

First install the driver VCI, before you link the pc with the converter.

Insert the enclosed CD into the CD device of the computer. Select the language on the start window. On the following page select the item “driver installation”. Click on VCI installation to start the installation program. Follow the steps of the installation software to install the requisite VCI driver. Read the installation notes in the enclosed manual according your WINDOWS operating system.

After the VCI driver is installed you will be asked to restart the PC. The USB–CAN converter is ready to use now.

Next plug in the USB connector of the converter in the USB port of the PC and connect the ACC bus cable (IEEE 1394) to the AMK system. Follow the steps of the assistant “Software from windows”.

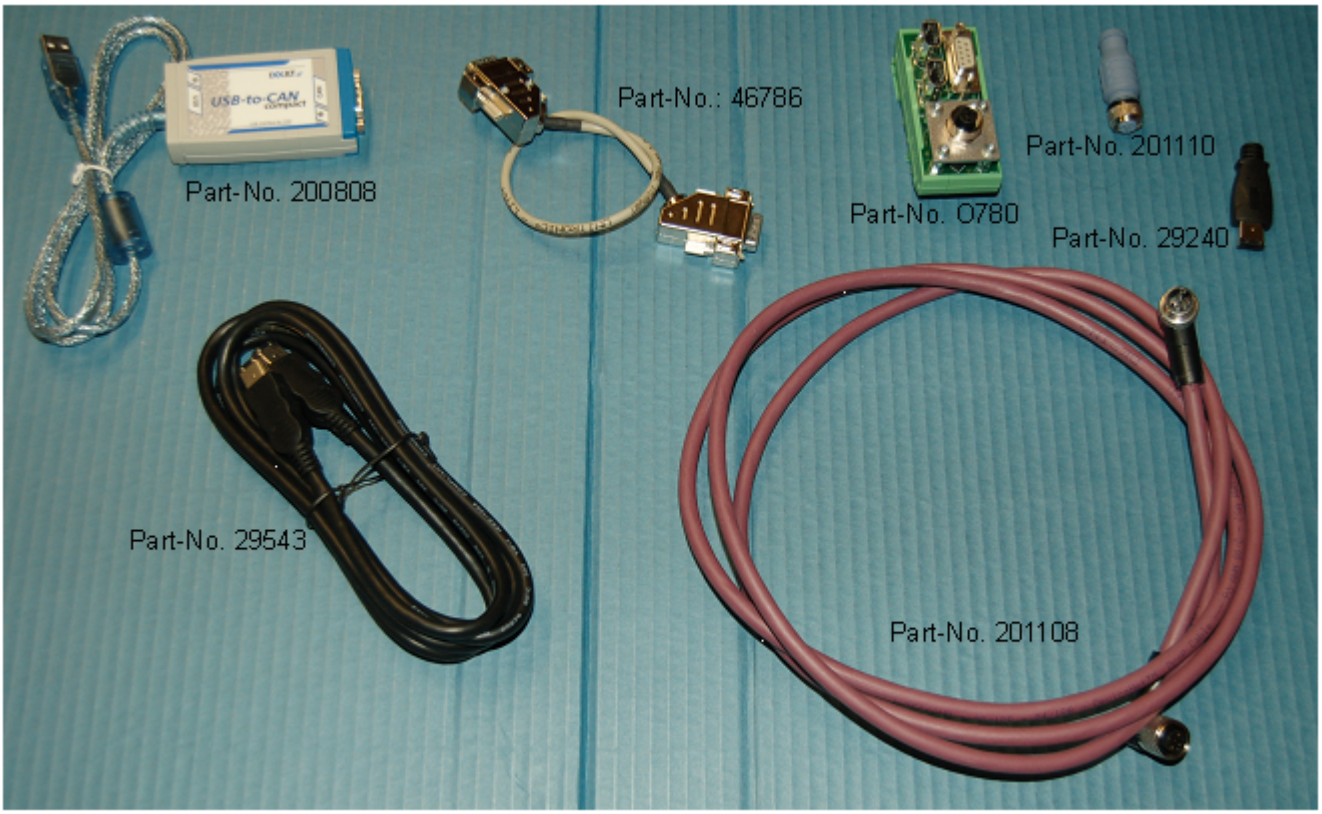
Depending the application of the USB-CAN converter you have to do further set ups in the used application software. Further information, how to activate the CAN interface in AIPEX PRO please see: PDK_204979_ Software_AIPEX_PRO_V3_de

Additional to the VCI driver a basic CAN-analyzer “Minimon 32” is installed to your PC. This software can monitor the CAN bus data traffic between the CAN bus nodes.

