Certificates

Device platform ORCA

ORCA01E* / ORCA01M*

Panel-mount devices / Operator Stations

Panel PC / Thin Clients

Direct Monitor

STAHL

THE STRONGEST LINK.

HW-Rev. E/M5xA:	**01.01.01**
HW-Rev. E/M79A:	**01.01.01**
Betriebsanleitung Version:	**01.00.00**
Ausgabe:	**22.05.2023**

Disclaimer

Publisher and copyright holder:

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Any warranty claims are limited to the right to demand amendments. Liability for any damage that might result from the contents of these instructions or all other documentation is limited to clear cases of premeditation.

We reserve the right to change our products and their specifications at any time, provided it is in the interest of technical progress. The information in the current manual (online or on CD / DVD / USB stick) or in the operating instructions included in the delivery applies.

Trademarks
The terms and names used in this document are registered trademarks and / or products of the companies in question.

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1 Preface

This document contains all valid certificates for the ORCA01E* / ORCA01M* device series.
All certificates are also available on R. STAHL HMI Systems GmbH's website and on the CDs / DVDs / USB sticks included in the delivery and a copy can also be ordered from R. STAHL HMI Systems GmbH.

2 ATEX EU type examination certificate

[1] **EU-TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **UL 23 ATEX 2902X Rev. 0**

[4] Product: **Operator Terminal, HMI Series ORCA**

[5] Manufacturer: **R. STAHL HMI Systems GmbH**

[6] Address: **Adolf-Grimme Allee 8, 50829 Köln, Germany**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **US/UL/ExTR23.0008/00.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-5:2015** **EN IEC 60079-7:2015/A1:2018**
EN 60079-11:2012 **EN 60079-31:2014**

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following:

Ex II 2(1) G	Ex eb ib qb [ib] [ia Ga] IIC T4 Gb	(ORCA01E...)
Ex II 2(1) D	Ex tb [ib] [ia Da] IIIC T115°C Db	(ORCA01E...)
Ex II 3(1) G	Ex ec ib qb [ib Gb] [ia Ga] IIC T4 Gc	(ORCA01M...)
Ex II 3(1) D	Ex tc [ib Db] [ia Da] IIIC T115°C Dc	(ORCA01M...)

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2023-04-04

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

Accredited by DANAK under registration number 7011 to certification of products.

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
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[15] Description of Product

The HMI series ORCA is an electronic operating and monitoring device. It is designed to operate, visualize, and control processes in hazardous areas. The HMI series ORCA consist of an electronic module named E-Box, available in two different sizes, E-Box P and E-Box S, and of a display module named D-Box, available in three different sizes, D-Box 3, D-Box 4, and D-Box 6, which are mounted together. For service proposals, these modules are interchangeable. The connection between the E-box and D-box are factory wired.

The E-Box contains the electronics and the Ex e and Ex i connection areas. The electronics include the power supply, various electrical components such as the CPU, intrinsic safety components, interface converter, etc. The connection of external wires is realized via integrated connection compartments for Ex e circuits, via certified Ex e terminal blocks, and Ex i circuits at the E-Box.

The D-Box is available in different sizes to realize different display sizes and resolutions. Components used within D-box include a touch sensor, sensor buttons, RFID modules, etc.

The HMI series "ORCA01E…" is suitable for use in Zone 1 and Zone 21. The E-box and the D-box is powder-filled "qb" for the ORCA01E.

The HMI series "ORCA01M…" is suitable for use in Zone 2 and Zone 22. The E-box is powder-filled "qb" and the D-box is protection method "ec" without the powder-filling for the ORCA 01M.

