imc CRONOS-XT Power module (CRXT/POWER-X)

Component for the supply of imc CRONOS-XT devices

Within an imc CRONOS-XT device the POWER-X module fulfills the function of an extended device supply. It can be used as an alternative to the simple POWER module, which only provides the simple supply voltage feed via XT-Con socket and offers the following extended functions:

- Voltage converter for internal 34 V intermediate circuit
- Interface for the connection of EtherCAT-based amplifiers of the imc CRONOS-series (CRXT and CRFX)
- Support of Power-over-EtherCAT (PoEC) for distributed CRXT systems
- Central main power switch to remotely control distributed amplifier blocks

Highlights

- EtherCAT system bus accessible via M8 sockets: for spatially distributed networking via cable
- "Step-Up" converter boosts a connected supply voltage to a constant internal intermediate circuit, thus reducing the currents through the module click connectors
- Provides 70 W device power
- PoEC eliminates the need for separate power supply of external CRXT amplifier blocks
- Status LEDs indicate current operating mode and overload

CRXT/POWER-X

Typical applications

- Use of spatially distributed imc CRONOS-XT systems, which can consist of a base unit and one or more remote amplifier blocks
- Combination of components from the imc CRONOS-XT and imc CRONOS*flex* device series (base units and amplifier modules)
- Used when assembling CRONOS-XT devices that are operated at limited supply voltages, such as 12 V vehicle electrical systems, even with particularly large equipment configurations

## imc CRONOS-XT - Maximizes flexible modularity

An imc CRONOS-XT system is composed of a base unit, a power supply module and one or more imc CRONOS-XT modules. The imc click mechanism offers a mechanically strong connection between several imc CRONOS-XT modules. At the same time, the "click" establishes an electrical connection to the system bus and the power supply.

Overview of available variants

Order code	properties	housing	article no.
CRXT/POWER	simple and direct supply connection (10 V to 35 V DC) via XT-Con	XT1	11100025
CRXT/POWER-X	with internal 34 V "bus" and EtherCAT-Interface	XT1	11100049

Dimensions
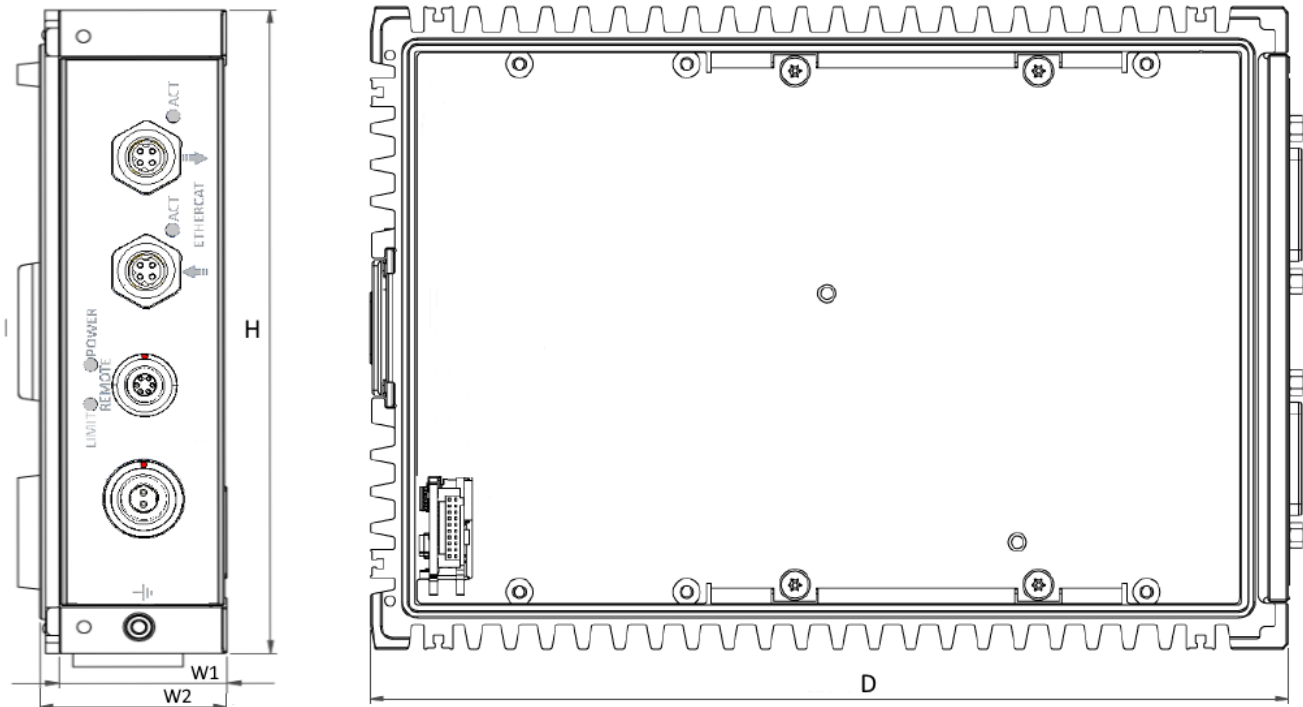
Shown in standard operating orientation: housing type XT1

