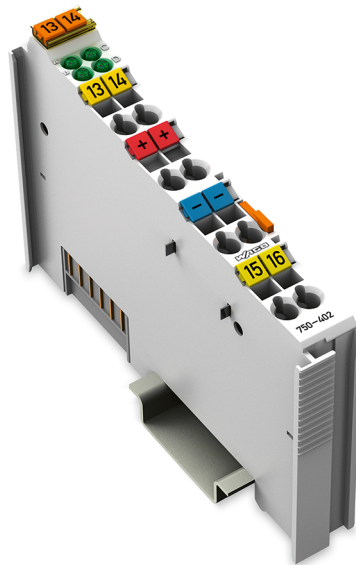


WAGO I/O System 750/753

4-channel digital input; 24 VDC; 3 ms; 2- to 3-wire connection;
high-side switching

750-402; 750-402/025-000



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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

E-Mail: ✉ documentation@wago.com

We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally protected by trademark or patent.

WAGO is a registered trademark of WAGO Verwaltungsgesellschaft mbH.

Table of Contents

- 1 Provisions..... 4**
 - 1.1 Scope of Applicability 4
- 2 Overview..... 5**
- 3 Properties..... 6**
 - 3.1 View..... 6
 - 3.2 Indicators..... 7
 - 3.3 Wiring Interface..... 7
 - 3.4 Power Jumper Contacts..... 8
 - 3.5 Circuit Diagram..... 9
- 4 Functions 10**
 - 4.1 Signal Processing..... 10
 - 4.2 Process Image 10
- 5 Planning 11**
 - 5.1 Compatibility..... 11
 - 5.2 Requirements for Wiring and Accessories 11
 - 5.3 Connection Examples 11
- 6 Appendix 12**
 - 6.1 Technical Data, Approvals, Guidelines and Standards..... 12
 - 6.1.1 Data sheet 750-402..... 13
 - 6.1.2 Data sheet 750-402/025-000..... 16

1 Provisions

1.1 Scope of Applicability

This document applies to the following products:

🔗 **750-402** (4DI 24V DC 3.0ms) 4-channel digital input; 24 VDC; 3 ms; 2- to 3-wire connection; high-side switching.

From hardware version	08
From firmware version	--
Product detail page	🔗 www.wago.com/750-402

🔗 **750-402/025-000** (4DI 24V DC 3.0ms /T) 4-channel digital input; 24 VDC; 3 ms; 2- to 3-wire connection; high-side switching; ext. temperature.

From hardware version	08
From firmware version	--
Product detail page	🔗 www.wago.com/750-402/025-000

Note

Note applicable documents!

The complete operating instructions for the products consist of several applicable documents. The products must only be installed and operated in accordance with the complete operating instructions. Knowledge of all applicable documents is required for proper use. Please find all documents and information on the detailed product pages.

Applicable document

📖 System Manual I/O System 750/753

- Provisions
- Safety
- Planning
- Transport and Storage
- Assembly and Disassembly
- Conductor Termination
- Decommissioning

2 Overview

The I/O module acquires binary control signals from field devices (e.g., sensors, encoders or switches).

The I/O module has four input channels and directly connects to two 2- or 3-wire sensors.

Two additional sensors may be connected via a potential distributor.

Each input channel has a noise-rejection RC filter with a 3.0 ms time constant.

The I/O module inputs provide high-side switching. If the 24 V potential for field power is switched to an input connection, the signal status for the corresponding input channel is set to "high."

For each channel, a green status LED indicates the signal status.

The field level and the system level are electrically isolated from one another.

The I/O module can be operated on all head stations of the WAGO I/O System 750/753.