Nomenclature for type ORCA:
ORCAaabccdeffgghh*

aa:	Revision
01	Revision 01
b:	Zone
E	Zone 1 / 21 (EPL Gb / Db)
M	Zone 2 / 22 (EPL Gc / Dc)
cc:	Technology
00	None+
TC	Technology Thin Client / Panel PC
DM	Technology Direct Monitor
d:	E-Box
0	None+
S	Standard
P	Pro
e:	D-Box
0	None+
3	Size 3
4	Size 4
6	Size 6
ff:	Power
00	None+
AC	AC Power
DC	DC Power
gg:	Fiber Optic
00	None
MM	MM
SM	SM
hh:	RFID
00	None
C5	RFID Crypt
C6	RFID ASC
C8	RFID PC-SC

* = any alphanumeric or symbolic characters, without relevance for explosion protection

+ Note – ORCA is a combination of an E-Box and D-Box that are only certified together. Each D-Box and E-Box has their own nomenclature configuration depending on options included and both the D-Box and E-Box nomenclature is included on the label drawing. When option "0" or "00" is selected as noted by the "+", this indicates that the option is not a part of the respective D-Box or the E-Box configuration.

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The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 3) to the scope of EN 60079-28:2015 .

Temperature range
The ambient temperature range is -20 °C to +55 °C.

Electrical data

Electrical Parameters:

Non-intrinsically safe circuits:

Terminal block X1 POWER		
Non-intrinsically safe supply circuits (Power)		
Nominal voltage		
For DC version (ORCAaabccdeffgghh* with "ff" = "DC": 24 VDC (19.2…31.2 VDC)		
For AC version (ORCAaabccdeffgghh* with "ff" = "AC": 100/230 VAC (85…250 VAC), (47…63Hz)		
Nominal current		
For DC version (ORCAaabccdeffgghh* with "d" = "P" and "ff" = "DC": Imax ≤ 6.3 A Inom = 4.2A		
For DC version (ORCAaabccdeffgghh* with "d" = "S" and "ff" = "DC": Imax ≤ 4 A Inom = 2.7A		
For AC version (ORCAaabccdeffgghh* with "d" = "P" and "ff" = "AC": Imax ≤ 2 A Inom = 1.4A		
Nominal power	Pnom	≤ 150W
Max. input voltage	Um	= 250VAC
Terminal block X2		
Non-intrinsically safe circuits X2 (LAN 0) and		
Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V DC
Terminal block X3		
Non-intrinsically safe circuits X3 (USB 0)		
Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V AC
Terminal block X4		
Non-intrinsically safe circuits X4 (SERIAL)		
Nominal voltage	Unom	= 12V AC/DC
Max. input voltage	Um	= 30V AC
Terminal block X10		
This interface exist optionally in ORCAaabccdeffgghh* with "d" = "P"		
In case of Cooper LAN 1 interface: Non-intrinsically safe circuits X10		
Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V DC
Terminal block X11		
This interface exist optionally in ORCAaabccdeffgghh* with "d" = "P" Non-intrinsically safe circuits X11 (USB 3)		
Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V AC

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Terminal block X12

This interface exist optionally in ORCAaabccdeffgghh* with "d" = "P"
This interface can exist according to the option with one of the following configurations:

In case of AUDIO interface:
Non-intrinsically safe circuits X12 (AUDIO)

Nominal voltage	Unom	= 12V AC/DC
Max. input voltage	Um	= 30V AC

For passive apparatus only.

In case of USB 2 interface:
Non-intrinsically safe circuits X12 (USB)

Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V AC

Terminal block X13

This interface exist optionally in ORCAaabccdeffgghh* with "d" = "P"
Non-intrinsically safe circuits X13 (USB 3)

Nominal voltage	Unom	= 5V AC/DC
Max. input voltage	Um	= 30V AC

Terminal block X14 Service Port
This port is not allowed to be used.
It is restricted to internal and service use and only in safe and secure areas!

Terminal blocks X15 and X16

These interfaces exist optionally in ORCAaabccdeffgghh* with "d" = "P"

In case of Optical fiber X15-LAN1-FO and X16-LAN2-FO interface:
Optical radiation sources for use in EPL Gb or Gc and Db or Dc applications which comply with Class 1 limits in accordance with IEC 60825-1 is used.

Intrinsically safe circuits (level of protection Ex ia IIC resp. Ex ia IIIC):

Terminal blocks X5 and X6

For connection of passive intrinsically safe apparatus e.g., keyboard and mouse.
For each terminal blocks X5 (USB4) and X6 (USB5):
Terminals 1(+), 2(D-), 3(D+), 4(GND).

