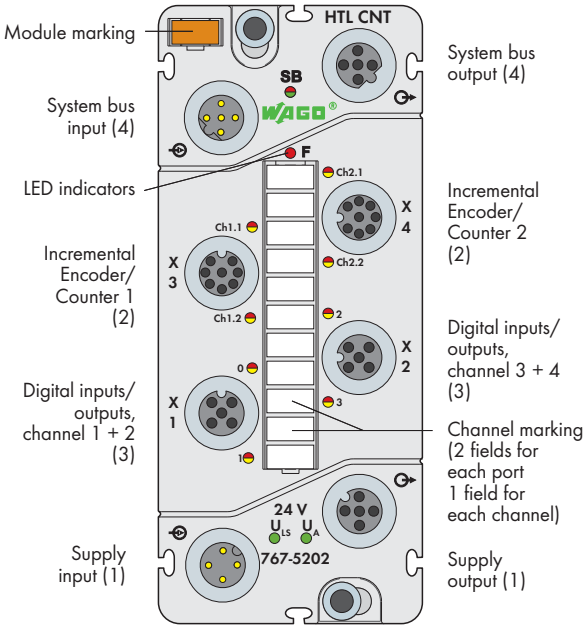
HTL Incremental Encoder/Counter Interface

Two encoder/counter interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:
The 767-5202 Module evaluates incremental encoders and counts binary signals with 24V signal levels. Integrated DIOs allow outputs to be directly set depending on counter states. Two of the four DIO channels can also be used as PWM outputs*.

Characteristics:
- Two incremental encoder/counter interfaces
- Four digital inputs/outputs 24 VDC/0.1 A (incl. 2 PWM outputs)
- Configurable (incremental encoder, counter, DIOs)
- Diagnostic-capable (channel by channel/module by module)

Included:
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

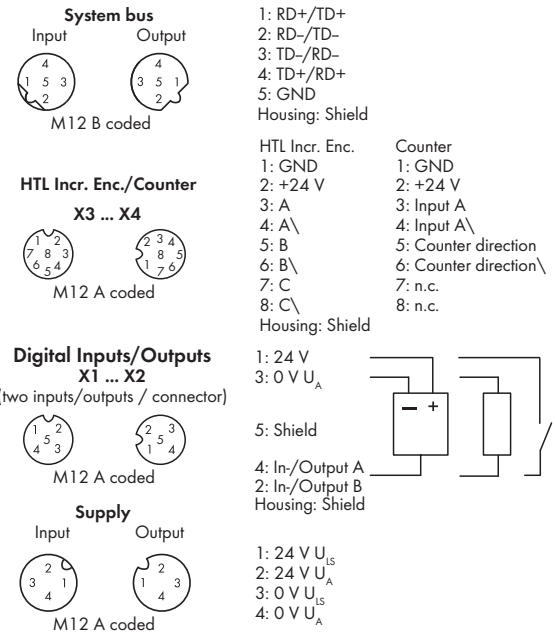
*Pulse-Width Modulated outputs

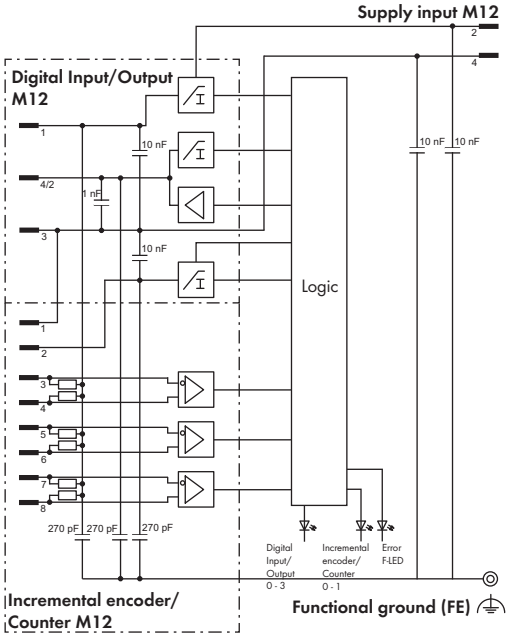
Description	Item No.	Pack. Unit
HTL Incremental Encoder/Counter	**767-5202**	1
Product discontinuation	**Last Call: 30.09.2018**	

