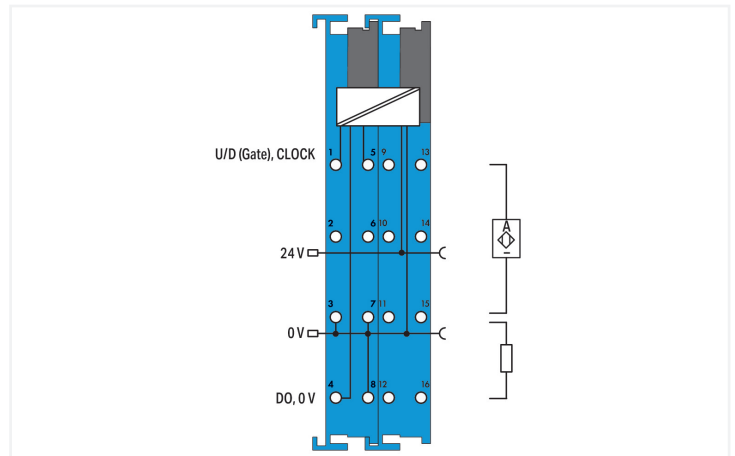
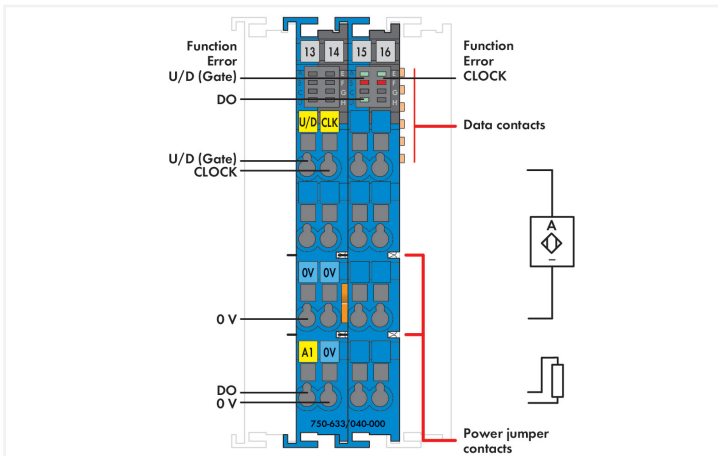


Color: ■ blue



This counter detects binary pulse signals with NAMUR-compliant levels at the CLK (CLOCK) input and transmits the current count value to the connected fieldbus system. The counting direction in "up/down counter" mode can be defined via the U/D (Up/Down) input. The counter and the digital output (DO) can be set and reset via the control byte. Additionally, a threshold value can be defined that triggers the DO when 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)

Field and system levels are electrically isolated.

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

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

## Notes

Note	The up/down counter must only be operated via 24 VDC Ex i XTR power supply (750-606/040-000)! General information on explosion protection, including installation regulations, can be found in the WAGO I/O System 750 XTR manuals!
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## Technical data

Item description	Up/Down Counter; Intrinsically safe
Number of digital outputs	1
Number of counters	1
Signal current (0)	1.2 mA
Signal current (1)	2.1 mA
Input filter	10 $\mu$ s
Sensor supply $U_V$	8.2 V
Output voltage	24 DC
Counter depth	32 bits
Open-circuit voltage	8.2 V
Short-circuit current	8.2 mA (+/- 5 %)
Switching hysteresis	0.2 mA
Switching frequency	20 Hz ... 50 kHz
Input resistance (max.)	1000 $\Omega$
Internal resistance $R_i$	285 $\Omega$
Intrinsically safe Ex i	Yes
Data width	1 x 32-bit data, 1 x 8-bit status/diagnostics
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	25 mA
Supply voltage (field)	24 VDC; (Ex i XTR power supply: $U_o = \text{max. } 26.8$ ); via power jumper contacts (supply via blade contact; distribution via spring contact)
Current consumption, field supply (module with no external load)	31 mA
Power consumption $P_{\text{max}}$	2.2 W (sensor load: 8.2 mA + actuator load: 45 mA)
Power loss $P_l$	1.7 W (sensor load: 8.2 mA + actuator load: 45 mA)
Isolation	300 VAC system/supply
Rated impulse withstand 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 (power jumper contacts)	1 A
Indicators	LED (A, D, E) green: U/D (Gate), DO, CLOCK; LED (B, F) red: Error U/D (Gate), Error CLOCK

