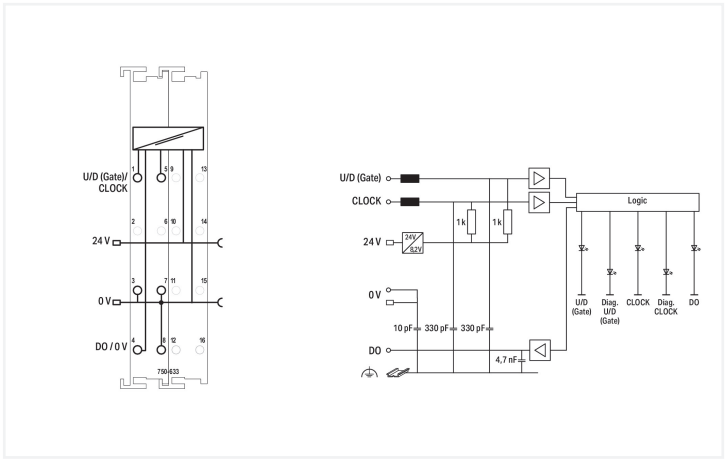
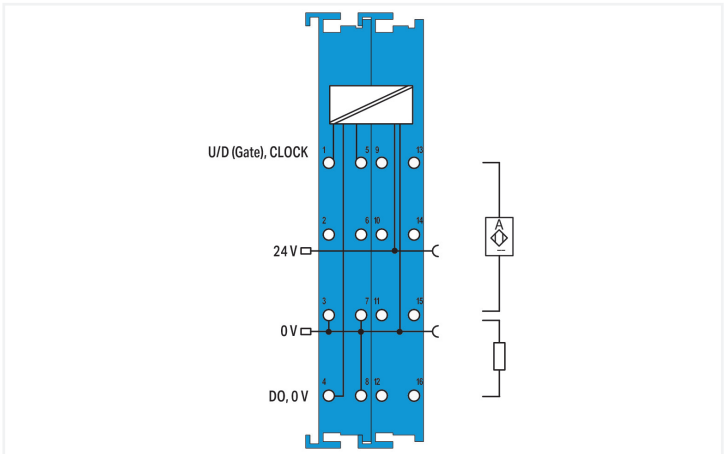
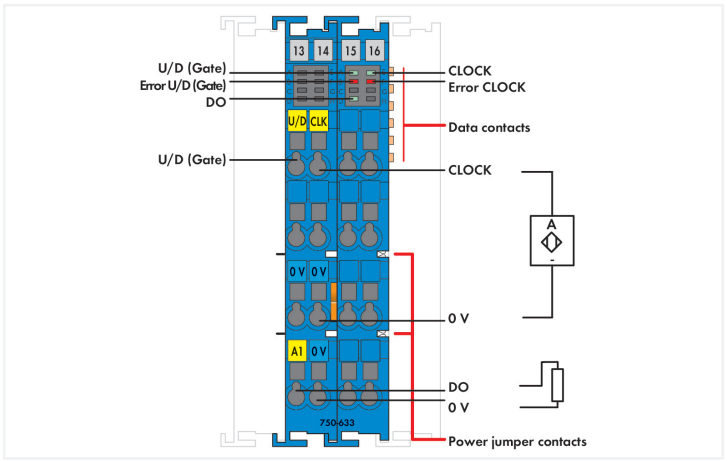
Data Sheet | Item Number: 750-633

Up/Down Counter; Intrinsically safe

https://www.wago.com/750-633







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 with U/D input
- Frequency counter with enable input
- Peak-time counter

- Indicators:
- Green LED (status U/D (Gate) + status CLOCK + status DO)
- Red LED (error U/D (Gate) + error CLOCK)

- Field and system levels are electrically isolated.

