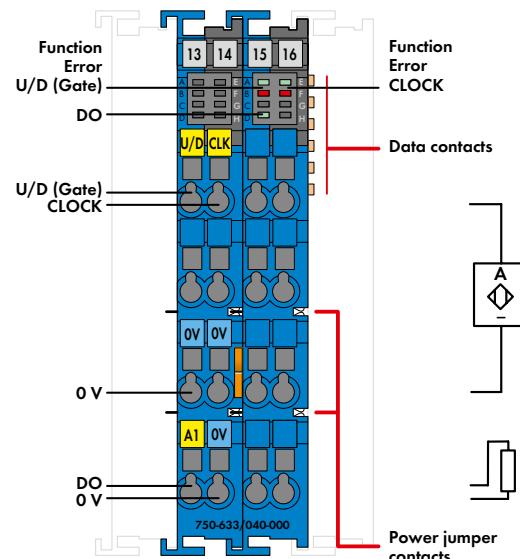


## Up/Down Counter; Intrinsically Safe; Extreme



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 measurement
- Peak-time counter

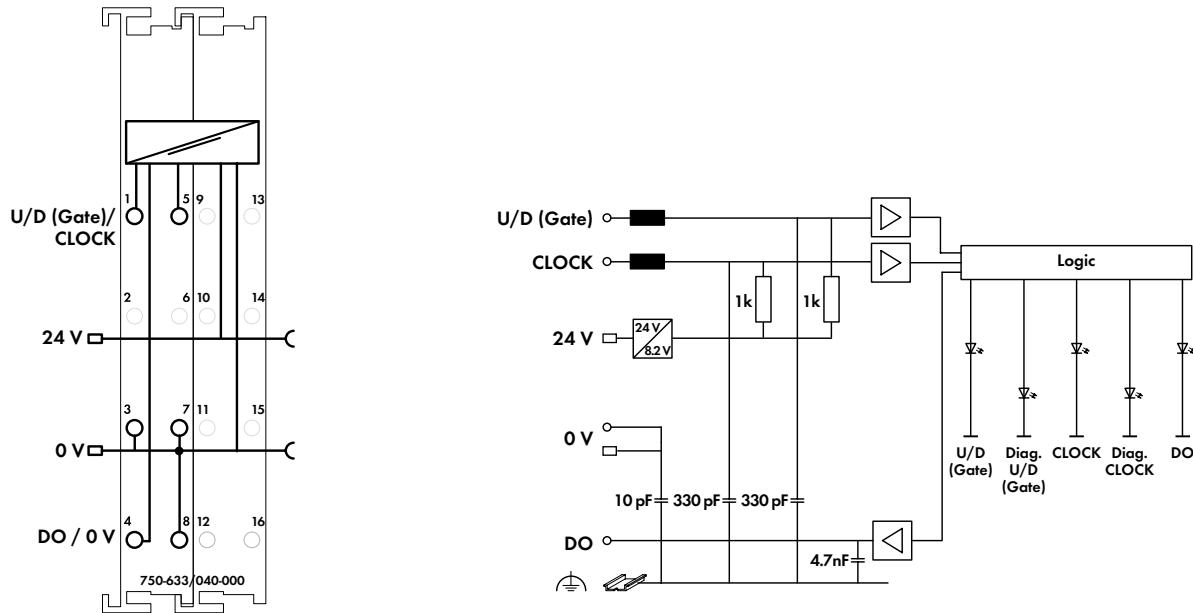
## Indicators:

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

Field and system levels are electrically isolated.

Description	Item No.	Pack. Unit
Up/Down Counter Ex i XTR	750-633/040-000	1
Accessories	Item No.	Pack. Unit
Mini-WSB Quick Marking System, plain	248-501	50

