HIRSCHMANN
A BELDEN BRAND

Startup instructions

AutoConfiguration Adapter
ACA21-USB (EEC)
ACA22-USB (EEC)
ACA21-M12 (EEC)
ACA22-M12 (EEC)
ACA22A
ACA22-USB-C (EEC)
ACA22-M12-C (EEC)

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You can get the latest version of this manual on the Internet at the Hirschmann product site (www.hirschmann.com).

Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Germany

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Important information

Note: Read these instructions carefully, and familiarize yourself with the device before trying to install, operate, or maintain it. The following notes may appear throughout this documentation or on the device. These notes warn of potential hazards or call attention to information that clarifies or simplifies a procedure.

Symbol explanation

This is a general warning symbol. This symbol alerts you to potential personal injury hazards. Observe all safety notes that follow this symbol to avoid possible injury or death.

If this symbol is displayed in addition to a safety instruction of the type “Danger” or “Warning”, it means that there is a danger of electric shock and failure to observe the instructions will inevitably result in injury.

This symbol indicates the danger of hot surfaces on the device. In connection with safety instructions, non-observance of the instructions will inevitably result in injuries.

DANGER

DANGER draws attention to an immediately dangerous situation, which will **inevitably** result in a serious or fatal accident if not observed.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.

CAUTION

CAUTION indicates a possible danger which, if not avoided, **may** result in minor injuries.

NOTICE

NOTE provides information about procedures that do not involve the risk of injury.

Safety instructions

Certified usage

- ☐ Exclusively operate the ACA21.../ACA22... storage medium with Hirschmann Industrial Ethernet host devices.
  Maximum ambient air temperature: +70 °C (+158 °F)
  Peripheral equipment must be suitable for the location in which it is used.
- ☐ Use the product only for the application cases described in the Hirschmann product information, including this manual.
- ☐ Operate the product only according to the technical specifications.
  See “Technical Data” on page 18.
- ☐ Connect to the product only components suitable for the requirements of the specific application case.

Strain relief

Note: If the strain relief is insufficient, there is a potential risk of torsion, contact problems and creeping interruptions.

- ☐ Relieve the connection points of cables and lines from mechanical stress.
- ☐ Design strain reliefs in such a way that they help prevent any mechanical damage to cables, wires or conductors caused by external influences or their own weight.
- ☐ To help prevent damage to device connections, connectors and cables, follow the instructions for proper installation in accordance with DIN VDE 0100-520:2013-06, sections 522.6, 522.7 and 522.13.

Supply voltage

- ☐ Exclusively operate the ACA21.../ACA22... storage medium with Hirschmann Industrial Ethernet host devices via their USB interface.
  The output power at the USB interface is limited to Class 2.

National and international safety regulations

Verify that the electrical installation meets local or nationally applicable safety regulations.

Use in Hazardous Locations (North America)

The ACA storage medium may be operated in hazardous locations only if it is marked accordingly “FOR USE IN HAZARDOUS LOCATIONS, Class I, Division 2, Groups A, B, C, D”. Additionally, for use with Industrial-Line Hirschmann Ethernet products (host devices) only which are individually labeled “FOR USE IN HAZARDOUS LOCATIONS”.

For “ACA21-USB (EEC)”, “ACA22-USB (EEC)”, and “ACA22A” types only: Non-Incendive only in hazardous locations when installed per Control Drawing 000163850DNR. In addition, the host device shall meet the Entity Parameter requirements as prescribed in the Control Drawing 000163850DNR in this present document.

See “Control Drawing 000163850DNR” on page 9.

WARNING - EXPLOSION HAZARD!
DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

WARNING - EXPLOSION HAZARD!
SUBSTITUTION OF ANY COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2.

Avertissement - Risque d'explosion - Ne pas débrancher tant que le circuit est sous tension à moins que l'emplacement soit connu pour ne contenir aucune concentration de gaz inflammable.

Avertissement - Risque d'explosion - La substitution de tout composant peut rendre ce matériel incompatible pour une utilisation en classe I, division 2.