4 Product description

4.1 Scope of delivery

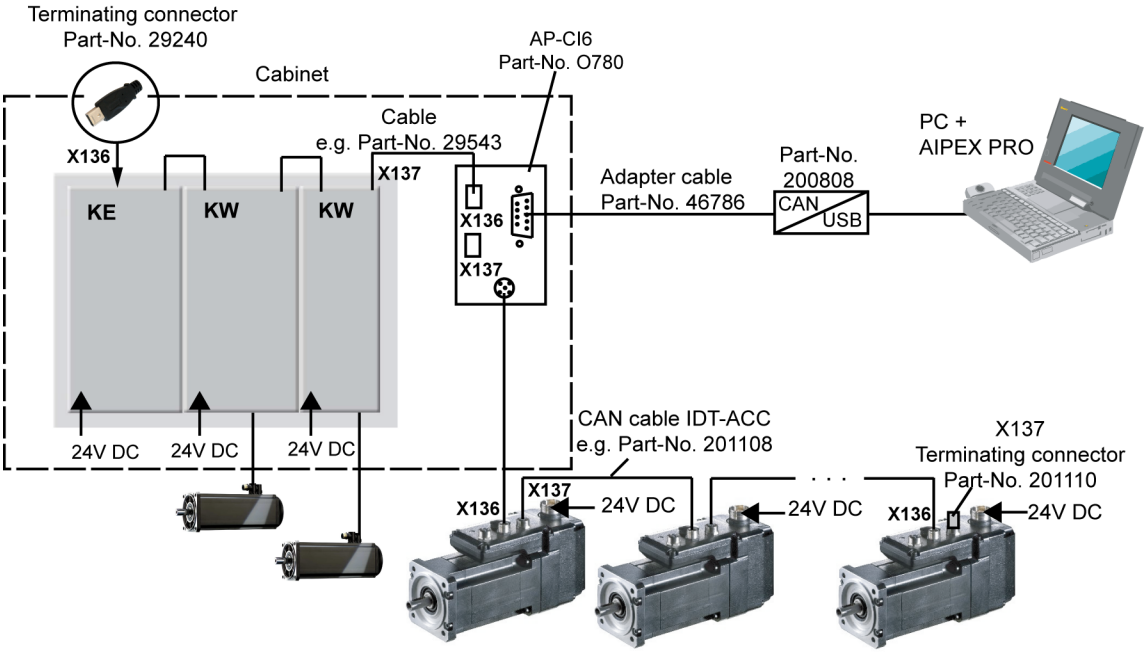
1x	Part-No. 200808	Converter USB/CAN, 1 m
1x	Part-No. 46786	Adapter cable (2x Sub-D 9P), 0,35 m
1x	Part-No. O780	Circuit board AP-CI6
1x	Part-No. 201110	Terminating connector M12
1x	Part-No. 29240	Terminating connector 6P (Fire wire)
1x	Part-No. 29543	Cable IEEE 1394 (2 x Fire wire), 1,8 m
1x	Part-No. 201108	CAN cableIDT-ACC2000 M12 Pin / socket 90°, 2 m



4.2 Intended Use

The USB-CAN bus interface converter interlinks the ACC bus interface (AMK CAN Communication with hardware synchronization cycle) e.g. the CAN bus interface of the AMK devices with the USB interface of a PC. The connection is used for parameter setting and startup drive system with the AMK PC software AIPEX PRO (AMK part no. O907). The top hat rail mounting allows fix mounting of the converter in the cabinet. The converter will be fix linked with the ACC/CAN bus. Thus every time a running machine can be connected to a PC via ACC/CAN bus to get access to the drives (hotplug via X75 (9 pin D-SUB)).

