

Data sheet | Item number: 750-438

2-channel digital input; NAMUR; Intrinsically safe

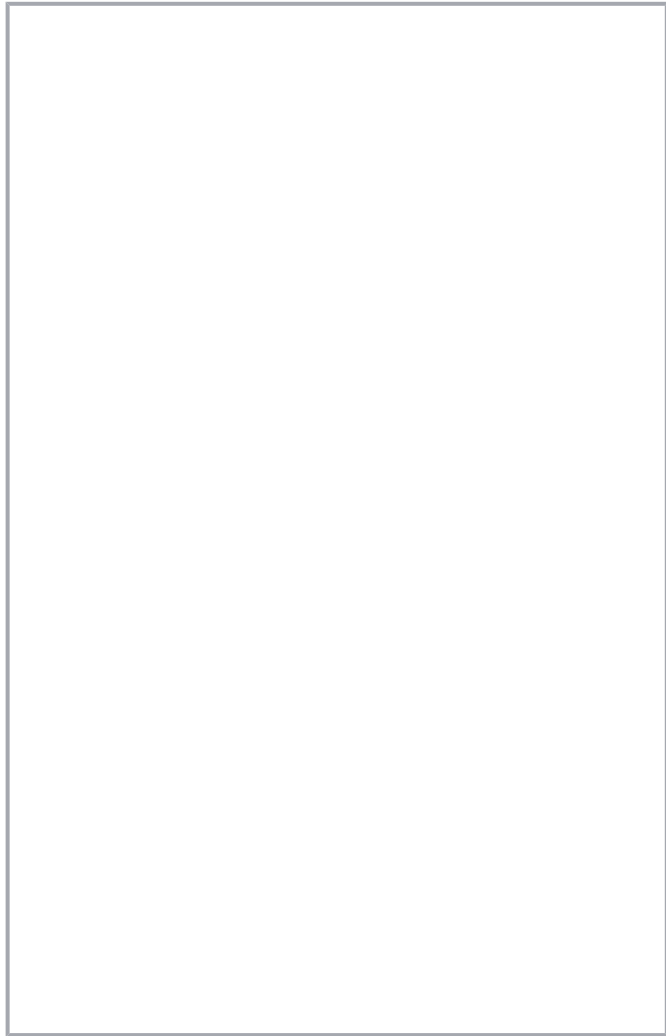
www.wago.com/750-438



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

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Item description

This digital input module records binary signals from sensors operating in Zone 0+1 hazardous areas.

NAMUR sensors, optocouplers, mechanical contacts or other actuating elements can also be connected via intrinsically safe devices.

The WAGO I/O System 750 must be installed either in Zone 2 or in a non-hazardous area. Each sensor is supplied with a short-circuit-protected voltage of 8.2 V.

Indicators:

- Green LED (signal on)

Field and system levels are electrically isolated.

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



Data Notes

Note

The digital input module must only be operated with a 24 VDC Ex i power supply!

General information (e.g., installation regulations) on explosion protection is available in the WAGO I/O System 750 manuals!

Technical data

Number of digital inputs	2
Total number of channels (module)	2
Signal type	NAMUR NAMUR
Sensor connection	2 x (2-wire)
Input characteristic	high-side switching
Input filter (digital)	3 ms 3 ms
Open-circuit voltage	8.2 V
Short-circuit current	≤ 8.2 mA
Signal current (0) NAMUR	≤ 1.2 mA
Signal current (1) NAMUR	≥ 2.1 mA
Switching hysteresis	0.2 mA
Input pulse length	5 ms
Input pulse separation	3 ms
Power consumption P_{max}	0.4 W
Input data width (internal) max.	2 bits
Intrinsic safety Ex i	yes
Input resistance	1,000 Ω
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	2.5 mA
Supply voltage (field)	24 VDC; (Ex i power supply: $U_O = \max. 27.3 V$); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Current consumption, field supply (module with no external load)	16 mA
Power loss P_I	0.27 W
Isolation	300 VAC system/supply

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Indicators	LED (A, E) green: Status DI 1, DI 2
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity (power jumper contacts)	1 A
Marking	ATEX/IECEx: II 3 (1) G Ex ec [ia Ga] IIC T4 Gc; II (1) D [Ex ia Da] IIIC; I (M1) [Ex ia Ma] I

Explosion protection

Ex standard	EN IEC 60079-0, -7, -11
Safety-relevant data (circuit)	$U_o = 12 \text{ V}$; $I_o = 13.5 \text{ mA}$; $P_o = 40.5 \text{ mW}$; Linear characteristic curve
Reactances Ex ia IIC	$L_o = 190 \text{ mH}$; $C_o = 1.4 \mu\text{F}$
Reactances Ex ia IIB	$L_o = 600 \text{ mH}$; $C_o = 9 \mu\text{F}$
Reactances Ex ia IIA	$L_o = 1 \text{ H}$; $C_o = 36 \mu\text{F}$
Reactances Ex ia I	$L_o = 1 \text{ H}$; $C_o = 38 \mu\text{F}$
Reactances (note)	Reactances without accounting for the concurrence of capacitance (C_o) and inductance (L_o)

Connection data

Connection technology: inputs/outputs	8 x CAGE CLAMP®
Connection type 1	Inputs/Outputs
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	67.8 mm / 2.669 inches
Depth from upper-edge of DIN-rail	60.6 mm / 2.386 inches

Mechanical Data

Mounting type	DIN-35 rail
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Subject to changes. Please also observe the further product documentation!



