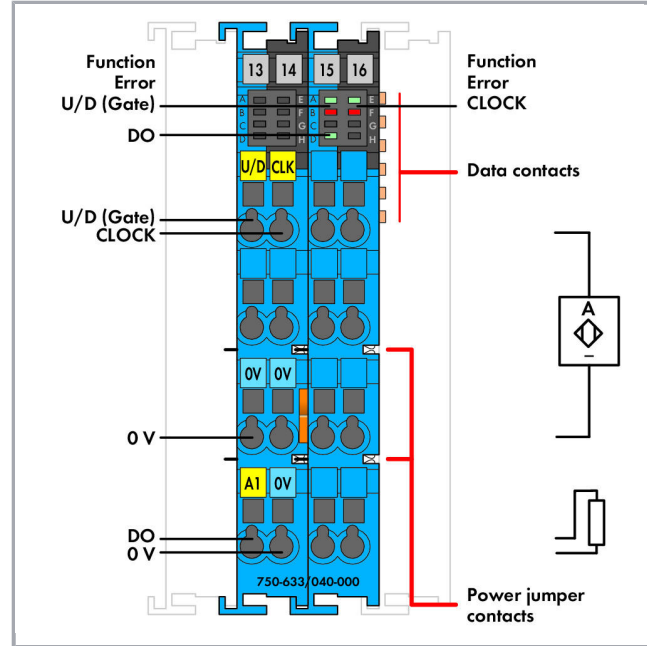
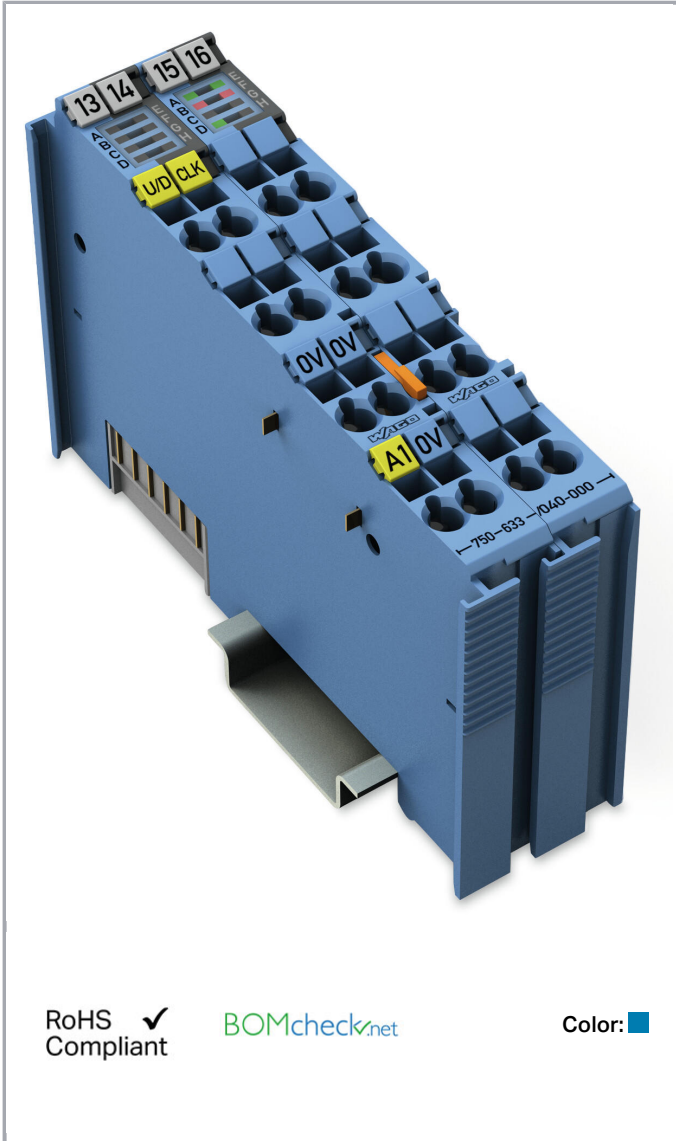