3 Properties

3.1 View

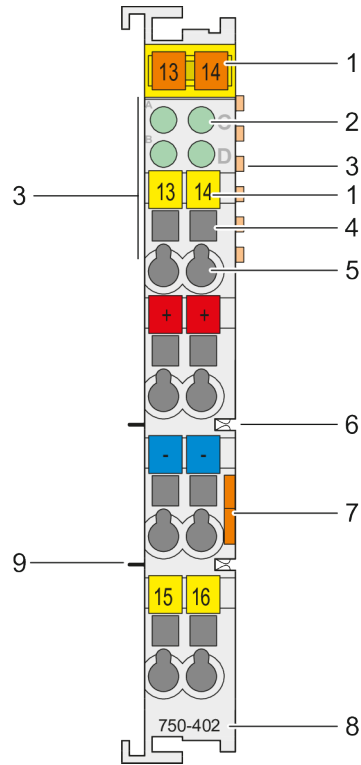


Figure 1: View

1	Slot for Mini-WSB (optional)	☐ System Manual I/O System 750/753
2	Status LEDs	🔗 Indicators [> 7]
3	Data contacts	☐ System Manual I/O System 750/753
4	Access to open the associated CAGE CLAMP® connection	☐ System Manual I/O System 750/753
5	CAGE CLAMP® connections	🔗 Wiring Interface [> 7] and ☐ System Manual I/O System 750/753
6	Power jumper contacts (spring)	🔗 Power Jumper Contacts [> 8] and ☐ System Manual I/O System 750/753
7	Release tab	☐ System Manual I/O System 750/753
8	Item number	🔗 Scope of Applicability [> 4]
9	Power jumper contacts (blade)	🔗 Power Jumper Contacts [> 8] and ☐ System Manual I/O System 750/753

3.2 Indicators

For each channel, a green status LED indicates the signal status.

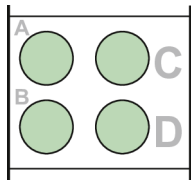


Figure 2: Indicators

Channel	Designation	LED	State	Function
1	DI 1 status	A	Off	DI 1 input: signal voltage (0)
			Green	DI 1 input: signal voltage (1)
2	DI 2 status	C	Off	DI 2 input: signal voltage (0)
			Green	DI 2 input: signal voltage (1)
3	DI 3 status	B	Off	DI 3 input: signal voltage (0)
			Green	DI 3 input: signal voltage (1)
4	DI 4 status	D	Off	DI 4 input: signal voltage (0)
			Green	DI 4 input: signal voltage (1)

3.3 Wiring Interface

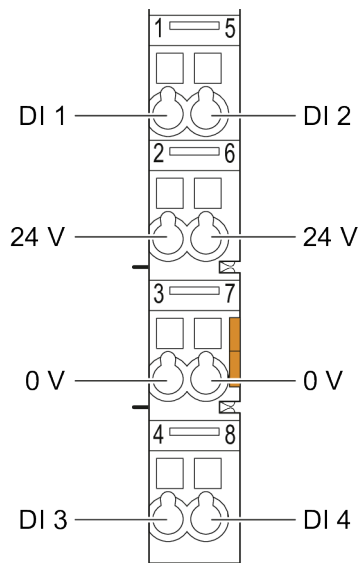


Figure 3: CAGE CLAMP® Connections

Channel	Designation	Connection	Function
1	DI 1	1	DI 1 input: signal voltage
2	DI 2	5	DI 2 input: signal voltage
3	DI 3	4	DI 3 input: signal voltage
4	DI 4	8	DI 4 input: signal voltage
-	24 V	2	+24 V sensor supply
-	24 V	6	+24 V sensor supply
-	0 V	3	0 V sensor supply
-	0 V	7	0 V sensor supply

3.4 Power Jumper Contacts

The potential for the field supply is fed in via the blade contacts and passed on via the spring contacts.

For additional information on the Power Jumper Contacts, please see [System Manual I/O System 750/753](#).

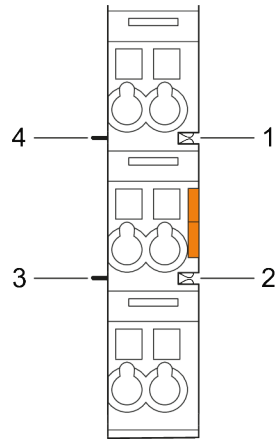


Figure 4: Power Jumper Contacts

No.	Type
1	Groove with spring contact
2	
3	Blade contact
4	

Arrangement in the Bus Node

For mechanical arrangement of the I/O module, the previous component must have at least 2 open grooves for accommodating the blade contacts.