Material Data

Housing material	Polycarbonate; polyamide 6.6
Fire load	0.976 MJ
Weight	44.1 g
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	0 ... +55 °C
Ambient temperature (storage)	-25 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	0 ... 2000 m / 0 ... 6562 ft
Mounting position	horizontal (standing/lying); vertical
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 61000-6-3, 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)
eCl@ss 10.0	27-24-26-04
eCl@ss 9.0	27-24-26-04
ETIM 8.0	EC001599
ETIM 7.0	EC001599
Recupel Type	
PU (SPU)	1 pcs
Packaging type	box
Country of origin	DE
GTIN	4045454725525

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Customs tariff number	8538909990
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Environmental Product Compliance

CAS-No.	1317-36-8 693-98-1 7439-92-1
REACH Candidate List Substance	2-methylimidazole 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)	2e881213-5d48-42e5-b089-c0bc8feeb830
SCIP notification number (Belgium)	7f5cda66-bae8-45d4-99be-4c8bf82b8719
SCIP notification number (Bulgaria)	a006b846-32ea-4a4b-b020-423b59a70af6
SCIP notification number (Czech Republic)	a0c4088e-2a56-4bb5-b35d-c1a879757654
SCIP notification number (Denmark)	266a171e-1682-4cf9-941c-65c6e91d93a5
SCIP notification number (Finland)	c2870d4e-763a-456d-baab-20e8882d1f3d
SCIP notification number (France)	62fee0f7-d05a-4ad7-9448-a09a4a57a708
SCIP notification number (Germany)	22a209d7-87fc-4d51-814a-39506fa84040
SCIP notification number (Hungary)	6ab9fa73-1997-4a0a-beb5-883e8fc28960
SCIP notification number (Italy)	5daa5544-8b46-45ae-936f-3f7b548ea68b
SCIP notification number (Netherlands)	5acce4f3-f366-45b8-b331-953da14ce73a
SCIP notification number (Poland)	e94fed5d-7868-42fa-a949-706526904ad5
SCIP notification number (Romania)	ac2ddcca-2db4-4f18-95dd-a6d9ac278146
SCIP notification number (Sweden)	1526fa2f-851b-4482-9b36-36bb138fd1fb

Notes

Note

Technical data

Sensor connection
Input characteristic
Intrinsic safety Ex i
Supply voltage (field)
Indicators

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Environmental Product Compliance

RoHS Exemption	7(a) 7(c)-I
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Mechanical data

Mounting type

Environmental requirements

Ambient temperature (operation)	0 ... +55 °C
Ambient temperature (storage)	-25 ... +85 °C
Pollution degree	
Operating altitude	
Mounting position	
EMC immunity to interference	
EMC emission of interference	
Exposure to pollutants	

Connection data

Connection type 1

Approvals / Certificates

General approvals

Logo	Approval	Additional Approval Text	Certificate name
	EAC Brjansker Zertifizierungsstelle	TP TC 020/2011	EAC RU C-DE.AM02.B.00087/19
	KC National Radio Research Agency	Article 58-2, Clause 3	MSIP-REM-W43-DIM750
	UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 508	E175199 Sec.1

Declarations of conformity and manufacturer's declarations

Logo	Approval	Additional Approval Text	Certificate name
	EU-Ex-Declaration of Conformity WAGO GmbH & Co. KG	-	-

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Approvals for marine applications

Logo	Approval	Additional Approval Text	Certificate name
	ABS American Bureau of Shipping	-	22-2219060
	BV Bureau Veritas S.A.	-	30389/C0 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/2236/880590/19
	RINA RINA Germany GmbH	-	ELE343521XG001

Approvals for hazardous areas

Logo	Approval	Additional Approval Text	Certificate name
	AEx UL International Germany GmbH	UL 60079	E480271
	ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_12_ATEX_106032X (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
	CCC CNEX	CNCA-C23-01	2020312310000211 (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
	EAC Brjansker Zertifizierungsstelle	TP TC 012/2011	EAC RU C-DE.AM02.B.00163/19 ([Ex iaMa] I X, 2Ex e[iaGa] IIC T4 Gc X, [Ex iaDa] IIIC X)
	INMETRO TÜV Rheinland do Brasil Ltda.	-	TÜV_14.1911_X
	TUEV Nord TUEV Nord Cert GmbH	IEC 60079	IECEx TUN 12.0039X (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
	UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726 Sec.1