Max. output voltage	Uo	= 5.36VDC
Max. output current	Io	= 249mA
Max. output power	Po	= 0.341W
Max. external capacitance	Co	= 65uF
for max. external inductance	Lo	= 1uH
or		
Max. external capacitance	Co	= 46uF
for max. external inductance	Lo	= 2uH
or		
Max. external capacitance	Co	= 32uF
for max. external inductance	Lo	= 3uH
or		
Max. external capacitance	Co	= 25uF
for max. external inductance	Lo	= 4 uH
or		
Max. external capacitance	Co	= 21uF
for max. external inductance	Lo	= 5uH

Terminal block X9

For connection of passive intrinsically safe apparatus e.g., a power button.
For each terminal blocks X9 (BTN - Power Button)
Terminals 1(+), 2(GND).

Max. output voltage	Uo	= 5.36V DC
Max. output current	Io	= 45mA

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Max. output power	Po	= 0.061W
Linear output characteristics		
Max. external capacitance	Co	= 64uF
For max. external inductance	Lo	= 0.89uH
or		
Max. external capacitance	Co	= 20uF
For max. external inductance	Lo	= 3.89uH

Intrinsically safe circuits (level of protection Ex ib IIC resp. Ex ib IIIC):

Terminal blocks X7 and X8

For connection of passive intrinsically safe apparatus e.g., USB-Stick
For each terminal blocks X7 (USB6) and X8 (USB6):
Terminals 1(+), 2(D-), 3(D+), 4(GND).

Max. output voltage	Uo	= 5.54V DC
Max. output current	Io	= 757mA
Max. output power	Po	= 3.9W
Max. external capacitance	Co	= 48.6uF
for max. external inductance	Lo	= 1uH
or		
Max. external capacitance	Co	= 33.6uF
for max. external inductance	Lo	= 2uH
or		
Max. external capacitance	Co	= 21.6uF
for max. external inductance	Lo	= 3uH
or		
Max. external capacitance	Co	= 15.6uF
for max. external inductance	Lo	= 4 uH
or		
Max. external capacitance	Co	= 11.6uF
for max. external inductance	Lo	= 5uH

Routine tests

- Routine pressure test of the container is required for the D-Box 3, D-Box 4, and D-Box 6 with or without the filling material present per Clause 5.2.1 of EN 60079-5 with a required overpressure of 50 kPa for at least 10 seconds. There shall be no permanent deformation exceeding 0.5 mm in any of the dimensions.
- Routine insulation resistance test of the filling material is required on each lot of filling material prior to use per Clause 5.2.2 of EN 60079-5 with a test voltage of $1000\ \mathrm{V\ dc}\ ^{+5}_{0}\ \%$. The filling material complies with the requirement if leakage current does not exceed 10^{-6} A. If the filling material does not initially comply with this requirement, then the lot may be dried and retested.
- A routine dielectric test per Clause 7.1 of EN IEC 60079-7 is required as follows:
  ORCA AC Models:1500 V r.m.s. for 1 minute or 1800 V r.m.s. for 100 ms without dielectric breakdown occurring.

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

- WARNING - Potential electrostatic charging hazard – Clean only with a damp cloth! See instructions.
- For ORCA01M only: The equipment is intended for installation in an area providing at least pollution degree 2 as defined within IEC 60664-1. Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment.
- The devices (inclusive connection cables) shall only be installed in areas where intensive electrostatic charging processes are excluded.
- The intrinsically safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist, or the intrinsically safe apparatus connected must meet the 500 V r.m.s. dielectric strength test between circuit and the frame.
- Maximum overvoltage category II according to IEC 60664-1 is permitted for the non-intrinsically safe circuits.

The following specific conditions of use are listed on the certificates of the following accessories, and they shall be taken into account if they are installed with ORCA:

- The Hummel AG cable glands Series HSK-K-MZ-Ex were tested for low risk of mechanical danger and shall be protected against higher impact energy levels.
- The CMP Products Type 737 non-metallic adaptors or reducers shall only be used with non-metallic cable glands.

Accredited by DANAK under registration number 7011 to certification of products.

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
UL 23 ATEX 2902X Rev. 0

[18] Essential Health and Safety Requirements
The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information
The ORCA Series of devices in addition passed the tests for Ingress Protection to IP 65 in accordance with EN60529:1991+A1:2000+A2:2013.