For electrical compatibility requirements see Section [Circuit Diagram \[► 9\]](#).

3.5 Circuit Diagram

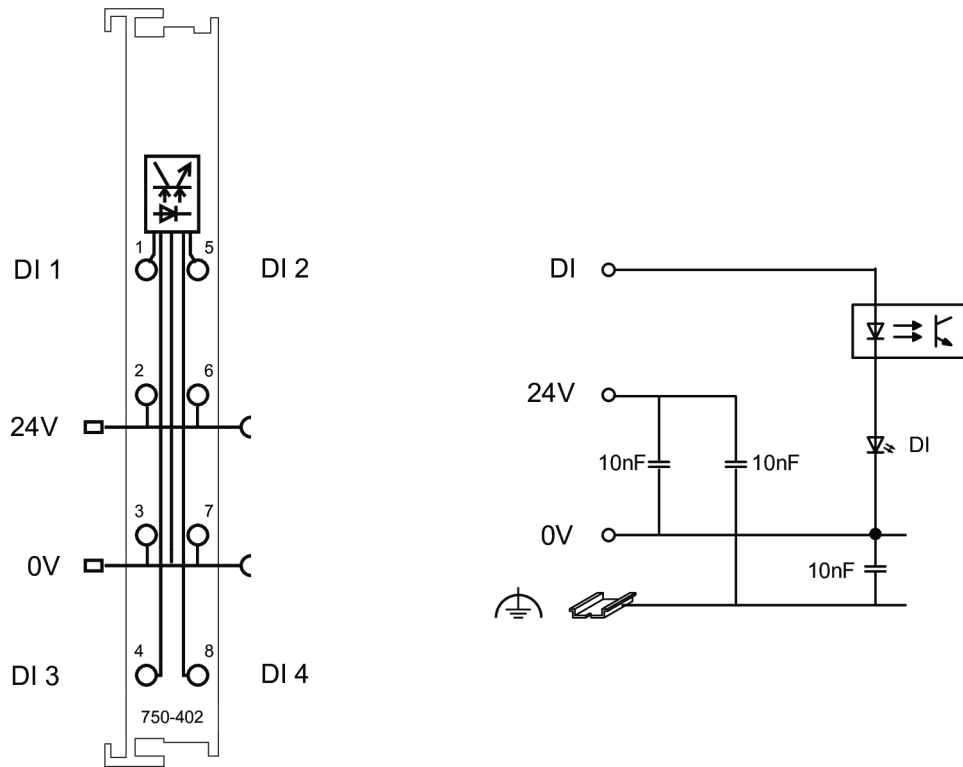


Figure 5: Circuit Diagram

For information on the system power supply, please see [System Manual I/O System 750/753](#).

4 Functions

4.1 Signal Processing

Each input channel has a noise-rejection RC filter with a 3.0 ms time constant.

The I/O module inputs provide high-side switching. If the 24 V potential for field power is switched to an input connection, the signal status for the corresponding input channel is set to "high."

4.2 Process Image

Table 1: Process Image Input

		Bit 3	Bit 2	Bit 1	Bit 0
		DI 4	DI 3	DI 2	DI 1
DI 1	DI 1 signal status – digital input channel 1				
DI 2	DI 2 signal status – digital input channel 2				
DI 3	DI 3 signal status – digital input channel 3				
DI 4	DI 4 signal status – digital input channel 4				

5 Planning

This section provides helpful information for planning the use of the product in a node.

5.1 Compatibility

The I/O module can be operated on all head stations of the WAGO I/O System 750/753.

5.2 Requirements for Wiring and Accessories

If applicable, use appropriate potential multiplication modules (item no.: [750-614](#)) for the power supply to the sensors.

