

## Maintenance of imc measurement devices 6/20/2017

Maintenance / System Revision and Extended System Inspection are procedures belonging to **imc System Maintenance** and serve among other purposes the prevention of system malfunctions.

Other goals include:

- Extension of and optimized use during the lifespan of installations and devices
- Improvement of the operating reliability
- Increased operational availability of installations
- Optimization of operating processes
- Reduction of errors
- Anticipatory planning of costs

As per DIN 31051:2003-06, servicing can be subdivided into the basic procedures maintenance, inspection, repair, overhauling and weak-point analysis; imc's system maintenance completely conforms to this standardized concept.

***In contrast to the function test according to the manufacturer inspection plan (imc System Inspection), the steps performed in Maintenance / System Revision or Extended System Inspection to increase the system's life expectancy.***

***Go ahead and compare the service costs over the last 3 years with the acquisition costs!  
"We protect your investment!" is our motto for success. Try us out!***

In order to best meet these responsibilities, we recommend:

For the ***maintenance interval*** (Extended System Inspection or System Revision):

- 1 .. 2 years, depending on degree of device usage in the extended temperature range (ET) or for mobile applications (high vibration, condensation, e.g. also in case of frequent transporting), as well as for devices with fans and high pollution degree.
- 2 .. 3 years for other devices.

Performance of maintenance / system revision or Extended System Inspection is also recommended in case of dropped equipment, damage from overvoltage or high short-circuit current.

### Description

The work is performed by the manufacturer's experienced specialists in accordance with the recorded device history in the Service database

- **System Inspection = Complete function test according to manufacturer inspection plan**  
Along with all digital components, the functioning of the power adapter and UPS are inspected  
Result: Service report = status report with recommendation for maintenance interval and recalibration interval  
Extra charge for additional required material.  
(Plus charges for calibration / adjustment, repair)

**Typical work includes:**

- ✓ visual inspection
- ✓ verify and save the device configuration
- ✓ check our service database for reported errors concerning the device
- ✓ check internal supply voltages
- ✓ check the UPS function<sup>1</sup>
- ✓ check internal battery for system clock
- ✓ check the measurement channels regarding noise, offset and function
- ✓ function test of analog output
- ✓ function test of digital channels (incremental encoder, digital In- and Output, field bus)
- ✓ Scandisk of hard disk and formatting if necessary
- ✓ on request software update
- ✓ device cleaning on the outside
- ✓ for devices with 230 V power supply:  
performance of VDE safety inspection in accordance with DGUV 3 (formerly BGV A3 - VBG 4) or DIN EN 61010-1
- ✓ service report

Within the framework of the imc System Inspection, it is also possible to take account of customer-specific or device-specific prerequisites or conditions (for instance, the characteristics of an ICP channel or the custom interconnections can be checked). All work performed is documented internally by imc with reference to the device's serial number; the customer receives a service report and a test certificate.

**=> When should System Inspection be performed?**

In conjunction with calibration, we recommend every 1 .. 2 years depending on the device's workload

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<sup>1</sup> Devices with the optional UPS-function have rechargeable batteries. This internal auxiliary battery is automatically charged upon applying power with the device switched on. Due to the inevitable discharging, it is recommended to connect the power supply at the latest after six months even if the device is left deactivated.

If the UPS is needed often (many charging and discharging cycles), the lifespan depends on the amount of discharging (does the UPS run down only briefly or is the battery totally discharged each time?). The manufacturer promises 200 cycles at 100% discharge and 1200 cycles at 30% discharge and 25°C. With devices in the extended temperature range, we recommend checking the buffering capacity at frequent intervals.

In contrast to the function test according to the manufacturer inspection plan (imc System Inspection), the steps performed in Maintenance / System Revision or Extended System Inspection to **increase the system's life expectancy**.