The trademark STAHL will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

Accredited by DANAK under registration number 7011 to certification of products.

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3 IECEx certificate

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx UL 23.0007X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2023-04-04		
Applicant:	**R. STAHL HMI Systems GmbH** Adolf Grimme Allee 8 50829 Köln **Germany**		
Equipment:	**Operator Terminals, HMI Series ORCA**		
Optional accessory:			
Type of Protection:	**Increased Safety "eb", "ec", Intrinsic Safety "ib", "ia", Powder Filling "qb", Dust Ignition Protection by Enclosure "tb", "tc"**		
Marking:	For ORCA01E...: Ex eb ib qb [ib] [ia Ga] IIC T4 Gb Ex tb [ib] [ia Da] IIIC T115°C Db For ORCA01M...: Ex ec ib qb [ib Gb] [ia Ga] IIC T4 Gc Ex tc [ib Db] [ia Da] IIIC T115°C Dc -20°C to 55°C		

Approved for issue on behalf of the IECEx Certification Body: **Katy A. Holdredge**

Position: **Senior Staff Engineer**

Signature: (for printed version)

Date: (for printed version) 2023-04-04

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

UL LLC
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America

IECEx Certificate of Conformity

Certificate No.: **IECEx UL 23.0007X** Page 2 of 3

Date of issue: 2023-04-04 Issue No: 0

Manufacturer: **R. STAHL HMI Systems GmbH**
Adolf Grimme Allee 8
50829 Köln
Germany

Manufacturing locations: **R. STAHL HMI Systems GmbH**
Adolf Grimme Allee 8
50829 Köln
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-5:2022-05 Explosive atmospheres - Part 5: Equipment protection by powder filling "q"
Edition:4.1

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

US/UL/ExTR23.0008/00

Quality Assessment Report:

DE/BVS/QAR06.0007/14

IECEx Certificate of Conformity

Certificate No.: **IECEx UL 23.0007X** Page 3 of 3

Date of issue: 2023-04-04 Issue No: 0

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The HMI series ORCA is an electronic operating and monitoring device. It is designed to operate, visualize, and control processes in hazardous areas. The HMI series ORCA consist of an electronic module named E-Box, available in two different sizes, E-Box P and E-Box S, and of a display module named D-Box, available in three different sizes, D-Box 3, D-Box 4, and D-Box 6, which are mounted together. For service proposals, these modules are interchangeable. The connection between the E-box and D-box are factory wired.

The E-Box contains the electronics and the Ex e and Ex i connection areas. The electronics include the power supply, various electrical components such as the CPU, intrinsic safety components, interface converter, etc. The connection of external wires is realized via integrated connection compartments for Ex e circuits, via certified Ex e terminal blocks, and Ex i circuits at the E-Box.

The D-Box is available in different sizes to realize different display sizes and resolutions. Components used within D-box include a touch sensor, sensor buttons, RFID modules, etc.

The HMI series “ORCA01E…” is suitable for use in Zone 1 and Zone 21. The E-box and the D-box is powder-filled “qb” for the ORCA01E.

The HMI series “ORCA01M…” is suitable for use in Zone 2 and Zone 22. The E-box is powder-filled “qb” and the D-box is protection method “ec” without the powder-filling for the ORCA01M.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- WARNING - Potential electrostatic charging hazard – Clean only with a damp cloth! See instructions.
- For ORCA01M only: The equipment is intended for installation in an area providing at least pollution degree 2 as defined within IEC 60664-1. Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment.
- The devices (inclusive connection cables) shall only be installed in areas where intensive electrostatic charging processes are excluded.
- The intrinsically safe circuits are connected to earth. Along the intrinsically safe circuits, potential equalization must exist or the intrinsically safeapparatus connected must meet the 500 V r.m.s dielectric strength test between circuit and the frame.
- Maximum overvoltage category II according to IEC 60664-1 is permitted for the non-intrinsically safe circuits.