5.3 Connection Examples

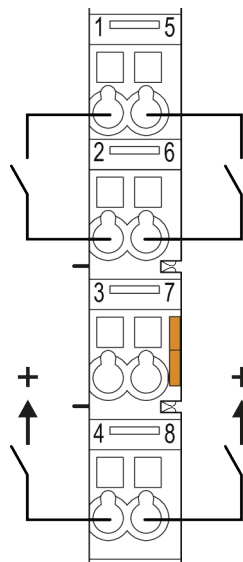


Figure 6: Example: 2-Wire Connection

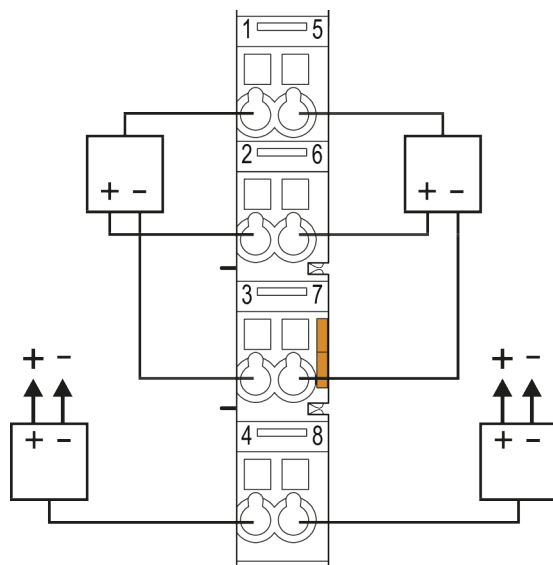


Figure 7: Example: 3-Wire Connection

6 Appendix



6.1 Technical Data, Approvals, Guidelines and Standards

Note

Subject to changes!

Please also observe the further product documentation! You can generate the current datasheet at any time at: www.wago.com /<item number>.

See also

-  Data sheet 750-402 [▶ 13]
-  Data sheet 750-402/025-000 [▶ 16]

This digital input module receives control signals from field devices (e.g., sensors).
 Each input module has a noise-rejection filter.
 Field and system levels are electrically isolated.

Technical data

Number of digital inputs	4
Total number of channels (module)	4
Signal type	Digital
Signal type (voltage)	24 VDC
Sensor connection	2 x (2-wire, 3-wire); A suitable field side connection module (e.g., 750-614) must also be used to connect other sensors.
Input characteristic	high-side switching
Input filter (digital)	3 ms
Input current per channel for signal (1) typ.	4.5 mA
Voltage range for signal (0)	-3 ... +5 VDC
Voltage range for signal (1)	15 ... 30 VDC
Sensor supply	24 VDC
Input data width (internal) max.	4 bits
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	7.5 mA
Supply voltage (field)	24 VDC (-25 ... +30 %); via power jumper contacts (power supply via blade contact; transmission (field side supply voltage only) via spring contact)
Isolation	500 V system/field
Indicators	LED (A-D) green: Status DI 1 ... DI 4
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity (power jumper contacts)	10 A

Connection data

Connection technology: inputs/outputs	8 x CAGE CLAMP® (inputs)
Connectable conductor materials	Copper
Connection type 1	Input
Solid conductor	0.08 ... 2.5 mm ² / 28 ... 14 AWG
Fine-stranded conductor	0.08 ... 2.5 mm ² / 28 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches

Physical data

Width	12 mm / 0.472 inches
Height	100 mm / 3.937 inches
Depth	69.8 mm / 2.748 inches
Depth from upper-edge of DIN-rail	62.6 mm / 2.465 inches

Mechanical data

Mounting type	DIN-35 rail
Pluggable connector	fixed

Material data

Color	light gray
Housing material	Polycarbonate; polyamide 6.6
Fire load	1.246 MJ
Weight	45.5 g
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	0 ... +55 °C
Ambient temperature (storage)	-40 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	0 ... 2000 m / 0 ... 6562 ft
Mounting position	Horizontal left, horizontal right, horizontal top, horizontal bottom, vertical top and vertical bottom
Relative humidity (without condensation)	95 %
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2, marine applications
EMC emission of interference	per EN 61000-6-4, marine applications
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43
Permissible H ₂ S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO ₂ contaminant concentration at a relative humidity 75 %	25 ppm