Use in Explosive Atmospheres Zone 2 According to European Directive 2014/34/EC

This product may be operated in EX zone 2 only if the product label is marked as follows:

For “ACA21-M12 (EEC)”, “ACA22-M12 (EEC)” and “ACA22-USB-C (EEC)” types:

II 3G Ex ec IIC T4 Gc DEKRA 12ATEX0258X

Temperature Code: T4; Ta: -40 °C to +70 °C (-40 °F to +158 °F)

For “ACA21-USB (EEC)” and “ACA22-USB (EEC)” types:

II 3G Ex ec ic IIC T4 Gc DEKRA 12ATEX0258X

Temperature Code: T4; Ta: -40 °C to +70 °C (-40 °F to +158 °F)

Non-incendive only in Ex Zone 2 when installed per Control Drawing 000163850DNR. In addition, the host device shall meet the Entity Parameter requirements as prescribed in the Control Drawing 000163850DNR in this present document.
See “Control Drawing 000163850DNR” on page 9.

Special conditions for safe use:

- ☐ The equipment shall only be used in an area with maximum pollution degree 2, as defined in IEC 60664-1.
- ☐ The product shall be installed in a suitable enclosure providing a degree of protection of at least IP54 in accordance with EN 60079-0, taking into account the environmental conditions under which the product will be used.

Control Drawing 000163850DNR

Ordinary Location,
Non-Hazardous Area,
Non-Explosive Atmosphere

Class 1, Division 2
Groups A, B, C, D
Hazardous Location

or

Zone 2
Explosive Atmosphere

USB Power supply contacts:
ACA21-USB (EEC), ACA22-USB (EEC), and ACA22A with nonincendive field wiring parameters. The USB contacts pin 1 and pin 4 are dependent on the following ENTITY PARAMETERS: *)

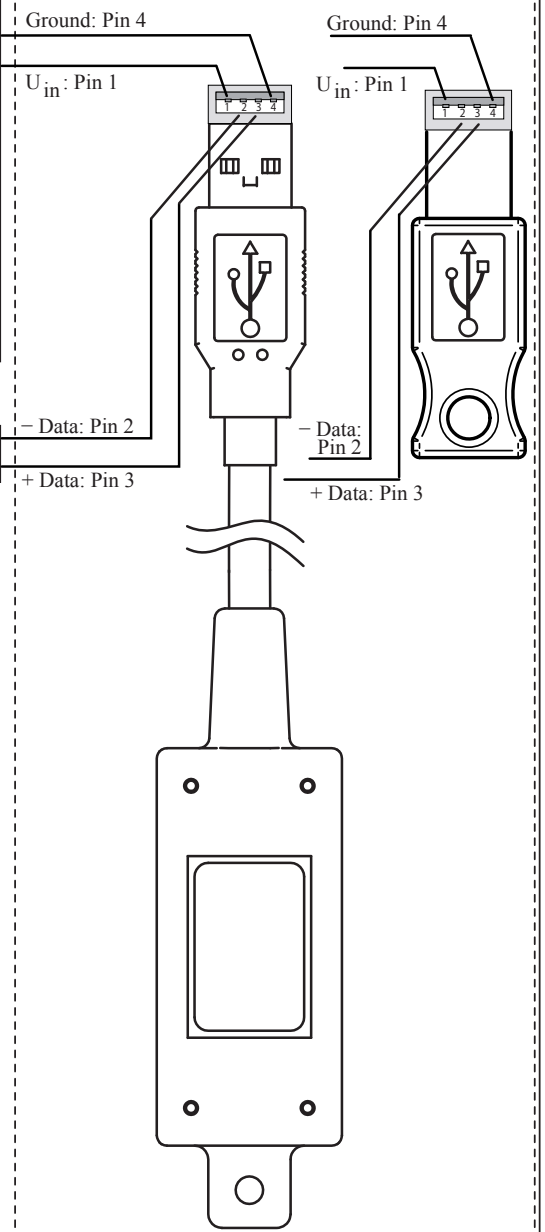
V_{max} or U_i	I_{max} or I_i	C_i	L_i
5.5 V	1.25 A_{dc}	6.0 µF	400 nH

USB Data contacts

Entity Parameters only to apply for ACA21-USB (EEC), ACA22-USB (EEC), and ACA22A which are inividually labelled "See Control Drawing No. 000163850DNR".