Notes

Note	The up/down counter must only be operated via 24 VDC Ex i XTR 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 outputs	1
Number of counters	1
Counter depth	32 bits
Sensor supply U_V	8.2 V
Input filter	10 µs
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)
Data width	1 x 32-bit data, 1 x 8-bit status/diagnostics
Intrinsic safety Ex i	Yes
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	25 mA
Supply voltage (field)	24 VDC; (Ex i power supply: U_O = max. 26.8 V); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Current consumption, field supply (module with no external load)	31 mA
Power loss P_l	1.7 W (sensor load: 8.2 mA + actuator load: 45 mA)
Isolation	300 VAC system/field
Indicators	LED (A, D, E) green: U/D (Gate), DO, CLOCK; LED (B, F) red: Error U/D (Gate), Error CLOCK
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; I (M1) [Ex ia Ma] I; II (1) D [Ex ia Da] IIIC

Explosion protection

Ex standard	EN IEC 60079-0, -7, -11
Safety data (input)	U_o = 12 V; I_o = 13.5 mA; P_o = 40.5 mW; linear characteristic curve
Reactances of Ex ia IIC inputs	L_o = 100 mH; C_o = 1.4 µF
Reactances of Ex ia IIB inputs	L_o = 100 mH; C_o = 9 µF
Reactances of Ex ia IIA inputs	L_o = 100 mH; C_o = 36 µF
Reactances of Ex ia I inputs	L_o = 100 mH; C_o = 38 µF
Safety data (output)	U_o = 26.8 V; I_o = 96.7 mA; P_o = 648 mW; linear characteristic curve
Reactances of Ex ia IIC output	L_o = 0.5 mH; C_o = 88 nF
Reactances of Ex ia IIB output	L_o = 10 mH; C_o = 683 nF
Reactances of Ex ia IIA output	L_o = 18 mH; C_o = 2.2 µF
Reactances of Ex ia I output	L_o = 26 mH; C_o = 3.6 µF
Reactances (note)	Reactances without accounting for the concurrence of capacitance (C_o) and inductance (L_o)

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Connection data

Connection technology: inputs/outputs	16 x CAGE CLAMP®
Connection type 1	Inputs/outputs
Solid conductor	0.08 … 2.5 mm² / 28 … 14 AWG
Fine-stranded conductor	0.08 … 2.5 mm² / 28 … 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

Material data

Color	blue
Housing material	Polycarbonate; polyamide 6.6
Fire load	2.035 MJ
Weight	88.2 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_2S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO_2 contaminant concentration at a relative humidity 75 %	25 ppm

Environmental Product Compliance

CAS-No.	11120-22-2 1303-86-2 1317-36-8 7439-92-1
REACH Candidate List Substance	Diboron trioxide Lead Lead monoxide Lead silicate
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Bulgaria)	5b4703c5-63a4-4a2f-840e-875112670b16
SCIP notification number (Czech Republic)	0dfd5047-b7df-4e54-811a-a9b844981321

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Approvals / Certificates

General approvals

Approval	Standard	Certificate Name
CCC CNEX	CNCA-C23-01	2020312310000211 (Ex ec[iaGa] IIC T4 Gc, [Ex ia-Da] IIIC, [Ex iaMa] I)
EAC Brjansker Zertifizierungs-stelle	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-CTM750
UL Underwriters Laboratories Inc. (ORDINARY LOCATI-ONS)	UL 508	E175199 Sec.1

Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Confor-mity WAGO GmbH & Co. KG	-	-
EU-Declaration of Confor-mity WAGO GmbH & Co. KG	-	-

Approvals for marine applications

Approval	Standard	Certificate Name
ABS American Bureau of Ship-ping	-	22-2219060
DNV DNV GL SE	DNV-CG-0339,Aug.2021	TAA0000194
KR Korean Register of Ship-ping	-	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

Approval	Standard	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)
EAC Brjansker Zertifizierungs-stelle	TP TC 012/2011	EAC RU C-DE.AM02. B.00163/19 ([ExiaMa]I X,2Ex e[iaGa]IIC T4Gc X,[ExiaDa]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 ia-Da] IIIC, [Ex iaMa] I)
UL Underwriters Laboratories Inc. (HAZARDOUS LOCA-TIONS)	UL 121201	E198726 Sec.1