Commercial data

Product Group	15 (I/O System)
PU (SPU)	1 pcs
Packaging type	Box
Country of origin	DE
GTIN	4045454392598
Customs tariff number	85389099990

Product classification

UNSPSC	32151705
--------	----------

Environmental Product Compliance

CAS-No.	1303-86-2 1317-36-8 7439-92-1
REACH Candidate List Substance	Diboron trioxide Lead Lead monoxide
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	53525c4f-c3a5-41b3-8728-08d7a8a9f9ec
SCIP notification number (Belgium)	a874ec47-8bc9-41c7-a4cd-d891cda84bf1
SCIP notification number (Bulgaria)	9e0ae448-d016-414f-86b6-b37d8ec8530f
SCIP notification number (Czech Republic)	4bd23cc8-e0c7-44a4-b597-57b663830d07

Environmental Product Compliance

SCIP notification number (Denmark)	93b83246-b7dd-40fb-a29c-c3f3305b0b33
SCIP notification number (Finland)	12b8051c-7254-4dbd-b4db-4df88c21ac45
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SCIP notification number (Sweden)	f5ec5bfd-9131-4992-95bf-133447b884fd

Approvals / Certificates

General approvals



Approval	Standard	Certificate Name
EAC GZO Almaty Standart	TP TC 020/2011	EAC CoC 03083
KC National Radio Research Agency	Article 58-2, Clause 3	MSIP-REM-W43-DIM750
UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 508	E175199

Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Conformity WAGO GmbH & Co. KG	-	-
UK-Declaration of Conformity WAGO GmbH & Co. KG	-	-

Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Shipping	-	22-2219060
BSH Bundesamt fuer Seeschifffahrt und Hydrographie	-	1104
BV Bureau Veritas S.A.	-	13453/E0 BV
DNV DNV GL SE	DNV-CG-0339, Aug.2021	TAA0000194
KR Korean Register of Shipping	-	KR HMB05880-AC001
LR Lloyds Register EMEA	-	LR22180952TA
PRS Polski Rejestr Statków	-	TE/1101/880590/23
RINA RINA Germany GmbH	-	ELE343521XG001

Approvals for hazardous areas



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV14ATEX148929X (II 3 G Ex ec IIC T4 Gc)
CCCEX CQST/CNEx	CNCA-C23-01	2020312310000213 (Ex ec IIC T4 Gc)
IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX TUN 14.0035 X (Ex ec IIC T4 Gc)
INMETRO TUV Rheinland do Brasil Ltda.	IEC 60079-0	TUV 12.1297 X
UKEx WAGO GmbH & Co. KG	EN 60079-0	UKCA_WA GO22UKEX003X_ec
UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726

Subject to changes. Please also observe the further product documentation!

Current addresses can be found at: www.wago.com

Data Sheet | Item Number: 750-402/025-000

4-channel digital input; 24 VDC; 3 ms; Ext. Temperature

<https://www.wago.com/750-402/025-000>



This digital input module receives control signals from field devices (e.g., sensors).
Each input module has a noise-rejection filter.
Field and system levels are electrically isolated.