Temperature Code: T4
Ambient Temperature rating:
Ta: −40 °C to +70 °C

Connect the ACA direct to the host device and
- DO NOT USE ANY ADDITIONAL EXTENSION CABLE -



CONTROL DRAWING for ACA21-USB (EEC), ACA22-USB (EEC), and ACA22A according to Class I, Division 2, Hazardous Location ANSI/UL 121201, CSA 213-17 or according to the European directive 2014/34/EU		HIRSCHMANN A BELDEN BRAND
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Make sure that the Entity Parameters of the host device meet the following requirements: *)

V_{oc} or $U_o \leq 5.5$ V I_{sc} or $I_o \leq 1.25$ A
C_a or $C_o > 6.0$ µF $L_a > 400$ nH

Applied standards:

ANSI/UL 121201-2017 (Hazardous Locations)
CSA 213-17 (Hazardous Locations)
EN IEC 60079-0: 2018 (Zone 2, directive 2014/34/EU)
EN 60079-11: 2012 (ic) (Zone 2, directive 2014/34/EU)
EN 60079-7: 2015 + A1: 2018 (ec) (Zone 2, directive 2014/34/EU)

Special conditions for safe use according to the directive 2014/34/EU

The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
The product shall be installed in a suitable enclosure providing a degree of protection of at least IP54 in accordance with EN 60079-0, taking into account the environmental conditions under which the product will be used.

*) Note: Applied parameter designations under the conditions of ...

... Hazardous Locations Class I Division 2:	V_{max}	I_{max}	C_i	L_i	V_{oc}	I_{sc}	L_a	C_a
... the European directive 2014/34/EU / EN 60079-11	U_i	I_i	C_i	L_i	U_o	I_o	L_o	C_o

CE marking

The labeled devices comply with the regulations contained in the following European directive(s):

2014/30/EU (EMC)
Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

2011/65/EU and 2015/863/EU (RoHS)
Directive of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

2014/34/EU (ATEX)
Directive of the European Parliament and the council on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.

Note: The ATEX Directive applies exclusively to the device variants labeled with an ATEX certificate number:
See “Use in Explosive Atmospheres Zone 2 According to European Directive 2014/34/EC” on page 8.

In accordance with the above-named EU directive(s), the EU conformity declaration will be at the disposal of the relevant authorities at the following address:

Hirschmann Automation and Control GmbH
Stuttgarter Str. 45-51
72654 Neckartenzlingen
Germany

You find the EU conformity declaration as PDF file for downloading on the Internet at: https://www.doc.hirschmann.com/certificates.html

The product can be used in residential areas (residential, commercial and light-industrial environments) and in industrial areas.

- Interference immunity: EN 61000-6-2
- Emitted interference: EN 55032

You find more information on technical standards here:
“Technical Data” on page 18.

Warning! This is a class A device. This device can cause interference in living areas, and in this case the operator may be required to take appropriate measures.

Note: The assembly guidelines provided in these instructions must be strictly adhered to in order to observe the EMC threshold values.

Description

The ACA21.../ACA22... storage medium is for saving and updating configuration data and software of the Hirschmann Industrial Ethernet host devices.

USB compatibility of the storage medium: ACA21.../ACA22...

Storage medium	Software	
ACA21-...	Classic	compatible
	HiOS HiSecOS	Enabling the compatibility mode on the device is required.
ACA22-...	Classic HiOS HiSecOS	compatible

Further information:
“Technical Data” on page 18

Installation

☐ Plug the ACA21.../ACA22... storage medium into the USB interface or M12 socket of the device.

Note: Note that upon restart, the host device—depending on its configuration—adopts the configuration saved on the ACA21.../ACA22... storage medium. The status of the storage medium in the graphical user interface or in the Command Line Interface tells you if the configuration on the ACA21.../ACA22... storage medium corresponds with the configuration on the host device.