Housing type:	XT1	XT2	XT3	XT4	Remarks
W: Width in mm	30.5	61	91.5	116.9	W1: modular spacing (effective stacking width)
	34	64.5	95	120.4	W2: complete width
H: Height in mm	130				
D: Depth in mm	186.5				

Notes on device composition

- CRONOS-XT devices or amplifier blocks must always contain one of the available POWER modules, as well as left and right handle / end cover (CRXT/HANDLE-R/L)
- Regardless of the power supply module (CRXT/POWER), an AC/DC adaptor may be required if the device is not supplied from a DC power source.
- A suitable AC/DC adaptor (AC/DC power adaptor, 24 V DC, 150 W, connection: XT-Con) is already supplied with the CRXT base unit, as well as left and right handle/cover.
- If spatially distributed device configurations are to be set up, two POWER-X modules are required: both the base unit (master) and the amplifier block (slave) must be equipped with POWER-X!
- System configurations with CRXT and CRFX components only require the POWER-X module on the CRXT side. Suitable assembled EtherCAT connection cables (M8 to RJ45) are available as accessories
- For the slave amplifier block, the two handles/covers must be ordered separately in addition to the POWER-X. Additionally, an extra AC/DC adaptor or DC power feed might be required if the slave block power exceeds the PoEC limits (max. 50 W). To support system configuration an Excel Assistent (power configurator) is available via the imc website.

⚠ Note	The CRXT EtherCAT system bus

- The internal EtherCAT system bus **directly provided** at the POWER-X serves exclusively for networking with the EtherCAT-based components of imc CRONOS. General EtherCAT **components of third party suppliers** are not supported!
- The CRONOS-XT base unit can be equipped with an EtherCAT **slave fieldbus interface**. However, this interface **is not related to** the EtherCAT system bus (master) described here, which is accessible at the POWER-X module and allows networking of imc modules.
The ECAT slave interface does NOT **directly** provide the internal system bus, but rather forms a **decoupled** interface to the overall system: This slave interface (with its own interface processor) then allows selected channels of the overall CRONOS device, in the sense of a complex slave subsystem, to be exchanged with a **foreign external** EtherCAT master (automation systems, e.g. TwinCAT)!