Technical data

Number of digital inputs	4
Total number of channels (module)	4
Signal type	Digital
Signal type (voltage)	24 VDC
Sensor connection	2 x (2-wire, 3-wire); A suitable field side connection module (e.g., 750-614) must also be used to connect other sensors.
Input characteristic	high-side switching
Input filter (digital)	3 ms
Input current per channel for signal (1) typ.	4.5 mA
Voltage range for signal (0)	-3 ... +5 VDC
Voltage range for signal (1)	15 ... 30 VDC
Sensor supply	24 VDC
Input data width (internal) max.	4 bits
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	7.5 mA
Supply voltage (field)	24 VDC (-25 ... +30 %); via power jumper contacts (power supply via blade contact; transmission (field side supply voltage only) via spring contact)
Isolation	500 V system/field
Indicators	LED (A-D) green: Status DI 1 ... DI 4
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity (power jumper contacts)	10 A

Connection data

Connection technology: inputs/outputs	8 x CAGE CLAMP® (inputs)
Connectable conductor materials	Copper
Connection type 1	Input
Solid conductor	0.08 ... 2.5 mm ² / 28 ... 14 AWG
Fine-stranded conductor	0.08 ... 2.5 mm ² / 28 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches

Physical data

Width	12 mm / 0.472 inches
Height	100 mm / 3.937 inches
Depth	69.8 mm / 2.748 inches
Depth from upper-edge of DIN-rail	62.6 mm / 2.465 inches

Mechanical data

Mounting type	DIN-35 rail
Pluggable connector	fixed

Material data

Color	light gray
Housing material	Polycarbonate; polyamide 6.6
Fire load	1.417 MJ
Weight	47.3 g
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	-20 ... +60 °C
Ambient temperature (storage)	-40 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	0 ... 2000 m / 0 ... 6562 ft
Mounting position	Horizontal left, horizontal right, horizontal top, horizontal bottom, vertical top and vertical bottom
Relative humidity (without condensation)	95 %
Relative humidity (with condensation)	Short-term condensation per Class 3K6/IEC EN 60721-3-3 and E-DIN 40046-721-3, accounting for a temperature range of -20 to +60 °C (except for wind-driven precipitation, water and ice formation)
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2, marine applications
EMC emission of interference	per EN 61000-6-4, marine applications
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43
Permissible H ₂ S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO ₂ contaminant concentration at a relative humidity 75 %	25 ppm

Product classification

UNSPSC	32151705
--------	----------

Environmental Product Compliance

CAS-No.	1303-86-2 1317-36-8 25550-51-0 7439-92-1
REACH Candidate List Substance	4-Methyl-1,2-cyclohexanedicarboxylic anhydride Diboron trioxide Lead Lead monoxide
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	8a287b3b-cae8-40c0-a2c9-6b1d52bceb24
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Environmental Product Compliance

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SCIP notification number (Sweden)	4539950a-8526-4b48-9de9-22d4811f7ea8

Approvals / Certificates

General approvals



Approval	Standard	Certificate Name
EAC GZO Almaty Standart	TP TC 020/2011	EAC CoC 03083
KC National Radio Research Agency	Article 58-2, Clause 3	MSIP-REM-W43-DIM750
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UK-Declaration of Conformity WAGO GmbH & Co. KG	-	-

Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Shipping	-	22-2227356-PDA
BSH Bundesamt fuer Seeschifffahrt und Hydrographie	-	1104
LR Lloyds Register	-	LR2475997TA
PRS Polski Rejestr Statków	-	TE/1102/880590/23

Approvals for hazardous areas



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV14ATEX148929X (II 3 G Ex ec IIC T4 Gc)
CCCEX CQST/CNEX	CNCA-C23-01	2020312310000213 (Ex ec IIC T4 Gc)
IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX TUN 14.0035 X (Ex ec IIC T4 Gc)
INMETRO TÜV Rheinland do Brasil Ltda.	IEC 60079-0	TÜV 12.1297 X
UKEx WAGO GmbH & Co. KG	EN 60079-0	UKCA_WA GO22UKEX003X_ec
UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726

Subject to changes. Please also observe the further product documentation!

Current addresses can be found at: www.wago.com

List of Tables

Table 1	Process Image Input	10
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List of Figures

Figure 1	View	6
Figure 2	Indicators	7
Figure 3	CAGE CLAMP® Connections	7
Figure 4	Power Jumper Contacts	8
Figure 5	Circuit Diagram	9
Figure 6	Example: 2-Wire Connection.....	11
Figure 7	Example: 3-Wire Connection.....	11

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