

imc HiL: Hardware in the Loop

Data Sheet version 3.7

The imc HiL hardware is a supplemental component for the imc CRONOS measurement system, which unites the functionalities of simulation, data capture, and open- and closed-loop control in a single compact system. The hardware basis for this component is a processor embedded in the measurement device, which is exclusively reserved for running MATLAB Simulink® models (xPC Target).

On the software side, the MATLAB Simulink® library is supplemented with imc connection blocks which represent an interface to the imc devices. By means of this expansion, it is possible to create Simulink applications in the customary way and to transfer them to imc devices. The interface for this purpose is the imc device software (imc STUDIO), in conjunction with the imc HiL Assistant, which is connected with all other imc components.

Highlights

- imc HiL integrates existing MATLAB Simulink® models (xPC Target)
- Real-time simulation of application situations with direct feedback to the object under test
- Provides a dedicated processor integrated into the measurement system (xPC Target)
- Expanded MATLAB Simulink® library representing an interface to the imc devices
- imc STUDIO provides all settings and configurations for data acquisition and subsequent processing of signals within imc CRONOS measurement system
- Support of tunable parameters
- No separate MATLAB license for the target system required

Prerequisites to the Developer(User)-PC of the MATLAB / Simulink® models:

1. MATLAB and Simulink® from Mathworks
2. Real Time Workshop (RTW) for MATLAB / Simulink®,
as of MATLAB 2011a this toolbox is replaced by MATLAB and Simulink Coder
3. Simulink Target Module "xPC-Target" and the "xPC-Target Embedded Option" for creating stand-alone model applications (note: those are two licenses required)

There are totally six licenses (MATLAB Simulink®) required:

- MATLAB
- Simulink
- MATLAB Coder Maintenance
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- Simulink Real-Time

Supported and tested MATLAB versions

- up to MATLAB 2016b

Overview of the available variants

Order code	article number	remarks
CRC/HIL	1170028	integration in imc CRONOS <i>compact</i> device, occupying two slots
CRC/HIL-R	1170179	integration in imc CRONOS <i>compact</i> RACK system, occupying two slots
CRFX/HIL	1190201	integration in imc CRONOS <i>flex</i> base unit

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Hardware extension

imc HiL interface		
Parameter	Value	Remarks
Embedded Processor	Intel® Atom 1.1 GHz, 400 MHz FSB 512k L2-Cache	
RAM	512 MB	
Operating system	Free DOS	

Terminal connection		
Parameter	Value	Remarks
Monitor	1 x DVI Standard	for the use of Free DOS for debugging purposes
USB 2.0	2	e.g. keypad for debugging purposes
Width	2 slots	

Operating conditions		
Parameter	Value	Remarks
Operating temperature	5°C to 40°C	standard