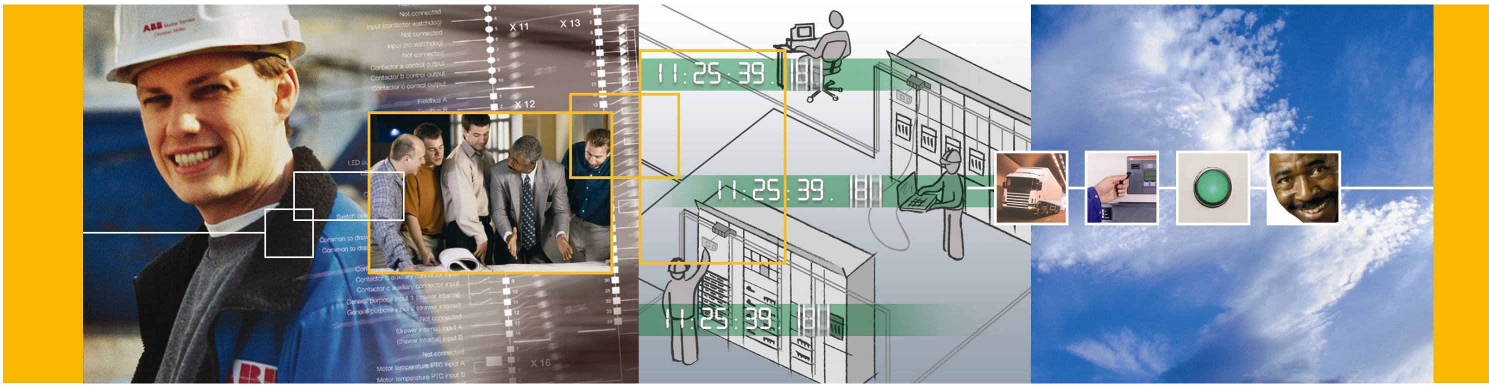
ProtectIT – MNS Motor Management INSUM®

System Clock Manual
Version 2.3



INSUM®
System Clock Manual

Version 2.3

1TGC 901080 M0202 Edition July 2003

Reference document Ref.No.: 1TGB 350019 R1.1

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Notes:

1 General Information

1.1 Introduction

The task of the System Clock is to guarantee that the system time is the same at all connected INSUM devices (system time). It sends cyclically a time information via the INSUM internal LON network to the connected field devices (MCU, ITS, PR112) on the same ICU. This enables the field devices to provide time stamped messages.

The System Clock works with the MCU devices version 2.1 onwards.

Support of clock setting functions via MMI is provided with INSUM Release 2.3. A software update of MMI, Gateways and INSUM OS to Release 2.3 is recommended if the System Clock is used.

1.2 Objective

This Manual describes the INSUM® System Clock device functions, handling and functions. Further on it provides detailed information on the implementation of the System Clock into the INSUM System.

1.3 Related Documents

ABB INSUM Documentation:

1TGC 901007 B0201 INSUM Technical Information
1TGC 901021 M0201 INSUM MCU Users Guide
1TGC 901026 M0201 INSUM MCU Parameter Description
1TGC 901034 M0201 INSUM MMI Operating Instruction
1TGC 901030 M0201 INSUM MMI Quick Guide
1TGC 901042 M0201 INSUM Modbus Gateway Manual
1TGC 901052 M0201 INSUM Profibus Gateway Manual
1TGC 901060 M0201 INSUM Ethernet Gateway Manual
1TGC 901090 M0201 INSUM Control Access Guide
1TGC 901091 M0201 INSUM Failsafe Guide
1TGC 901092 M0201 INSUM Dual Redundancy Guide
1TGC 901093 M0201 INSUM Network Management Guide
SACE RH 0080 Rev.I PR112/ PD-L LON Works Interface V2.0
1SEP 407948 P0001 Users Manual Intelligent Tier Switch (ITS)

Technical Documentation Hopf GmbH Germany:

Technical Description - GPS Satellite Radio Controlled Clock 6870
System Information GPS

Notes:

2 Operation

2.1 General

The System Clock module can operate in two different modes depending on the kind of receiving/sending the time information. The respective modes are called **Slave** and **Master** and can be set via MMI (from software version 2.3 onwards).