Pin assignments

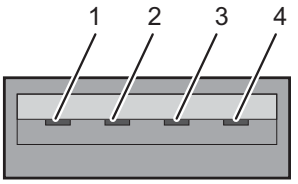
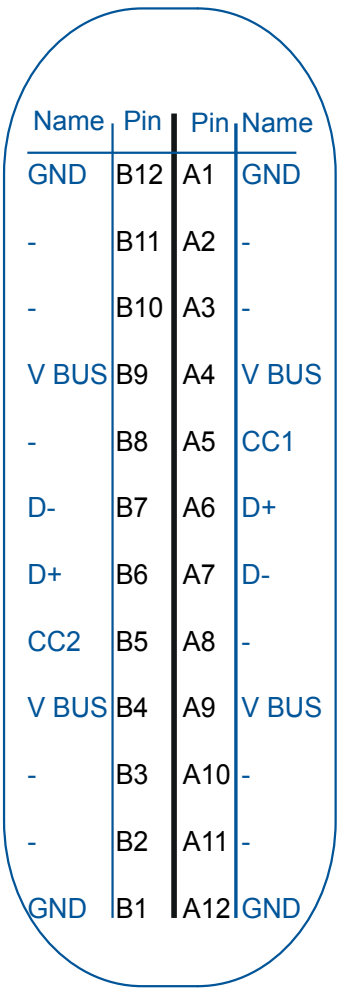
Figure	Pin	Function
	1	U_{in}
	2	− Data
	3	+ Data
	4	Ground (GND)

Table 1: Pin assignment of the USB-A interface



Name	Pin	Pin	Name
GND	B12	A1	GND
-	B11	A2	-
-	B10	A3	-
V BUS	B9	A4	V BUS
-	B8	A5	CC1
D-	B7	A6	D+
D+	B6	A7	D-
CC2	B5	A8	-
V BUS	B4	A9	V BUS
-	B3	A10	-
-	B2	A11	-
GND	B1	A12	GND

Figure 1: Pin assignment of the USB-C interface

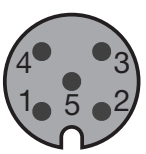
Figure	Pin	Function
	1	U_{in}
	2	—
	3	− Data
	4	Ground (GND)
	5	+ Data

Table 2: Pin assignment of the plug of the following storage media: ACA21-M12 (EEC), ACA22-M12 (EEC)

Figure	Pin	Function
	1	U_{in}
	2	CC1
	3	− Data
	4	Ground (GND)
	5	+ Data

Table 3: Pin assignment of the plug of the following storage medium: ACA22-M12-C (EEC)

Operation

Transferring the current configuration data on the storage medium

You have the option of transferring the current configuration of your connected device via the graphical user interface or the Command Line Interface on the ACA21.../ACA22... storage medium and the flash memory of the host device simultaneously.

Transferring the configuration data from the storage medium

Upon restart, the host device adopts the configuration data saved on the ACA21.../ACA22... storage medium and saves them permanently in the flash memory.

Updating the software

For more information, refer to the “User Manual Basic Configuration” document.

Technical Data

General technical data		
Order numbers	ACA21-USB (EEC)	943 271-003
	ACA22-USB (EEC)	942 124-001
	ACA21-M12 (EEC)	943 913-003
	ACA22-M12 (EEC)	942 125-001
	ACA22-M12-C (EEC)	942 306-001
	ACA22A	942 152-001
	ACA22-USB-C (EEC)	942 239-001
USB standard	ACA21-USB (EEC)	USB 1.1
	ACA21-M12 (EEC)	
	ACA22-USB (EEC)	USB 2.0
	ACA22-M12 (EEC)	
	ACA22-M12-C (EEC)	
	ACA22A	
	ACA22-USB-C (EEC)	
Storage capacity	ACA21-USB (EEC)	64 MB
	ACA21-M12 (EEC)	
	ACA22-USB (EEC)	512 MB
	ACA22-M12 (EEC)	
	ACA22-M12-C (EEC)	
	ACA22A	
	ACA22-USB-C (EEC)	
Connection type	ACA21-USB (EEC)	USB-A plug
	ACA22-USB (EEC)	
	ACA22A	
	ACA22-USB-C (EEC)	USB-C plug
	ACA21-M12 (EEC)	5-pin, “A”-coded M12 plug
	ACA22-M12 (EEC)	
	ACA22-M12-C (EEC)	
Dimensions	ACA21-USB (EEC)	93 mm × 29 mm × 15 mm (3.66 in × 1.14 in × 0.59 in)
	ACA22-USB (EEC)	
	ACA21-M12 (EEC)	
	ACA22-M12 (EEC)	
	ACA22A	46 mm × 16 mm × 8 mm (1.81 in × 0.63 in × 0.31 in)
	ACA22-USB-C (EEC)	45 mm × 17 mm × 18 mm (1.77 in × 0.67 in × 0.71 in)
	ACA22-M12-C (EEC)	23 mm × 23 mm × 65 mm (0.91 in × 0.91 in × 2.56 in)
Weight	ACA21-USB (EEC)	50 g (1.76 oz)
	ACA22-USB (EEC)	
	ACA21-M12 (EEC)	70 g (2.47 oz)
	ACA22-M12 (EEC)	
	ACA22-M12-C (EEC)	80 g (2.82 oz)
	ACA22A	6 g (0.21 oz)
	ACA22-USB-C (EEC)	10 g (0.35 oz)