- **Extended System Inspection (also possible in on-site service)**

Includes: in addition to the system inspection, important maintenance work, system checkup, function test in accordance with manufacturer's inspection plan, service report  
Required materials charged separately.  
(Plus charges for adjustment, repairs, material)

**Typical work includes (in addition to the System Inspection):**

- ✓ Visual inspection of opened device
- ✓ Inspection of mechanical wearing parts (e.g. contacts, cable adapters)
- ✓ Ventilation check
- ✓ With UPS function: visual inspection and function test of rechargeable batteries
- ✓ Cleaning

**=> When should Extended System Inspection be performed?**

In conjunction with calibration, we recommend every 2 .. 3 years depending on the device's workload or in case of dropped equipment, damage from overvoltage or high short-circuit current.

- **Maintenance / System revision = Preventative maintenance including system inspection and system maintenance**

Includes: maintenance in accordance with DIN 31051:2003-06, system updating, system checkup, system modification, function test, service report.  
Any added modular components are billed to customer.  
(Extra charges for adjustments, repairs, material)  
System revision can only be performed at imc factory.

**Typical work includes (in addition to Extended System Inspection):**

- ✓ Check for available hardware updates. Tailored to specific device with consideration of operating conditions and device history, and in accordance with manufacturer's service database if known.  
**(prerequisite for software compatibility)**
- ✓ Cosmetic repairs
- ✓ Replacement of LiBr cell as per plan (every 5..8 years)
- ✓ System improvement and vulnerability analysis in accordance with DIN 31051:2003-06

**=> When should Maintenance / System Revision be performed?**

In conjunction with a software upgrade every 2 .. 3 years, at most after 3..5 years depending on the device's workload or in companies conforming to maintenance standards DIN 31051:2003-06.

## What should I order?

### Ordering options with imc CRONOS-PL as an example

- **Maintenance / System Revision**  
**CRPL/REV-CRPL-x**  
Flat charge for system maintenance and if appropriate, modification to the newest version for 1 device.  
(Modification not possible for all devices)  
Includes: maintenance in accordance with DIN 31051:2003-06, system update, system checking, system modification, function test, service report.  
Any added modular components are billed to customer.  
Additional charges for adjustment, repairs, material  
System Revision is only possible at imc facilities.
- **Extended System Inspection**  
**CRPL/INSP-x + SUP/INSP2**  
Flat charge for one device  
Includes system checking, function check, service report  
includes extra work for *necessary* maintenance  
Additional charges for adjustment, repairs, material  
The extended System Inspection is also possible on site for standard devices.

### Options

- **Calibration / Adjustment**  
**CRPL/ADJ**  
Flat charge for 1 CRONOS-PL measurement amplifier  
Measurement of actual values  
(customer is notified of deviations outside of tolerances)  
Adjustment for each measurement amplifier as well as subsequent output calibration  
Manufacturer's calibration conformant to DIN EN ISO 9001  
Recommended in conjunction with CRPL/INSP-CRPL-x or CRPL/REV-CRPL-x  
Calibration including adjustment according to manufacturer's specifications is also possible on site for standard devices.  
Calibration according to the user's inspection plan available on-site by request.
- **Extended calibration report set**  
**CRPL/CAL-P, SUP/CAL-P-OS**  
Report set with manufacturer's calibration certificate and single measurement values, along with a list of test equipment used. Only in conjunction with CRPL/CAL-A or CRPL/ADJ  
Meets the requirements of DIN EN ISO 17025.

- **Device update imc DEVICES 2.9 or alternatively upgrade to imc STUDIO 1010091 (imc DEVICES-UPD-2.9)**  
imc DEVICES 2.x to Version 2.9 per device  
Update of a device so that it can be run with the software version 2.9.  
Package includes software on DVD, documentation in PDF format included on DVD.  
imc DEVICES is a prerequisite for imc STUDIO 5.0.  
Complete functional scope only available for devices having serial numbers 12xxxx, 13xxxx, or 14xxxx delivered as of 07/2005. Prerequisite: date of manufacture or last maintenance no longer ago than 3 years.  
For older devices, we will prepare a custom quote!
- **Express Service 1500011 (SUP/EXPRESS)**  
Preferential, top speed performance of necessary servicing  
Within 5 work days, plus shipment time  
If repair, for instance, requires longer in spite of the express service, the charge is reduced by 1/3 of flat charge for each additional day.  
No further claims are honored.  
Repair costs are extra.