The following specific conditions of safe use are listed on the certificates of the following accessories and they shall be taken into account if they are installed with ORCA:

- The Hummel AG cable glands Series HSK-K-MZ-Ex were tested for low risk of mechanical danger and shall be protected against higher impact energy levels.
- The CMP Products Type 737 non-metallic adaptors or reducers shall only be used with non-metallic cable glands.

Annex:

Annex to IECEx UL 23.0007X Issue 0.pdf

IECEx Certificate of Conformity

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TYPE DESIGNATION

ORCAaabccdeffgghh*

aa: Revision
01 Revision 01

b: Zone
E Zone 1 / 21 (EPL Gb / Db)
M Zone 2 / 22 (EPL Gc / Dc)

cc: Technology
00 None+
TC Technology Thin Client / Panel PC
DM Technology Direct Monitor

d: E-Box
0 None+
S Standard
P Pro

e: D-Box
0 None+
3 Size 3
4 Size 4
6 Size 6

ff: Power
00 None+
AC AC Power
DC DC Power

gg: Fiber Optic
00 None
MM MM
SM SM

hh: RFID
00 None
C5 RFID Crypt
C6 RFID ASC
C8 RFID PC-SC

* = any alphanumeric or symbolic characters, without relevance for explosion protection

+ Note – ORCA is a combination of an E-Box and D-Box that are only certified together. Each D-Box and E-Box has their own nomenclature configuration depending on options included and both the D-Box and E-Box nomenclature is included on the label drawing. When option “0” or “00” is selected as noted by the “+”, this indicates that the option is not a part of the respective D-Box or the E-Box configuration.

IECEx Certificate of Conformity

Certificate No.: IECEx UL 23.0007X Issue No.: 0

PARAMETERS RELATING TO THE SAFETY

Non-intrinsically safe circuits:

Terminal block X1 POWER

Non-intrinsically safe supply circuits (Power)
Nominal voltage
For DC version (ORCAaabccdeffgghh* with "ff" = "DC":
24 VDC (19.2…31.2 VDC)
For AC version (ORCAaabccdeffgghh* with "ff" = "AC":
100/230 VAC (85…250 VAC), (47…63Hz)
Nominal current
For DC version (ORCAaabccdeffgghh* with "d" = "P" and "ff" = "DC":
Imax ≤ 6.3 A
Inom = 4.2A
For DC version (ORCAaabccdeffgghh* with "d" = "S" and "ff" = "DC":
Imax ≤ 4 A
Inom = 2.7A
For AC version (ORCAaabccdeffgghh* with "d" = "P" and "ff" = "AC":
Imax ≤ 2 A
Inom = 1.4A

Nominal power	Pnom ≤ 150W
Max. input voltage	Um = 250VAC

Terminal block X2

Non-intrinsically safe circuits X2 (LAN 0) and

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V DC

Terminal block X3

Non-intrinsically safe circuits X3 (USB 0)

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V AC

Terminal block X4

Non-intrinsically safe circuits X4 (SERIAL)

Nominal voltage	Unom = 12V AC/DC
Max. input voltage	Um = 30V AC

Terminal block X10

This interface exist optionally in ORCAaabccdeffgghh* with "d" = "P"

In case of Cooper LAN 1 interface:
Non-intrinsically safe circuits X10

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V DC

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Terminal block X11

This interface exist optionally in ORCAaabccdeffgghh* with “d” = “P”
Non-intrinsically safe circuits X11 (USB 3)

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V AC

Terminal block X12

This interface exist optionally in ORCAaabccdeffgghh* with “d” = “P”
This interface can exist according to the option with one of the following configurations:

In case of AUDIO interface:
Non-intrinsically safe circuits X12 (AUDIO)

Nominal voltage	Unom = 12V AC/DC
Max. input voltage	Um = 30V AC

For passive apparatus only.

In case of USB 2 interface:
Non-intrinsically safe circuits X12 (USB)

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V AC

Terminal block X13

This interface exist optionally in ORCAaabccdeffgghh* with “d” = “P”
Non-intrinsically safe circuits X13 (USB 3)

Nominal voltage	Unom = 5V AC/DC
Max. input voltage	Um = 30V AC

Terminal block X14 Service Port
This port is not allowed to be used.
It is restricted to internal and service use and only in safe and secure areas!