Data sheet | Item number: 750-633/040-000
 Up/Down Counter; Intrinsically safe; Extreme; blue

www.wago.com/750-633/040-000



RoHS Compliant

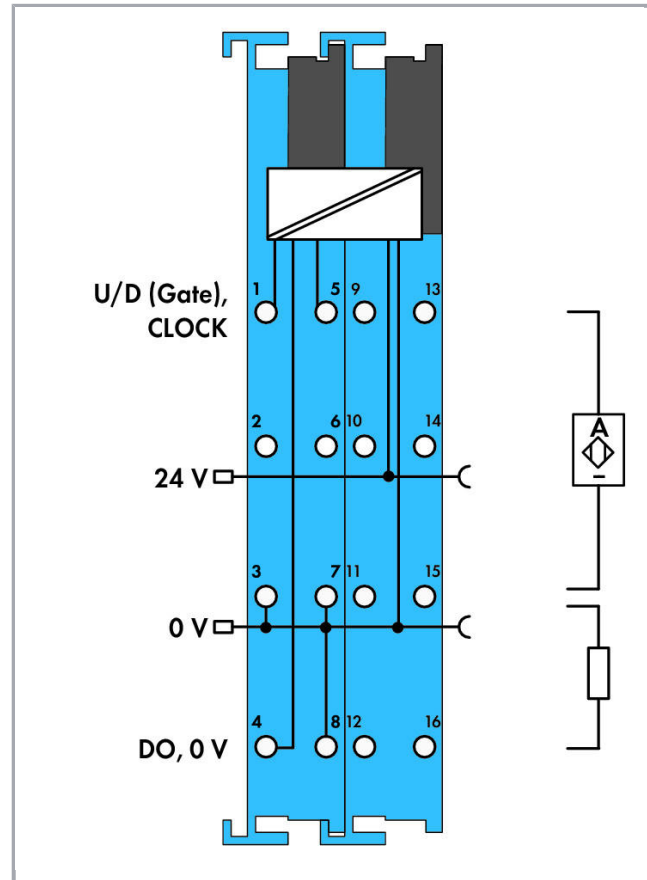
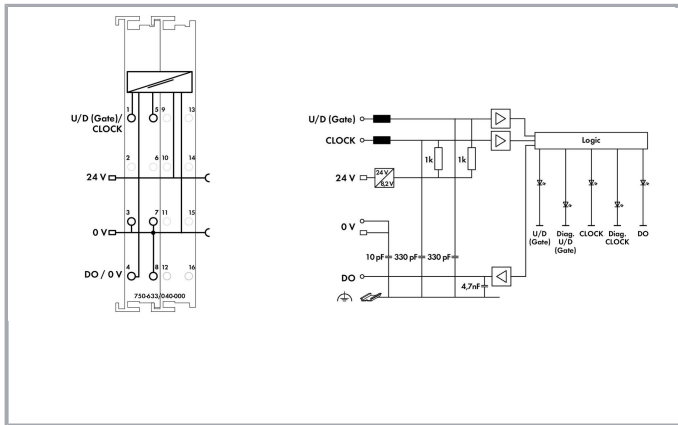


Color: ■

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Item description

This counter records binary pulse signals with NAMUR-compliant levels and transmits the counter state to the fieldbus system. The counting direction in "up/down counter" mode can be set using the U/D input. A control byte sets or resets the counter and digital output (DO). Additionally, a limit value can be set at which the DO output is activated when this value is exceeded. The output is short-circuit-proof.

Operating modes:

- Up counter with enable input
- Up/down counter
- Frequency counter
- Peak-time counter

Indicators:

- Green LED (Up/Down + CLK + DO status)
- Red LED (Up/Down + CLK error status)

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



Field and system levels are electrically isolated.

The device is ideal for operation in extreme environments thanks to:

- Extended temperature range
- Greater immunity to impulse voltages and electromagnetic interference
- Higher vibration and shock resistance

Note:

The up/down counter must only be operated via 24 VDC Ex i XTR power supply (750-606/040-000)!

