imc CRONOS-SL

General technical specs

"✓": standard-equipped; "O" optional; "-": not available

Normal position		
Housing	imc CRONOS-SL-2	imc CRONOS-SL-4
Housing type	portable housing	portable housing
IP-degree of protection (#1)	IP65	IP65
Dimension (WxHxD in mm) with handles, feet and interconnections	286 x 80 x 352 (#2)	286 x 116 x 352 (#2)
Weight (kg)	6.5	8
Free module slots (#3)	2	4
Modular expansion	✓	✓
Max. number of channels (#4)	16	32

(#1) when used with IP65 plugs respectively with protective cover for not used sockets the socket is IP65 certified even without protective cover (special fabrication)

(#2) without base and handholds (D in mm 280)

(#3) DI16-DO8-ENC4 needs no additional slot

(#4) The maximum number of channels depends on the amplifier configuration; please contact us for detailed consultation.

Terminal connection	imc CRONOS-SL-2	imc CRONOS-SL-4
PC connector: Ethernet TCP/IP	10/100 MBit, approvable cable length for 100 MBit Ethernet max. 100 m according IEEE 802	
CF-card slot	1	
Synchronization of multiple devices	BNC	
GPS connection	DSUB-9	
Hand-held terminal connection	DSUB-9	
Remote connection	DSUB-15	
Measurement signal terminals	appropriately equipped with signal conditioning, typically DSUB connectors	

Current supply	imc CRONOS-SL-2	imc CRONOS-SL-4
Power supply	10 V to 32 V DC	10 V to 32 V DC
LEMO plug	FGG.1B.302 CLAD62ZN	FGG.1B.302 CLAD62ZN
DC-input isolated	✓	✓
110 V / 230 V power adapter	✓	✓
Battery buffering / UPS	✓	✓
UPS buffer time/ power outage	30 s	30 s
Battery operation	typ. 15 min.	typ. 40 min.

Current supply	imc CRONOS-SL-2	imc CRONOS-SL-4
Automatic charge control	✓	✓
Automatic measurement operation with autostart – no PC necessary	✓	✓
Auto-data saving upon power outage	✓	✓
Power consumption (with UPS battery fully charged)	depending on amplifier (typ. 50 W)	depending on amplifier (typ. 60 W)

Operating conditions	imc CRONOS-SL-2	imc CRONOS-SL-4
Operating temperature	-40°C to 85°C with condensation	
Storage temperature	-40°C to 85°C	
Shock resistance	MIL-STD-810F 60 g, 11 ms half sine IEC 60068-2-27, IEC 61373, Cat.2 300 m/s² (approx. 30 g), 18 ms half sine	MIL-STD-810F 60 g, 6 ms half sine IEC 60068-2-27, IEC 61373, Cat.2 300 m/s² (approx. 30 g), 18 ms half sine
Vibration resistance	MIL-STD-810F Rail Cargo Vibration Exposure U.S. Highway Truck Vibration Exposure IEC 60068-2-64, IEC 61373, Cat.2	
Condensation protection	✓	

Factory configuration options	imc CRONOS-SL-2	imc CRONOS-SL-4
imc Online FAMOS	✓	
Display intern	-	
Digital inputs	O	
Digital outputs	O	
Incremental inputs	O	
Analog-outputs	O	
Signal Synthesizer	O	
Fieldbus-Interface (e.g. CAN-Bus)	O	
Analog measurement channels	modular	
	see list of imc CRONOS-SL modules for voltage, current, ICP, thermocouples, PT100, strain gauges, measurement bridges, incremental encoder, high voltage and current probes	
Sensor supply	Either provided by the signal conditioning module or available separately as a supply module	

Device properties and hardware options	all imc CRONOS-SL variants
Maximum aggregate sampling rate	400 kHz
Time bases	2
Per-channel sampling rates	✓
Sampling rate adjustable in 1-, 2-, 5 steps	✓
Monitor channels	✓
Multi-triggered (multi-shot) data acquisition	✓
Extensive intelligent trigger functions	✓
arithmetic mean, min, max, mean value,	✓
extensive real-time calculation and control functions	O (with imc Online FAMOS - Personal Analyzer)
External hand-held terminal for display of measured data and status messages	O
External GPS receiver	O
Wireless LAN	✓
Characteristic curve for temperature measurement	temperature table according IPTS-68

Data storage	imc CRONOS-SL-2	imc CRONOS-SL-4
internal hard drive (#5)	O	
Compact Flash-Card	✓	
Software selectable storage to removable drive (option) and/or PC	✓	
Software selectable storage to internal hard drive (option) and/or PC	✓	
Any memory depth with pre- and post triggering	✓	
Circular buffer memory	✓	
Synchronous, multi-triggered records	✓	

(#5) CF-card slot is omitted; extended temperature (ET) is omitted

The integration of an internal hard drive (only ex-factory) will increase the power consumption.
400kSamples/s data storage on internal hard drive apply for 16 Bit per sample.
For more information please refer the data sheet of the storage media.

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Maximum channel count per device		
Active channels	512	Active channels of the current configuration: Total sum of analog, digital, fieldbus and virtual channels as well as possible monitor channels
Active analog channels	198 (1)	Activated analog channels of the current configuration (sum of primary channels and possibly monitor channels) (1): 128 with imc CRONOS*flex* (CRFX) and imc CRONOS-XT (CRXT), incl. output channels of type DAC-8 and DIO-Ports of type DI / DO, incl. 18 channels per CRFX/WFT-2 input
Fieldbus channels	1000	Number of defined channels (active and passive); Currently activated channels are limited by the total number of activated channels (512).
Process vector variables	800	Single-value variables, each containing the latest current measured values. A process vector variable is automatically created for each channel.

		without monitor channels				with monitor channels			
Channel type	determined by	limit (aktive+passive)		activated	total activated	limit (aktive+passive)		activated	total activated
Analog channels	system-expansion	Channel	240	198	512	Channel	240	198	512
						Monitor	240		
Incremental counter	system-expansion	Channel	16	16		Channel	16	16	
						Monitor	16	16	
DIO/DAC-Ports	system-expansion	Port	16	16		Port	16	16	
						Monitor	16	16	
Fieldbus channels	flexible	Channel	1000	512		Channel	1000	512	
						Monitor			
Virtual channels (OFA)	flexible	-	-	512		-	-	512	

Occupancy for ports (examples):

- one DO module (e.g. DO-16) occupies 1 port
- one DI8-DO8-ENC4-DAC4 module occupies 3 ports
- one DAC module (e.g. DAC-8 or DAC-4) occupies 1 port

Monitor-ports: DI-ports (respectively channels) have monitor-ports, DO/DAC-ports in contrary do not have monitor-ports