Technical Data	
Number of counters	1
Number of outputs	1
Counter U/D (Gate), CLK	
Sensor supply $U_V$	8.2 VDC
Signal current (0)	$\leq 1.2$ mA
Signal current (1)	$\geq 2.1$ mA
Input filter	10 $\mu$ s
Switching hysteresis	0.2 mA
Open-circuit voltage	8.2 VDC
Input resistance	1 k $\Omega$
Short-circuit current	8.2 mA ( $\pm 5\%$ )
Switching frequency	20 Hz ... 50 kHz
Counter depth	32 bits
Output	
Open-circuit voltage	24 VDC
Output voltage	24 VDC
Internal resistance $R_i$	285 $\Omega$
Supply voltage (field)	24 VDC via power jumper contacts (Ex i XTR power supply: $U_O = \text{max. } 26.8$ V)
Current consumption (field supply)	31 mA + sensor load + actuator load
Current consumption (system supply)	25 mA
Power consumption $P_{\text{max.}}$	2.2 W (sensor load: 8.2 mA + actuator load: 45 mA)
Power loss $P_J$	1.7 W (sensor load: 8.2 mA + actuator load: 45 mA)



Technical Data	
Data width	1 x 32-bit data, 1 x 8-bit status/diagnostics
Isolation	$U_m = 300$ VAC system/supply
Rated surge voltage	1 kV; Rated surge voltage between intrinsically safe and non-intrinsically safe circuits: 1.5 kV (EN 60079-11)
Connection technology	CAGE CLAMP®
Conductor range	0.25 ... 2.5 mm² / 24 ... 14 AWG
Strip length	8 ... 9 mm / 0.33 inch
Dimensions W x H x D	24 x 67.8 x 100 mm
Weight	88.2 g
Ambient temperature (operation)	-40 ... +70 °C
Ambient temperature (storage)	-40 ... +85 °C
Relative humidity	Max. 95 %, short-term condensation per Class 3K7 / IEC EN 60721-3-3 and E DIN 40046-721-3 (except wind-driven precipitation, water and ice formation)
Operating altitude	Without temperature derating: 0 ... 2000 m; With temperature derating: 2000 ... 5000 m (0.5 K/100 m); Maximum: 5000 m
Vibration resistance	Per IEC 60068-2-6 (acceleration: 5 g), EN 60870-2-2, IEC 60721-3-1, -3
Shock resistance	Per IEC 60068-2-27 (15 g/11 ms/half- sine/1,000 shocks; 25 g/6 ms/1,000 shocks), EN 61373
EMC immunity to interference	EN 61000-6-1, EN 61000-6-2, 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	EN 61000-6-3 and EN 61000-6-4, EN 61131-2, EN 60255-26 (marine applications), EN 60870-2-1 and EN 61850-3 (industrial and residential areas)

Explosion Protection	
Safety data – input	$U_o = 12$ V; $I_o = 13.3$ mA; $P_o = 40.4$ mW; Linear characteristic curve
Input reactances Ex ia IIC	$L_o = 100$ mH; $C_o = 1.41$ µF
Input reactances Ex ia IIB	$L_o = 100$ mH; $C_o = 9$ µF
Input reactances Ex ia IIA	$L_o = 100$ mH; $C_o = 36$ µF
Input reactances Ex ia I inputs	$L_o = 100$ mH; $C_o = 35$ µF
Safety data – output	$U_o = 26.8$ V; $I_o = 96.69$ mA; $P_o = 674.83$ mW; Linear characteristic curve
Output reactances Ex ia IIC	$L_o = 1.3$ mH; $C_o = 0.091$ µF
Output reactances Ex ia IIB	$L_o = 13$ mH; $C_o = 0.719$ µF
Output reactances Ex ia IIA	$L_o = 23$ mH; $C_o = 2.369$ µF
Output reactances Ex ia I	$L_o = 33$ mH; $C_o = 3.849$ µF
Reactances	Reactances without considering the concurrency of L and C; for reactan- ces that account for the concurrency of L and C, see manual
Guidelines and Approvals	
Conformity marking	CE
Ex guideline	EN/IEC 60079-0, -7, -11
Marine applications	ABS, DNV GL, LR, PRS
Ex E175199 Ordinary Locations	
TÜV 17 ATEX 196484 X	Ex II 3 (1) G [Ex ec [ia Ga] IIC T4 Gc] Ex II (1) D [Ex ia Da] IIIC
IECEx TUN 17.0005X	Ex I (M1) [Ex ia Ma] I Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I
UL E198726 Hazardous Locations	CI I, Div 2, Group A, B, C, D, T4