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	see pages 520 ... 521
IP67 cables and connectors	see pages 502 ... 517 + Section 11

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles
Current carrying capacity of supply connections	max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ...+30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 50 mA
Actuator current I_A	typ. 25 mA + actuators (max. 800 mA)
Protection	Reverse voltage protection for U_{LS} + U_A
	Short-circuit protection for sensor/actuator supply

Technical Data	
Incremental encoder:	
Number of inputs (incremental)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Sensor supply	5 V/24 V, max. 300 mA
Encoder connection (incremental)	A, A\, B, B\, C, C\
Signal input (incremental)	HTL, differential/single-ended
Counter	32 bits
Max. operating frequency	250 kHz
Zero impulse latch	32 bits
Type of cable, cable length	shielded, ≤ 30 m
Counters:	
Number of inputs (counter)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Counter type	U/D counter (up/down pulse counting), peak-time counter (number of pulses per time unit), AB counter (A+B; A-B), frequency counter (input frequency, cycle duration), pulse width (pulse width ratio), pulse duration (time in µs)
Counter input	24 V DC
Power supply	max. 300 mA
Bit width	32 bits
Counter frequency	250 kHz
Digital inputs:	
Number of inputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire





Technical Data

Digital inputs:	
Front-end cycle time (hardware)	max. 3 µs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC)
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Type of cable, cable length (digital inputs)	shielded, ≤ 30 m
Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA
Digital outputs (see manual for actuator selection information)	
No. of outputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U_A
Output current (channel/module)	0.1 A/0.4 A
Short-term output current, 1 s (channel)	0.2 A
Output protection	Short-circuit/overload protection, thermal shutdown
Response time	approx. 10 µs (output, 90 %)
Pulse width modulation (PWM)	
Pulse frequency	100 Hz ... 10 kHz
Pulse duty factor	0 ... 100 %
Resolution	16 bits (≤ 1 kHz), 12 bits (> 1 kHz)
Voltage drop against U_A	max. 1.7 V at 100 mA
Leakage current in OFF state	typ. 150 µA
Output circuit	push-pull
System bus:	
Connection type (4)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
Conformity marking	CE
UL 508	

Technical Data

Standards and approvals:	
BVS 15 ATEX E 098 X	II 3G Ex nA IIC T5 Gc, II 3D Ex tc IIIB T90°C Dc
IECEx BVS 15.0083X	Ex nA IIC T5 Gc, Ex tc IIIB T90°C Dc
Isolation:	
Channel – Channel	no
U_{LS}, U_A, system bus	500 V DC each
Configurable functions: (see manual for configuration details)	
Incremental encoder (channel by channel)	Evaluation, filter
Counter (channel by channel)	Gate, direction, gate time, preset, etc.
Cam (channel-by-channel)	Upper/lower value, output, etc.
Pulse-width modulation (channel-by-channel)	Pulse duty factor, frequency, etc.
DIOs (channel by channel/module by module)	Operating mode, filter, substitute value strategy, etc.
Configurable functions (channel by channel/module by module)	Online simulation and diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	**Encoder:** Over-/underflow, wire break, limit value violation (min./max.); **DIO:** Overtemperature (actuators)
I/O diagnostics (per module)	**Supply:** Short-circuit/Overload of sensor/actuator supply, undervoltage (U_{LS} + U_A)
Process image:	
Process data width	2 x 4-byte encoder value, 2 x 2-byte control data, 1-byte status DI/control DO
Synchronous diagnostics (optional)	2 bytes
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 – 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1 + Ch2: Encoder status	LED (green/yellow/red)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g