## Explosion protection

Identification	<b>ATEX:</b> II 3 (1) G Ex ec [ia Ga] IIC T4 Gc; II (1) D [Ex ia Da] IIIC; I (M1) [Ex ia Ma] I <b>IECEx/INMETRO:</b> Ex ec [ia Ga] IIC T4 Gc; [Ex ia Da] IIIC; [Ex ia Ma] I <b>cULus (Devision classified):</b> Class I, Div. 2, Group A B C D, T4
Ex standard	EN/IEC 60079-0, -7, -11
Safety data (input)	$U_o = 12$ V; $I_o = 13.3$ mA; $P_o = 40.4$ mW; linear characteristic curve
Reactances of Ex ia IIC inputs	$L_o = 100$ mH; $C_o = 1.41$ $\mu$ F
Reactances of Ex ia IIB inputs	$L_o = 100$ mH; $C_o = 9$ $\mu$ F
Reactances of Ex ia IIA inputs	$L_o = 100$ mH; $C_o = 36$ $\mu$ F
Reactances of Ex ia I inputs	$L_o = 100$ mH; $C_o = 35$ $\mu$ F
Safety data (output)	$U_o = 26.8$ V; $I_o = 96.69$ mA; $P_o = 674.83$ mW; linear characteristic curve
Reactances of Ex ia IIC output	$L_o = 1.3$ mH; $C_o = 0.091$ $\mu$ F
Reactances of Ex ia IIB output	$L_o = 13$ mH; $C_o = 0.719$ $\mu$ F
Reactances of Ex ia IIA output	$L_o = 23$ mH; $C_o = 2.369$ $\mu$ F
Reactances of Ex ia I output	$L_o = 33$ mH; $C_o = 3.849$ $\mu$ F
Reactances (note)	Reactances without accounting for the concurrence of capacitance ( $C_o$ ) and inductance ( $L_o$ )

### Connection Data

Connection technology: I/O	6 x CAGE CLAMP®
Connectable conductor materials	Copper
Connection type	Inputs/outputs
Solid conductor	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches

### Physical data

Width	24 mm / 0.945 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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### Material data

Color	blue
Housing material	Polycarbonate; polyamide 6.6
Fire load	1.976 MJ
Weight	88.1 g
Conformity marking	CE

### Environmental requirements

Ambient temperature (operation)	-40 ... +70 °C
Ambient temperature (storage)	-40 ... +85 °C
Ambient temperature (installation)	-20 ... +70 °C
Protection type	IP20
Pollution degree	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 left, horizontal up, vertical top and vertical bottom
Relative humidity (without condensation)	95 %
Relative humidity (with condensation)	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 <sub>2</sub> S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO <sub>2</sub> contaminant concentration at a relative humidity 75 %	25 ppm

### Commercial data

PU (SPU)	1 pcs
Packaging type	Box
Country of origin	DE
GTIN	4055143649599
Customs tariff number	85389099990

### Product Classification

UNSPSC	39121521
eCl@ss 10.0	27-24-26-05
eCl@ss 9.0	27-24-26-05
ETIM 9.0	EC001601
ETIM 10.0	EC001601
ECCN	NO US CLASSIFICATION

### Environmental Product Compliance

CAS-No.	1303-86-2 1317-36-8 7439-92-1
REACH Candidate List Substance	Diboron trioxide Lead Lead monoxide Perfluorobutane sulfonic acid (PFBS) and its salts
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	271b64e5-ee6e-48dd-98ba-acb3ff091141
SCIP notification number (Belgium)	cf820bc5-1472-4e87-8776-d176008c3cae
SCIP notification number (Bulgaria)	d27657ae-add5-405f-8680-c03f56e6c689
SCIP notification number (Czech Republic)	5e8bfc13-f748-4e9e-9cba-4907e13610c8
SCIP notification number (Denmark)	e08e2bd8-653a-423e-aca7-85e0c0c6dec6
SCIP notification number (Finland)	f3b6b562-7854-428b-9a16-46976f6b16e3
SCIP notification number (France)	7facf236-8a28-419d-a5b2-eceefaf58140
SCIP notification number (Germany)	c8ba048f-52c8-4985-b023-6c3eb9c49c15
SCIP notification number (Hungary)	84e3231b-7b32-4a87-aea4-1614438d233e
SCIP notification number (Italy)	37ba02c3-f4e8-4812-9d07-0a46397589a6
SCIP notification number (Netherlands)	8f22575c-eadb-4a9d-a7e1-cf5555600570
SCIP notification number (Romania)	c984940c-8e70-4f7d-9ef9-45dbe9b38bc2
SCIP notification number (Sweden)	7b646f4d-6f84-45c6-afdb-d6ea033f0a1e