The type of mode depends on the installation of the hardware and its function.
For Installation of Hardware see chapter 3.

2.2 Slave Mode

If the System Clock is configured as a **Slave** it gets the time information from a serial interface. In that mode an additional hardware is required, which provides the needed time information.

- On one hand, the Hopf GPS System 6870 can be used to ensures a very accurate time. The time base is synchronized by a global installed satellite system (GPS).

- On the other hand, for lower requirements on absolute accuracy, one System Clock in the switchgear can run in **Master** mode. The received time is changed into a domain wide broadcast LON NV and published to all connected subnets of one ICU backplane.

2.3 Master Mode

If the System Clock is configured as a **Master** the device itself generates time information by using an internal RTC with lower accuracy. This information is published as NV and provided via RS422 additionally.

Notes:

3 Hardware Installation

3.1 Hardware Characteristics

The mechanical setup of the System Clock is like any other ICU component, mounted on the backplane, plug-in type. The device has to be connected to one extension plate and draws power from the backplane.

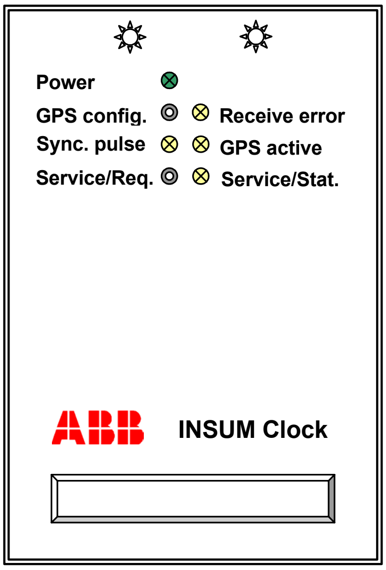

Figure1: System Clock Module Front Plate

3.2 Indications and Pushbuttons

System Clock Indications	
Power:	A green LED indicates that the 24VDC-power supply for the module is available
Receive error:	A steady shining yellow LED indicates an error depending on System Clock mode
Sync. pulse:	A flashing yellow LED indicates that the System Clock is sending time updates
GPS active:	A steady shining yellow LED indicates that the module is receiving a valid GPS time information from GPS device (only in Slave mode available)
Service/Stat:	A yellow LED indicates the Service/Status of the NEURON (LON Communication Chip)

System Clock Pushbuttons	
GPS config.:	Configures the connected Hopf GPS System 6870 (only in **Slave** mode available)
Service/Req:	The service button will cause the System Clock to broadcast a service pin message on the network

3.3 Self Installation on the LON network

As soon as the connection to the backplane is made the System Clock gets the subnet/ node address 05/05 by self installation. Do not change it if not necessary.

If the device is started for the first time, it is running in **Slave** mode. After power up the clock starts with the last chosen mode.

Notes:

3.4 Hardware installation using Hopf GPS System

3.4.1 Structure

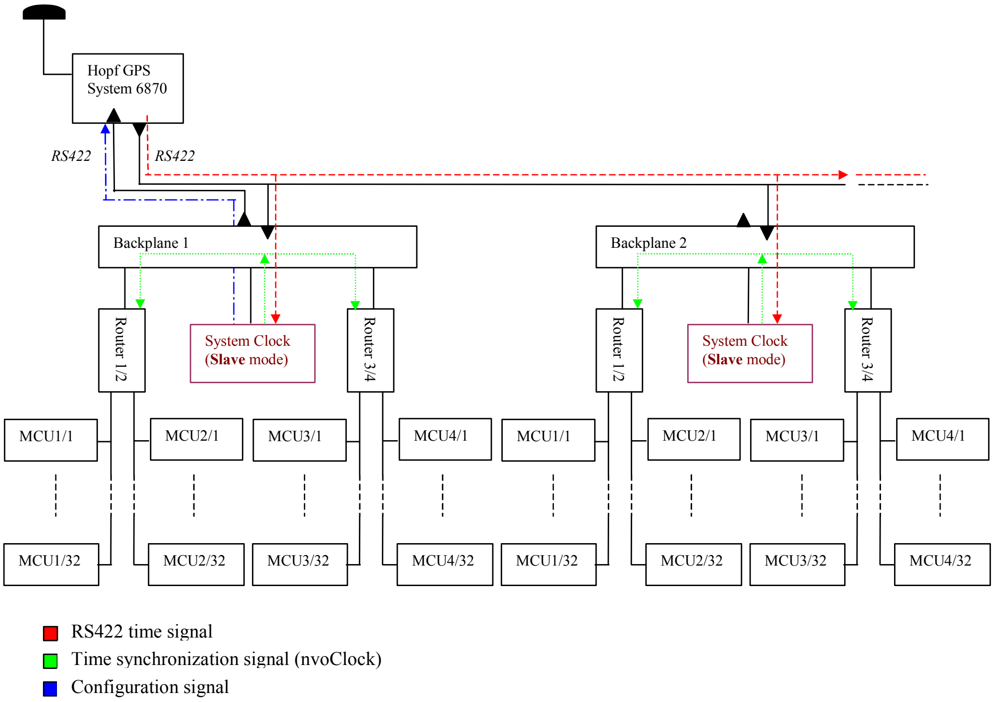

Figure 2: Hardware installation using Hopf GPS System

3.4.2 Description

To get accurate time a GPS-System (Hopf GPS Satellite Radio Controlled Clock 6870, software version 11, hardware version RS232/RS422) is used. It consists of an antenna (installation with free "view" over the horizon) and a receiver which is located in the switchroom and connected via coaxial cable (to the antenna). For further details on GPS and installation of Hopf devices refer to the Hopf document "System Information GPS".

Note: Only Hopf GPS-System is supported by the System Clock because it uses special features of that system (relating to: receiving the time, configuring the GPS-System).

The GPS System has a serial RS422 interface what is used for sending the data and receiving configuration information. For the pin layout of the system refer to document Technical Description - GPS Satellite Radio Controlled Clock 6870".

To connect the external Hopf GPS System to the backplane the following pin assignment is used.

Hopf GPS System Pin no.		**Backplane 1 (Slave mode)** Pin no.		**Backplane x (Slave mode)** Pin no.		**Bus termination at end of line**
5	GND	101	GND	101	GND	
6	TxA	91	RxA	91	RxA	120Ohm
7	TxB	92	RxB	92	RxB	
8	RxA	111	TxA	n.c.		
9	RxB	112	TxB	n.c.		

Table 1: Pin assignment using GPS System

If only one ICU is used there has to be one connection for parameterisation (Pin 111/112) and one for receiving the GPS time (Pin 91/92) on the backplane.

If more than one backplane is used, on each of these one System Clock (in Slave Mode) has to be installed. Furthermore the receive pins of the respective backplane have to be connected accordingly.

Notes:

Note: Only one System Clock must have a connection to parameterise the GPS System. It is recommended to use the module near the GPS receiver module. The maximum number of System Clock modules is 32 whereby the last one has to get a bus termination for RS422. The RS422 lines have to have a maximum length of 500m whereas the sum of all stub lengths is max. 6.60m.