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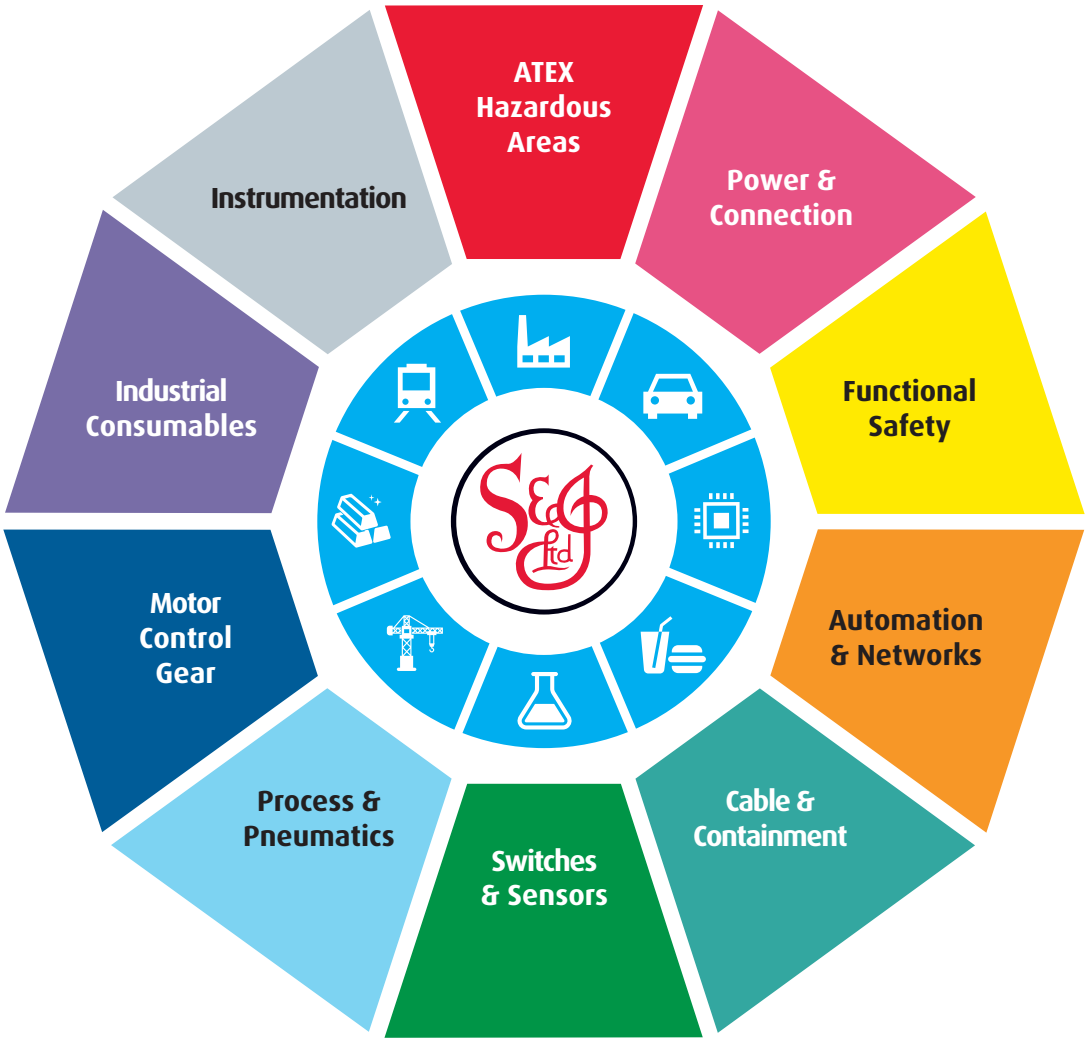

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