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Optional accessories

Marking accessories

Marker carrier		
Item no.: 750-103		www.wago.com/750-103
Group marker carrier		
Marker		
Item no.: 2009-145/000-006		www.wago.com/2009-145/000-006
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue		
Item no.: 2009-145		www.wago.com/2009-145
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white		
Item no.: 2009-145/000-002		www.wago.com/2009-145/000-002
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow		
Item no.: 2009-145/000-007		www.wago.com/2009-145/000-007
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray		
Item no.: 2009-145/000-005		www.wago.com/2009-145/000-005
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red		
Item no.: 2009-145/000-012		www.wago.com/2009-145/000-012
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange		
Item no.: 2009-145/000-023		www.wago.com/2009-145/000-023
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green		
Item no.: 2009-145/000-024		www.wago.com/2009-145/000-024
Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet		
Item no.: 248-501/000-006		www.wago.com/248-501/000-006
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue		
Item no.: 248-501/000-007		www.wago.com/248-501/000-007
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray		
Item no.: 248-501/000-002		www.wago.com/248-501/000-002
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow		

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Item no.: 248-501/000-012 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange	www.wago.com/248-501/000-012
Item no.: 248-501 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white	www.wago.com/248-501
Item no.: 248-501/000-017 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green	www.wago.com/248-501/000-017
Item no.: 248-501/000-005 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red	www.wago.com/248-501/000-005
Item no.: 248-501/000-024 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet	www.wago.com/248-501/000-024
Item no.: 248-501/000-023 Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green	www.wago.com/248-501/000-023
Group marker carrier	
Item no.: 750-107 Group marker carrier	www.wago.com/750-107
Carrier rail	
Mounting accessories	
Item no.: 210-197 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored	www.wago.com/210-197
Item no.: 210-198 Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored	www.wago.com/210-198
Item no.: 210-504 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715; silver-colored	www.wago.com/210-504
Item no.: 210-505 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715; silver-colored	www.wago.com/210-505
Item no.: 210-506 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715; silver-colored	www.wago.com/210-506
Item no.: 210-508 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored	www.wago.com/210-508
Item no.: 210-113 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored	www.wago.com/210-113
Item no.: 210-118	www.wago.com/210-118

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Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored

Item no.: 210-112

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm; www.wago.com/210-112 silver-colored

Item no.: 210-114

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

www.wago.com/210-114

Item no.: 210-115

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm; www.wago.com/210-115 silver-colored

Item no.: 210-196

Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

www.wago.com/210-196

Shield termination

Shield clamping saddles

Item no.: 790-116

Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm

www.wago.com/790-116

Item no.: 790-124

Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm

www.wago.com/790-124

Item no.: 790-108

Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm

www.wago.com/790-108

Item no.: 790-140

Shield clamping saddle; diameter of compatible conductor

www.wago.com/790-140

Item no.: 790-216

Shield clamping saddle; 21.8 mm wide; 6 ... 16 mm

www.wago.com/790-216

Item no.: 790-220

Shield clamping saddle; 30 mm wide; 6 ... 20 mm

www.wago.com/790-220

Item no.: 790-208

Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm

www.wago.com/790-208

Supply module

Supply module

Item no.: 750-625/000-001

Power Supply; 24 VDC; Intrinsically safe

www.wago.com/750-625/000-001

Item no.: 750-606

Power Supply; 24 VDC; Diagnostics; Intrinsically safe

www.wago.com/750-606

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750-438, 2DI NAMUR Ex i, data sheet

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Instruction Leaflet

CCC Ex (Additional information) WAGO-I/O-SYSTEM 750-*** Ex i	2023 年4月26 日	pdf 147.4 kB	Download
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Additional Information

Disposal and Recycling Electrical and electronic equipment, Batteries, Packaging	V 1.1.0 2022 年8月18 日	pdf 2.2 MB	Download
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System Description

750/753 Series I/O-System – General Product Information		pdf 976.2 kB	Download
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Overview on WAGO-I/O-SYSTEM 750 approvals		pdf 223.5 kB	Download
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CAD/CAE-Data

CAD data

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CAE data

EPLAN Data Portal 750-438	URL	Download
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WSCAD Universe 750-438	URL	Download
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ZUKEN Portal 750-438	URL	Download
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Device Files

Device Driver

WAGO USB Service Kabel Treiber / Serie 750 und 857	6.5.3.0 2014 年9月10日	zip 4.8 MB	Download
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Installation Notes

Product family

WAGO I/O System 750/753
[Show all products from the family](#)

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