Terminal blocks X15 and X16

These interfaces exist optionally in ORCAaabccdeffgghh* with “d” = “P”

In case of Optical fiber X15-LAN1-FO and X16-LAN2-FO interface:
Optical radiation sources for use in EPL Gb or Gc and Db or Dc applications which comply with Class 1 limits in accordance with IEC 60825-1 is used.

Intrinsically safe circuits (level of protection Ex ia IIC resp. Ex ia IIIC):

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Intrinsically safe circuits (level of protection Ex ib IIC resp. Ex ib IIIC):

Terminal blocks X5 and X6

For connection of passive intrinsically safe apparatus e.g., keyboard and mouse.
For each terminal blocks X5 (USB4) and X6 (USB5):
Terminals 1(+), 2(D-), 3(D+), 4(GND).

Max. output voltage	Uo =	5.36VDC
Max. output current	Io =	249mA
Max. output power	Po =	0.341W
Max. external capacitance	Co =	65uF
for max. external inductance	Lo =	1uH
or		
Max. external capacitance	Co =	46uF
for max. external inductance	Lo =	2uH
or		
Max. external capacitance	Co =	32uF
for max. external inductance	Lo =	3uH
or		
Max. external capacitance	Co =	25uF
for max. external inductance	Lo =	4 uH
or		
Max. external capacitance	Co =	21uF
for max. external inductance	Lo =	5uH

Terminal block X9

For connection of passive intrinsically safe apparatus e.g., a power button.
For each terminal blocks X9 (BTN - Power Button)
Terminals 1(+), 2(GND).

Max. output voltage	Uo =	5.36V DC
Max. output current	Io =	45mA
Max. output power	Po =	0.061W

Linear output characteristics

Max. external capacitance	Co =	64uF
For max. external inductance	Lo =	0.89uH
or		
Max. external capacitance	Co =	20uF
For max. external inductance	Lo =	3.89uH

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Terminal blocks X7 and X8

For connection of passive intrinsically safe apparatus e.g., USB-Stick
For each terminal blocks X7 (USB6) and X8 (USB6):
Terminals 1(+), 2(D-), 3(D+), 4(GND).

Max. output voltage	Uo =	5.54V DC
Max. output current	Io =	757mA
Max. output power	Po =	3.9W
Max. external capacitance	Co =	48.6uF
for max. external inductance	Lo =	1uH
or		
Max. external capacitance	Co =	33.6uF
for max. external inductance	Lo =	2uH
or		
Max. external capacitance	Co =	21.6uF
for max. external inductance	Lo =	3uH
or		
Max. external capacitance	Co =	15.6uF
for max. external inductance	Lo =	4 uH
or		
Max. external capacitance	Co =	11.6uF
for max. external inductance	Lo =	5uH

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MARKING

Marking has to be readable and indelible; it has to include the following indications:

Marking for ORCA01**E**ccdeffgghh*:

Marking for ORCA01**M**ccdeffgghh*:

ROUTINE EXAMINATIONS AND TESTS

Each piece of equipment defined above has to have successfully passed before delivery:

- Routine pressure test of the container is required for the D-Box 3, D-Box 4, and D-Box 6 with or without the filling material present per Clause 5.2.1 of IEC 60079-5 with a required overpressure of 50 kPa for at least 10 seconds. There shall be no permanent deformation exceeding 0.5 mm in any of the dimensions.

- Routine insulation resistance test of the filling material is required on each lot of filling material prior to use per Clause 5.2.2 of IEC 60079-5 with a test voltage of $1000\ \mathrm{V\,dc}\ ^{+5}_{0}\ \%$. The filling material complies with the requirement if leakage current does not exceed 10^{-6} A. If the filling material does not initially comply with this requirement, then the lot may be dried and retested.

- A routine dielectric test per Clause 7.1 of IEC 60079-7 is required as follows:
  ORCA AC Models:1500 V r.m.s. for 1 minute or 1800 V r.m.s. for 100 ms without dielectric breakdown occurring.

4 Release Notes

The chapter entitled "Release Notes" contains all the changes made in every version of the certificates.

Version 01.00.00

- First edition

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