

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

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

This imc CRONOSflex 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 CRONOSflex - 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 CRONOSflex 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 CRONOSflex 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



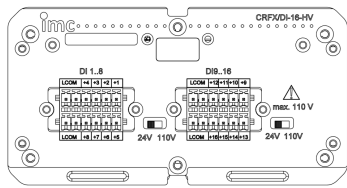
CRFX distributed system

Overview of available variants

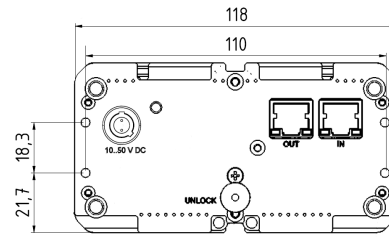
| Standard version | | ET-version * | |
|------------------|-------------|--------------|----------------------|
| Order Code: | article no. | article no. | remarks |
| CRFX/DI-16-HV | 11900111 | 11910085 | with terminal blocks |

* ET: Version for an extended temperature range

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 | |
| Documents | |
| Getting started with imc CRONOSflex (one copy per delivery) | |
| Device certificate | |

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-NIMH-L | Handle with system power supply 50 V 100 W, UPS with NiMH battery | 11900273 |
| 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 |

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) 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 threshold | 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 multicoded 2 notches for optional individually power supply direct connection of modules (click) supply and system bus |
| Input supply plug (female) | LEMO.EGE.1B.302 | |
| Module connector | 2x 20 pin | |

| 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 CRONOSflex Modules | 3.1 A (maximum current) Equivalent power with chosen DC power input: <ul style="list-style-type: none">• 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 CRONOSflex Modules | 350 mA (maximum current) Equivalent power with chosen DC power input: <ul style="list-style-type: none">• 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 | |