General technical data		
Degree of protection	ACA21-USB (EEC)	IP20
	ACA22-USB (EEC)	
	ACA22A	
	ACA22-USB-C (EEC)	
	ACA21-M12 (EEC)	IP67
	ACA22-M12 (EEC)	
	ACA22-M12-C (EEC)	
Cable length	ACA21-USB (EEC)	50 cm (19.69 in)
	ACA22-USB (EEC)	
	ACA21-M12 (EEC)	
	ACA22-M12 (EEC)	
	ACA22A	0 cm (0 in)
	ACA22-USB-C (EEC)	
	ACA22-M12-C (EEC)	
Power supply	Maximum rated voltage DC	5.5 V
	Maximum current consumption	150 mA
	Class 2	

Ambient conditions		
Climatic conditions during operation	Ambient air temperature[a]	-40 °C ... +70 °C (-40 °F ... +158 °F)
	Humidity	10 % ... 95 % (non-condensing)
	Air pressure	min. 795 hPa (+2000 m; +6562 ft) max. 1060 hPa (-400 m; -1312 ft)
Climatic conditions during storage	Ambient air temperature[a]	-40 °C ... +85 °C (-40 °F ... +185 °F)
	Humidity	10 % ... 95 % (non-condensing)
	Air pressure	min. 700 hPa (+3000 m; +9842 ft) max. 1060 hPa (-400 m; -1312 ft)

a. Temperature of the ambient air at a distance of 5 cm (2 in) from the device

EMC and immunity		
Immunity	Vibration IEC 60068-2-6, test Fc	8.4 Hz ... 200 Hz with 1 g 200 Hz ... 500 Hz with 1.5 g
	Shock IEC 60068-2-27, test Ea	15 g at 11 ms
EMC interference emission	EN 55032	
EMC interference immunity	EN 61000-4-2	6 kV contact discharge 8 kV air discharge
	EN 61000-4-3	10 V/m

Underlying technical standards

The device has an approval based on a specific standard exclusively if the approval indicator appears on the device casing.
If your device has a shipping approval according to DNV, you find the approval mark printed on the device label. You will find out whether your device has other shipping approvals on the Hirschmann website at www.hirschmann.com in the product information.

EN 50121-4	Railway applications – EMC – Emission and immunity of the signaling and telecommunications apparatus (Rail Trackside)
EN 60079-0	Explosive atmospheres – Part 0: Equipment – General requirements
EN 60079-7	Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
EN 60079-11	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
EN 61131-2	Programmable controllers – Part 2: Equipment requirements and tests
FCC 47 CFR Part 15	Code of Federal Regulations
IEC/EN 61850-3	Communication networks and systems for power utility automation - Part 3: General requirements.
IEEE 1613	IEEE Standard Environmental and Testing Requirements for Communication Networking Devices in Electric Power Substations
CAN/CSA C22.2 No. 213	Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.
ANSI/UL 121201	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
NEMA TS 2	Traffic Controller Assemblies with NTCIP Requirements (environmental requirements)
UL 508	Safety for Industrial Control Equipment

A Further support

Technical questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.

You find the addresses of our partners on the Internet at http://www.hirschmann.com.

A list of local telephone numbers and email addresses for technical support directly from Hirschmann is available at https://hirschmann-support.belden.com.

This site also includes a free of charge knowledge base and a software download section.

Customer Innovation Center

The Customer Innovation Center is ahead of its competitors on three counts with its complete range of innovative services:

- Consulting incorporates comprehensive technical advice, from system evaluation through network planning to project planning.
- Training offers you an introduction to the basics, product briefing and user training with certification.
  You find the training courses on technology and products currently available at https://www.belden.com/solutions/customer-innovation-center.
- Support ranges from the first installation through the standby service to maintenance concepts.

With the Customer Innovation Center, you decide against making any compromises in any case. Our client-customized package leaves you free to choose the service components you want to use.

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