

S-DIAS Counter Input Module FC 021



with 2 digital RS422 inputs with counter function
2 digital TTL inputs with counter function
2 digital HTL inputs with counter function

The S-DIAS counter input module FC 021 provides the option to configure 2 counter inputs or one incremental encoder input. Thereby, the RS422, TTL or HTL inputs can be optionally used for the counter function. Parallel to the inputs, the module also provides the actual status of all digital inputs. The TTL and HTL inputs are galvanically separated on the S-DIAS bus. The sensor supply connected to X3 is also galvanically separated on the S-DIAS bus.

RS422 Digital Input Specifications

Number of channels	2
Input signals	RS422 signal (inputs: 330 Ω bus termination, 1.2 k Ω spread each against 5 volts and ground)
Input delay	0.025 μ s
Input frequency	maximum of 5 MHz in normal counter mode or in incremental counter mode with 4-edge analysis
Counter frequency	5 MHz in normal counter mode 20 MHz in incremental counter mode with 4-edge analysis
Galvanic Isolation	no
Common mode range	-5 V ... +10 V
Status LEDs	yes

HTL Digital Input Specifications

Number	2	
Input voltage	typically +24 V	maximum +30 V
Signal level	low: < +8 V	high: > +14 V
Switching threshold	typically +11 V	
Input current	3.7 mA at +24 V	
Input delay	10 μs	
Input frequency	maximum of 25 kHz in normal counter mode or in incremental counter mode with 4-edge analysis	
Counter frequency	25 kHz in normal counter mode 100 kHz in incremental counter mode with 4-edge analysis	
Galvanic isolation	yes (isolation voltage 125 V)	

TTL Digital Input Specifications

	Number	2	
	Input voltage	typically 5.0 V	maximum 5.5 V
	Signal level	low: 0.8 V	high: 2.0 V
	Switching threshold	typically 1.4 V	
	Input current	1.5 mA at +5 V	
	Input delay	typically 1 μs	
	Input frequency	maximum of 125 kHz in normal counter mode or in incremental counter mode with 4-edge analysis	
	Counter frequency	125 kHz in normal counter mode 500 kHz in incremental counter mode with 4-edge analysis	
	Galvanic isolation	yes (isolation voltage 125 V)	
	Status LEDs	yes	

Counter Mode Specifications		
Signal analysis	1-/2x edge analysis for counter input 1-/2-/4x edge analysis for incremental encoder input Period measurement falling/falling edges, Period measurement rising/rising edges, Time measurement falling -> rising edge Time measurement rising -> falling edge	
Counter resolution	32-bit	
Internal counter frequency	100 MHz	
Frequency precision	Frequency stability ± 25 ppm, aging: ± 3 ppm p.a.	
Prescaler	Configurable via software, 16-bit	
Input filter	Can be configured or deactivated via software, 12-bit (0-32.76 ms in 8- μ s stages)	
Configuration	Up/Down Enable Load Edge Counter source	via software via software via software via software via software
Reference counter	Internal counter with programmable prescaler. If the counter of the respective channel is raised, the reference counter is saved.	

Electrical Requirements		
External supply voltage	4.75-30 V DC	
External current consumption supply voltage	corresponds to the load on the digital output + outgoing 24 V supply Maximum: 6 A	
Galvanic separation of external supply voltage	yes (isolation voltage 125 V)	
Voltage supply from S-DIAS bus	+24 V	
Current consumption on the S-DIAS bus (+24 V supply)	typically 15 mA	maximum 20 mA
Voltage supply from S-DIAS bus	+5 V	
Current consumption on the S-DIAS bus (+5 V supply)	typically 55 mA	maximum 65 mA
Current consumption of sensor supply	dependent on connected loads however, maximum is 6 A	

Voltage Monitor		
Power supply +24 V	Supply voltage > 18 V (+24 V DC OK-LED lights green)	
Power supply	Supply voltage > 4.75 V (+5 V DC OK-LED lights green)	

Article Number and Miscellaneous		
Article number	20-016-021	
Dimensions	12.5 x 104.2 x 72 mm (W x H x D)	
Standard	UL 508 (E247993)	
Approvals	CE, UL_{US}	

Environmental Conditions		
Storage temperature	-20 ... +85 °C	
Environmental temperature	0 ... +60 °C	
Humidity	0-95 %, non-condensing	
Operating conditions	pollution degree 2 altitude up to 2000 m	
EMC resistance	in accordance with EN 61000-6-2 (industrial area)	
EMC noise generation	in accordance with EN 61000-6-4 (industrial area)	
Vibration resistance	EN 60068-2-6	3.5 mm von 5-8.4 Hz 1 g von 8.4-150 Hz
Shock resistance	EN 60068-2-27	15 g
Protection type	EN 60529	IP20