DI-16-HV for imc CRONOSflex (CRFX/DI-16-HV)

16 digital input for high voltage (110 V / 24 V)

This imc CRONOS*flex* Module (CRFX/DI-16-HV) is equipped with digital inputs that can sample signals conforming to either 24 V or 110 V logic standards.

The connection is realized via 4 terminal blocks of 4 bits each. The logic standard of each group of 8 Bit can be set via a switch.

Highlights

- isolated 4 Bit groups
- input level is configurable

CRFX/DI-16-HV

imc CRONOS*flex* - Frameless expansion, flexible modularity

The imc Click Mechanism and extruded aluminum case provide a firm mechanical and electrical connection. As a result, no mainframe or rack is needed.

An imc CRONOS*flex* system uses EtherCAT as an "internal" system bus for connecting various modules to the main base unit (CRFX-400 / CRFX-2000G). With the system bus, all imc CRONOS*flex* modules are guaranteed to be synchronized with each other. This allows various modules to be either connected in one central block or connected via standard network cable in a spatially distributed system.

Alternatively, connection can be made by means of standard Ethernet cables (RJ45, CAT5), thus creating a spatially distributed system.
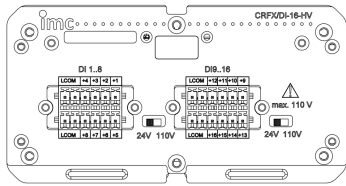
imc Click Mechanism

CRFX distributed system
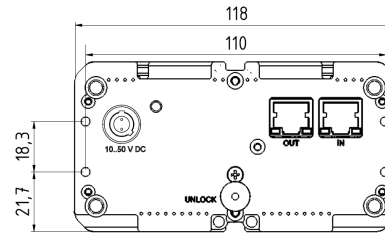
Overview of available variants

Standard version		ET-version *	
Order Code:	article no.	article no.	remarks
CRFX/DI-16-HV	11900111	11910085	with terminal blocks

* ET: Version for an extended temperature range

https://www.imc-tm.com

Mechanical drawings with dimensions

front view

rear view

Module power supply options

- Direct connection (LEMO.EGE.1B.302 power socket)
- Adjacent module (module connector / imc Click Mechanism)
- EtherCAT network cable: Power over EtherCAT (PoEC)

For further details refer to the power options documentation.

Included accessories

Terminal connection
4x plugable terminal blocks (6-pin) Phoenix

Miscellaneous
Test certificate
Getting started witch imc CRONOS*flex* (one copy per delivery)

Optional accessories

AC/DC power adaptor 110-230 VAC 50-60 Hz (with appropriate LEMO.1B.302 plug)		article no.
48 V DC / 150 W	ACC/AC-ADAP-48-150-1B	13500148
24 V DC / 60 W	CRPL/AC-ADAPTER-60W-1B	10800066

Power plugs		
ACC/POWER-PLUG-5	Power plug for DC supply LEMO.FGE.1B.302 plug (male, E-coded: 2 coding keys)	13500150
CRFX/MODUL-PP-90	Power plug for DC supply 90° angular LEMO.FHE.1B.302 plug (male, E-coded: 2 coding keys)	11900074

Supply module (Power Handle)		article no.
CRFX/HANDLE-POWER-L	Handle with system power supply 50 V 100 W, without UPS	11900058
CRFX/HANDLE-UPS-L	Handle with system power supply 50 V 100 W, UPS with lead-gel battery	11900043
CRFX/HANDLE-LI-IO-L	Handle with system power supply 50 V 100 W, UPS with Li-Ion battery	11900010

Passive-Handle		
CRFX/HANDLE-L	standard unpowered left handle	11900008
CRFX/HANDLE-R	standard unpowered right handle	11900007

Mounting bracket for increased stability (recommended for lifetime and robustness)		
CRFX/BRACKET-CON	assembly element for 2 modules	11900071

Mounting brackets for fixed installations		
CRFX/BRACKET-90	mounting bracket 90°	11900068
CRFX/BRACKET-180	mounting bracket 180°	11900069
CRFX/BRACKET-BACK	rear panel mounting element	11900070
CRFX/RACK	19" RACK for imc CRONOSflex Modules	11900066
CRFX/BRACKET-RACK	mounting element in the RACK	11900072

Miscellaneous		
Report set of function test for each device		

Technical Specs - DI-16-HV

Parameter	Value typ.	min. / max.	Remarks
Channels	16		groups of 4 Bit with common ground reference; galvanic isolation between groups
Configuration option	24 V or 110 V input voltage range		Selectable via switch at the front (separately for every input group 1..8 and 9..16)
Input configuration	differential		isolated from supply, groups of 4 Bit isolated from each other
Isolation strength	±150 V		to system ground (housing, CHASSIS, PE) and between groups of 4 Bit (tested ±200 V)
Switching time HIGH-LOW LOW-HIGH	50 µs 250 µs	max. 150 µs max. 350 µs	edge detection; over entire temperature range
Additional system delay	typ. 400 µs ±100 µs		delay from input transition to changing state available in imc Online FAMOS
Input current		max. 500 µA	110 V-logic level
Switching treshold	12.6 V (±2.5 V)		24 V-logic level
	52.3 V (±4 V)		110 V-logic level
Terminal connection	4x plugable terminal block		FMC 1,5/ 6-ST-3,5-RF (Phoenix Contact)

Terminal connections of the module

Parameter	Value	Remarks
EtherCAT connection	2x RJ45	system bus for distributed CRFX components
Input supply plug (female)	LEMO.EGE.1B.302	multicoded 2 notches for optional individually power supply
Module connector	2x 20 pin	direct connection of modules (click) supply and system bus

Supply voltage of the module

Parameter	Value	Remarks
Input supply voltage	10 V to 50 V DC	
Power consumption	6 W	10 V to 50 V DC
Isolation	60 V	nominal isolation specification of the supply input
Power-over EtherCAT (PoEC)	42 V to 50 V DC	supply via EtherCAT network cable

Pass through power limits	
Directly connected (clicked) imc CRONOS*flex* Modules	3.1 A (maximum current) Equivalant power with chosen DC power input: • 149 W @ 48 V DC (e.g. AC/DC line adaptor) • 37 W @ 12 V DC (typical vehicle supplied DC input)
Power-over EtherCAT (PoEC) for remote imc CRONOS*flex* Modules	350 mA (maximum current) Equivalant power with chosen DC power input: • 17.5 W @ 50 V DC (e.g. Power-Handle) • 16.8 W @ 48 V DC (e.g. AC/DC line adaptor) • 14.7 W @ 42 V DC (minimum voltage for PoEC) Note: minimum system power of 42 V DC required for PoEC

Operating conditions	
Operating environment (standard)	dry, non corrosive environment within specified operating temperature range
Ingress Protection Rating	IP20
Operating temperature range (standard)	-10°C to +55°C no condensation
Operating temperature range (extended: "-ET" version)	-40°C to +85°C condensation temporarily allowed
Shock- and Vibration resistance	IEC 60068-2-27, IEC 61373 Category 1, Class A and B
Extended Shock- and Vibration resistance (special order)	MIL-STD-810F Rail Cargo Vibration Exposure U.S. Highway Truck Vibration Exposure