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

Data

Technical Data

Number of digital outputs	1
No. of counters	1
Counter depth	32 Bit
Sensor supply U_V	8.2 V
Input filter	10 μ s
Open-circuit voltage	8.2 V
Output voltage	24 VDC
Short-circuit current	8.2 mA (+/- 5 %)
Signal current (0)	1.2 mA
Signal current (1)	2.1 mA
Switching hysteresis	0.2 mA
Switching frequency	20 Hz ... 50 kHz
Input resistance max.	1000 Ω
Internal resistance (R_i)	285 Ω
Power consumption P_{max}	2.2 W (sensor load: 8.2 mA + actuator load: 45 mA)
Bit width	1 x 32-bit data, 1 x 8-bit status/diagnostics
Intrinsic safety Ex i	yes
System supply voltage	DC 5 V; via data contacts
Current consumption, system supply (5 V)	25 mA
Field supply voltage	DC 24 V; (Ex i XTR power supply: $U_O = \text{max. } 26.8 \text{ V}$); via power jumper contacts (power supply via blade contact; transmission via spring contact)

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



Current consumption, field supply (module with no external load)	31 mA
Power loss P_V	1.7 W (sensor load: 8.2 mA + actuator load: 45 mA)
Isolation	300 VAC system/field
Rated surge voltage	1 kV; Rated surge voltage between intrinsically safe and non-intrinsically safe circuits: 1.5 kV (EN 60079-11)
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity of the power jumper contacts	1 A
Ex guideline	EN/IEC 60079-0, -7, -11
Safety Data – Input	$U_o = 12 \text{ V}$; $I_o = 13.3 \text{ mA}$; $P_o = 40.4 \text{ mW}$; Linear characteristic curve
Reactances, inputs, Ex ia IIC	$L_o = 100 \text{ mH}$; $C_o = 1.41 \mu\text{F}$
Reactances, inputs, Ex ia IIB	$L_o = 100 \text{ mH}$; $C_o = 9 \mu\text{F}$
Reactances, inputs, Ex ia IIA	$L_o = 100 \text{ mH}$; $C_o = 36 \mu\text{F}$
Reactances, inputs, Ex ia I	$L_o = 100 \text{ mH}$; $C_o = 35 \mu\text{F}$
Safety data - output	$U_o = 26.8 \text{ V}$; $I_o = 96.69 \text{ mA}$; $P_o = 674.83 \text{ mW}$; linear characteristic curve
Reactances, output, Ex ia IIC	$L_o = 1.3 \text{ mH}$; $C_o = 0.091 \mu\text{F}$
Reactances, output, Ex ia IIB	$L_o = 13 \text{ mH}$; $C_o = 0.719 \mu\text{F}$
Reactances, output, Ex ia IIA	$L_o = 23 \text{ mH}$; $C_o = 2.369 \mu\text{F}$
Reactances, output, Ex ia I	$L_o = 33 \text{ mH}$; $C_o = 3.849 \mu\text{F}$
Reactances	Reactances without accounting for the concurrence of L and C

Connection data

Connection technology: In-/Outputs	16 x CAGE CLAMP®
Connection type (1)	Inputs/Outputs
Solid conductor	0,25 ... 2,5 mm ² / 24 ... 14 AWG
Fine-stranded conductor	0,25 ... 2,5 mm ² / 24 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch

Geometrical Data

Width	24 mm / 0.945 inch
Height	67,8 mm / 2.669 inch
Height from upper-edge of DIN-35 rail	60,6 mm / 2.386 inch
Depth	100 mm / 3.937 inch

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Mechanical data

Type of mounting	DIN-35 rail
------------------	-------------

Material Data

Color	blue
Housing material	Polycarbonate, polyamide 6.6
Weight	88.1 g
Conformity marking	CE

Environmental Requirements

Surrounding air (operating) temperature	-40 ... 70 °C
Surrounding air (storage) temperature	-40 ... 85 °C
Protection class	IP20
Degree of pollution (5)	2 per IEC 61131-2
Operating altitude	without temperature derating: 0 ... 2000 m; with temperature derating: 2000 ... 5000 m (0.5 K/100 m); 5000 m (max.)
Mounting position	horizontal (standing/lying); vertical
Relative air humidity (no condensation)	95 %
Relative humidity	Short-term condensation per Class 3K7/IEC EN 60721-3-3 and E-DIN 40046-721-3 (except for wind-driven precipitation, water and ice formation)
Vibration resistance	per IEC 60068-2-6 (acceleration: 5g), EN 60870-2-2, IEC 60721-3-1, -3
Shock resistance	per IEC 60068-2-27 (15g/11 ms/half-sine/1,000 shocks; 25g/6 ms/1,000 shocks), EN 61373
EMC immunity to interference	per EN 61000-6-1, -2, EN 61131-2, marine applications, EN 60255-26, EN 60870-2-1, EN 61850-3, IEC 61000-6-5, IEEE 1613, VDEW: 1994
EMC emission of interference	per EN 61000-6-3, -4, EN 61131-2, EN 60255-26, marine applications, EN 60870-2-1, EN 61850-3
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