### Approvals / Certificates

#### General approvals



Approval	Standard	Certificate Name
UL Underwriters Laboratories Inc. (ORDINARY LOCATI- ONS)	-	E175199

#### Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Ex-Declaration of Con- formity WAGO GmbH & Co. KG	-	-
UK-Ex-Declaration of Con- formity WAGO GmbH & Co. KG	-	-

Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	22-2208829-PDA
DNV DNV GL SE	-	TAA00000Y7
LR Lloyds Register	-	LR22276776TA
PRS Polski Rejestr Statków	-	TE/1099/880590/23

Approvals for hazardous areas



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_17_ATEX_196484X [Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I]
CCC CNEX	CNCA-C23-01	2020312310000212 (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX TUN 17.0005X (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
UKEx Element Materials Techno- logy UK	-	EMA21UKEX0043X

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 750-633/040-000	<a href="#">↓</a>
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Documentation

Manual			
Product Manual Up/ Down Counter Ex i /XTR	V 1.1.0 08.06.2020	pdf 3495.63 KB	<a href="#">↓</a>
System Manual Series 750/753			<a href="#">↓</a>

System Description			
Intrinsically Safe XTR Modules – General Pro- duct Information		pdf 214.93 KB	<a href="#">↓</a>
Overview on WAGO-I/ O-SYSTEM 750 appro- vals		pdf 770.48 KB	<a href="#">↓</a>

Bid Text			
750-633/040-000	19.02.2019	xml 9.68 KB	<a href="#">↓</a>
750-633/040-000	08.02.2018	doc 37.00 KB	<a href="#">↓</a>

Instruction Leaflet			
CCC Ex (Additional in- formation)	26.04.2023	pdf 143.50 KB	<a href="#">↓</a>

CAD/CAE-Data

CAD data	
2D/3D Models 750-633/040-000	<a href="#">↓</a>

CAE data	
EPLAN Data Portal 750-633/040-000	<a href="#">↓</a>
ZUKEN Portal 750-633/040-000	<a href="#">↓</a>

**1 Compatible Products**

**1.1 Optional Accessories**

**1.1.1 DIN-rail**

**1.1.1.1 Mounting accessories**



**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



**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



**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



**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



**Item No.: 210-118**  
Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored



**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; 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; silver-colored



**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

**1.1.2 Marking**

**1.1.2.1 Group marker carrier**



**Item No.: 750-107**  
Group marker carrier

**1.1.2.2 Marker**



**Item No.: 2009-145/000-006**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue



**Item No.: 2009-145/000-007**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray



**Item No.: 2009-145/000-023**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green



**Item No.: 2009-145/000-012**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange



**Item No.: 2009-145/000-005**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red



**Item No.: 2009-145/000-024**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet



**Item No.: 2009-145**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white



**Item No.: 2009-145/000-002**  
Mini-WSB In-line; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow



**Item No.: 248-501/000-006**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue



**Item No.: 248-501/000-007**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray



**Item No.: 248-501/000-023**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green



**Item No.: 248-501/000-017**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green



**Item No.: 248-501/000-012**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange



**Item No.: 248-501/000-005**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red



**Item No.: 248-501/000-024**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet



**Item No.: 248-501**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white



**Item No.: 248-501/000-002**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow

### 1.1.2.3 Marker carrier



**Item No.: 750-103**

Group marker carrier

### 1.1.3 Power supply

#### 1.1.3.1 Supply module



**Item No.: 750-606/040-000**

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

### 1.1.4 Shield termination

#### 1.1.4.1 Shield clamping saddles



**Item No.: 790-108**

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



**Item No.: 790-208**

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



**Item No.: 790-116**

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



**Item No.: 790-216**

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



**Item No.: 790-124**

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



**Item No.: 790-220**

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



**Item No.: 790-140**

Shield clamping saddle; diameter of compatible conductor