Accessories and Plugs

Included accessories for CRXT/POWER-X

Mounting accessories		
2x CRXT/BRACKET-CON	interconnect brackets, intended for increased stability	11100040

EtherCAT cable (CRXT System Bus)		
ACC/CABLE-ECAT-M8-2M	EtherCAT cable CRXT, on both sides M8-plug, 2 m	13500386
ACC/CABLE-ECAT-M8-RJ45-2M	EtherCAT cable CRXT, on one side M8-plug to RJ45, 2 m	13500387

Miscellaneous
4x mounted caps to cover the sockets
Certificates and calibration protocols: Detailed information on certificates supplied, the specific contents, underlying standards (e.g. ISO 9001 / ISO 17025) and available media (pdf etc.) can be found on our website, or you can contact us directly.
Getting Started (printed): "imc CRONOS-XT Getting Started"

Included accessories for CRXT/POWER

Mounting accessories		
2x CRXT/BRACKET-CON	interconnect brackets, intended for increased stability	11100040

Miscellaneous
Getting Started (printed): "imc CRONOS-XT Getting Started"

Optional accessories

AC/DC power adaptor 110-230V AC (with appropriate XT-Con plug) and plug		
CRXT/AC-ADAP-24-150	AC/DC power adaptor, 24 V DC, 150 W, plug: XT-Con (2-pin)	11100096
CRXT/AC-ADAP-24-120W-IP65	AC/DC power adaptor IP65, 24 V DC, 120 W, plug: XT-Con (2-pin)	11100032

Power and Plugs		
CRXT/POWER-PLUG	POWER plug CRXT, XT-Con (2-pin), sealed, for cable diameter 5.5 to 6.1 mm	11100039
CRXT/CABLE-PWR-BAN-2M5	power cable CRXT, XT-Con (2-pin) - Banana, 2.5m	11100033
CRXT/REMOTE-PLUG	REMOTE-plug CRXT, XT-Con (6-pin), sealed, for cable diameter 4.5 to 5.1 mm	11100036

EtherCAT cable (CRXT System Bus)		
ACC/CABLE-ECAT-M8-10M	EtherCAT cable CRXT, on both sides M8-plug, 10 m	13500388
ACC/CABLE-ECAT-M8-RJ45-10M	EtherCAT cable CRXT, on one side M8-plug to RJ45, 10 m	13500389

Handles - serve as end-covers		
CRXT/HANDLE-R	handle and end cover (lid) right side	11100021
CRXT/HANDLE-L	handle and end cover (lid) left side	11100022

Technical Specs - Power module

General technical specs		
Parameter	**Value**	**Remarks**
Input supply voltage	7 V to 35 V DC	e.g. via AC/DC adaptor or vehicle power supply via XT-CON supply socket
	30 V to 35 V DC	"PoEC" via M8 EtherCAT socket
		no supply possible via M8 EtherCAT-OUT socket
Switch-on threshold (typ.)	8.5 V DC	min. input voltage required to switch on with CRXT base unit clicked on
Output voltage		internal device intermediate circuit (click connection and PoEC)
	34 V DC	7 V to 31 V DC input
	V_{in} - 0.3 V DC	31 V DC to 35 V DC input
Output power	70 W	Supply of the connected device and further slaves via PoEC (M8)
		of which
	50 W	Supply via PoEC (M8)
Efficiency	>90 % (typ.)	10 V to 35 V DC input output power > 35 W
Overload / short circuit protection: output	unlimited duration (reversible)	to reference ground of the output voltage; automatic restart
Overload protection input	fuse 16 A	
Isolation	isolated from CHASSIS, no input-to-output isolation	to housing (CHASSIS). the connected and supplied CRXT modules, however, provide galvanic block isolation to the input supply circuit
Power supply socket (input)	XT-Con (2-pin)	
Remote control socket	XT-Con (6-pin)	remote control signals ("REMOTE") are referred to power supply input potential
EtherCAT-socket	2x M8 (4-pin)	
Power-over-EtherCAT (PoEC) Current limit	1.5 A	for imc CRONOS components in connection with imc CRONOS-XT (CRXT, M8)
		no PoEC functionality supported in conjunction with imc CRONOS*flex* (CRFX, RJ45)
Status-LED	POWER (Tri-Color) LIMIT (Tri-Color)	operating mode overload