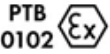


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Commercial data





Packaging type	BOX
Country of origin	DE
GTIN	4055143649599
Customs Tariff No.	85389099990

Approvals / Certificates

Ex-Approvals


Logo	Approval	Additional Approval Text	Certificate name
	ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_17_ATEX_196484X
	IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX TUN 17.0005X
	UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726 Sec.1

Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name
	ABS American Bureau of Shipping	-	18- HG1778162- PDA
	DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAA00000Y7
	LR Lloyds Register	-	17/20073 LR
	PRS Polski Rejestr Statków	-	TE/2215 /880590/18

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UL-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 61010-2-201	E175199 Sec10

Counterpart

Compatible products

Marking accessories

	Item no.: 2009-145 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white	www.wago.com/2009-145
	Item no.: 2009-145/000-002 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white	www.wago.com/2009-145/000-002
	Item no.: 2009-145/000-005 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red	www.wago.com/2009-145/000-005
	Item no.: 2009-145/000-006 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue	www.wago.com/2009-145/000-006
	Item no.: 2009-145/000-007 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white	www.wago.com/2009-145/000-007
	Item no.: 2009-145/000-012 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange	www.wago.com/2009-145/000-012
	Item no.: 2009-145/000-023 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green	www.wago.com/2009-145/000-023
	Item no.: 2009-145/000-024 Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet	www.wago.com/2009-145/000-024

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Item no.: 248-501

Miniature WSB Quick marking system; plain; Marker width 5 mm; 10 strips with 10 markers per card

www.wago.com/248-501

Item no.: 248-501/000-002

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow

www.wago.com/248-501/000-002



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.: 248-501/000-006

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue

www.wago.com/248-501/000-006

Item no.: 248-501/000-007

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray

www.wago.com/248-501/000-007

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.: 248-501/000-017

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green

www.wago.com/248-501/000-017



Item no.: 248-501/000-023

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green

www.wago.com/248-501/000-023

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.: 750-103

Group marker carrier; transparent

www.wago.com/750-103

Item no.: 750-107

Group marker carrier; transparent

www.wago.com/750-107

power supply



Item no.: 750-606/040-000

Power Supply; 24 VDC; Diagnostics; Intrinsically safe; Extreme; dark gray

www.wago.com/750-606/040-000

shield connection

Item no.: 790-108

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

www.wago.com/790-108

Item no.: 790-116

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

www.wago.com/790-116

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	Item no.: 790-124 Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm	www.wago.com/790-124
	Item no.: 790-140 Shield clamping saddle; diameter of compatible conductor	www.wago.com/790-140
	Item no.: 790-208 Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm	www.wago.com/790-208
	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
Carrier rail		
	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
	Item no.: 210-113 Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715	www.wago.com/210-113
	Item no.: 210-114 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715	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
	Item no.: 210-118 Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715	www.wago.com/210-118
	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
	Item no.: 210-197 Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715	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	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	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	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	www.wago.com/210-508

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Downloads

Documentation

Data sheet

750-633/040-000, Up/Down Counter Ex i XTR		pdf 224.8 kB	Download
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Manual

Up/Down Counter Ex i /XTR	V 1.0.0	pdf 1.8 MB	Download
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Additional Information

Disposal; Electrical and electronic equipment, Packaging	V 1.0.0	pdf 265.8 kB	Download
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System Description

Overview on WAGO-I/O-SYSTEM 750 approvals		pdf 780.2 kB	Download
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Intrinsically Safe XTR Modules – General Product Information		pdf 401.8 kB	Download
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System Manual /XTR Basic conditions and recommendations for higher operational safety	V 1.2.0	pdf 2.9 MB	Download
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CAD/CAE-Data

CAD data

2D/3D Models 750-633/040-000		URL	Download
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CAE data

EPLAN Data Portal 750-633/040-000		URL	Download
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Installation Notes

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Product family

750 XTR Series – I/O System

I/O-System 750 XTR: Dort automatisieren, wo jedes andere System an seine Grenzen stößt – und das zuverlässig und wirtschaftlich! XTR – dieses Kürzel im Systemnamen steht für extremen Schutz vor klimatischen Einflüssen, Schwingungen, Erschütterungen und Überspannungen.

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