4.3 Connection example KE/KW - iX/iC/iDT

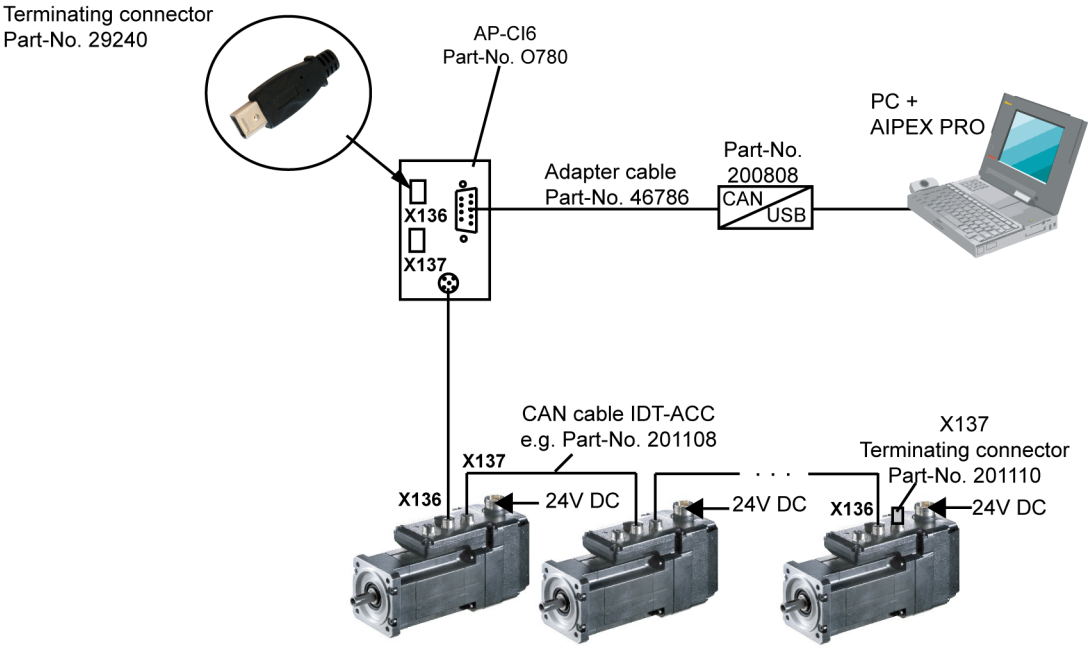


The connection of KU system is identical with the connection of the KE/KW system.
The connection of iX/iC system is identical with the connection of the iDT system.

The converter can also be used as portable tool e.g. for programming and setup of the KU-/KW-R03P controller card, if the serial interface is used by a modbus HMI.

The ACC bus interface is located on the top of the AMK controller card of the drive systems KU or KE/KW or on the option card AS-FCT1/2 on the AMKAMAC controller.

4.4 Connection example iX/iC/iDT



The connection of iX/iC system is identical with the connection of the iDT system.

The interlink from converter to the ACC/CAN bus can be done at any spot in the ACC/CAN bus. The ACC/CAN connection must be crossed over (terminal X136 must be connected to X137 of the next node and X137 to X136 of the following node). If the converter will be connected at first or last ACC/CAN node, a bus terminator must be plugged in. The USB–CAN adapter has no internal bus terminator. The converter is only allowed to connect to a ACC/CAN bus at zero current.

4.5 Technical Data

Dimensions:	80 x 45 x 20 mm
Weight:	ca. 100g
Operating temperature:	0 –50°C
Voltage supply:	via USB
Input current:	rated 250mA max. 400mA
System of protection:	IP40 stage 4
Galvanic isolation:	galvanic isolated via optocoupler
AN bus run time delay:	with galvanic isolation 50ns
EMC compatibility:	DIN EN

4.6 EMC Notes

The ACC/CAN bus which is connected to the converter must have shielded cables. The shield must have a conducting connection to the connector housing. The converter have to be connected to a PC only with CE label.

4.7 Pin Assignment

The USB connection is implemented as a USB Type A male connector. The pin assignment for the ACC/CAN bus connector can be found in the following table:

ACC/CAN assignment X137/X237				ACC/CAN assignment X136/X236		
Pin	**X137**	**Remarks**		**Pin**	**X136**	**Remarks**
1	N.C.	AMK internal		1	N.C.	AMK internal
2	GND	Ground		2	GND	Ground
3	CAN_H	CAN High		3	SYNC_H [1)]	SYNC High
4	CAN_L	CAN Low		4	SYNC_L [1)]	SYNC Low
5	SYNC_H [1)]	SYNC High		5	CAN_H	CAN High
6	SYNC_L [1)]	SYNC Low		6	CAN_L	CAN Low
Housing	PE	Shield		Housing	PE	Shild

1) ACC bus specific

Your opinion is important!

With our documentation we want to offer you the highest quality support in handling the AMK products.
That is why we are now working on optimizing our documentation.
Your comments or suggestions are always of interest to us.
We would be grateful if you take a bit of time and answer our questions. Please return a copy of this page to us.

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Thank you for your assistance.
Your AMK documentation team

1. How would you rate the layout of our AMK documentation?

   (1) very good (2) good (3) satisfactory (4) less than satisfactory (5) poor

2. Is the content structured well?

   (1) very good (2) good (3) moderate (4) hardly (5) not at all

3. How easy is it to understand the documentation?

   (1) very easy (2) easy (3) moderately easy (4) difficult (5) extremely difficult

4. Did you miss any topics in the documentation?

   (1) no (2) if yes, which ones:

5. How would you rate the overall service at AMK?

   (1) very good (2) good (3) satisfactory (4) less than satisfactory (5) poor

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