3.5 Hardware installation without GPS System

3.5.1 Structure

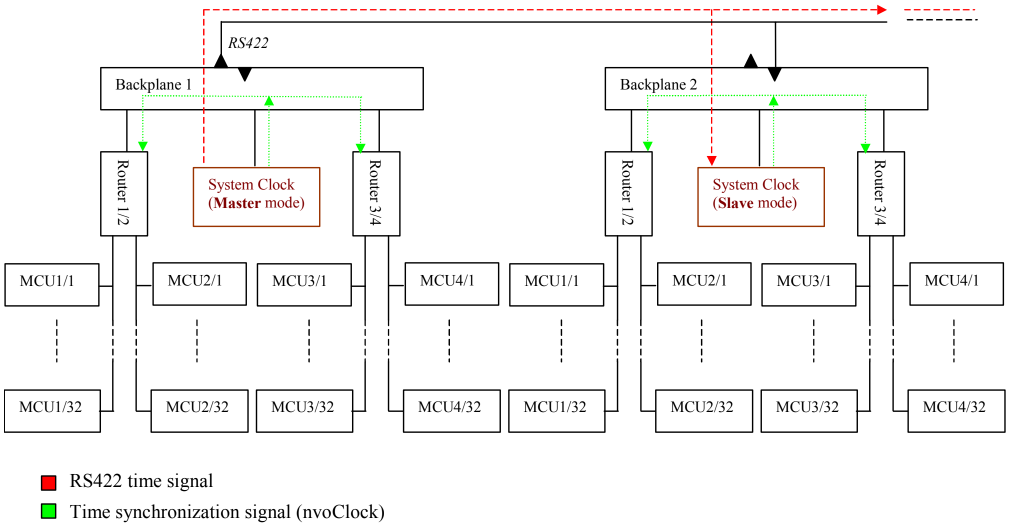

Figure 3: Hardware installation without GPS System

3.5.2 Description

If the requirement to the absolute accuracy is low the internal RTC of the System Clock can be used to provide the system with the time information. In that case one System Clock has to run in **Master** mode. If only one ICU is in use, no additional wiring is necessary for that backplane.

If more than one backplane is used, the System Clock offers the possibility to distribute the generated time information via RS422 to enable other System Clocks (in **Slave** mode) to process the sent time. In that case, on each of these backplanes a System Clock (in **Slave** mode) has to be installed. Furthermore the transmit pins (111/112) of the backplane containing the sending System Clock have to be connected to the receive pins (91/92) of the respective backplanes. The following table shows the corresponding pin assignment.

Backplane 1 (Master mode) Pin no.		**Backplane 2 (Slave mode)** Pin no.		**Backplane x (Slave mode)** Pin no.		**Bus termination at end of line**
101	GND	101	GND	101	GND	
91	n.c.	n.c.	n.c	n.c.	n.c.	
92	n.c.	n.c.	n.c.	n.c.	n.c.	
111	TxA	91	RxA	91	RxA	120Ohm
112	TxB	92	RxB	92	RxB	

Table 2: Pin assignment without a GPS System

Note: The maximum number of modules is 32 whereby the last one has to get a bus termination for RS422. The RS422 line maximum length is 500m whereas the summation of all stub lengths is max. 6.60m.

Notes:

4 Configuration

After the hardware installation the System Clock has to be configured depending on the particular application.

4.1 Application using Hopf GPS System

4.1.1 Configuration of Hopf GPS System

Hopf GPS System and System Clock communicate to each other by using a serial connection (RS422). To allow a working connection both devices have to have the same transfer parameters (transfer rate, number of data bits, number of stop bits, kind of parity).

To set the Hopf GPS System to default settings, different steps have to be done.
1. *Connect the Hopf GPS System to the power supply and to the backplane*
2. *Press the Def button on the GPS System until the CLK-LED is off*
3. *The default parameters are:*
    - baudrate: 9600;
    - data bit: 8;
    - stop bit: 1;
    - parity: no

After this initialization a serial communication between GPS System and the System Clock is possible. All other settings are done by System Clock (refer next paragraph).

4.1.2 Configuration of System Clock in Slave mode

If the System Clock is running as **Slave**, it can receive time signal via RS422 and supply the connected devices with the generated output NV (nvoClock).

If a System Clock is used the first time, the default setting is **Slave** mode. No configuration is required.

The following steps are necessary to change the mode:
1. *Connect the System Clock to the backplane*
2. *Change the System Clock mode to **Slave** using the MMI:*
    - Select System Configuration and enter
    - Select Mode, change it to Slave and enter
    - Press function key Send
    - Escape the System Clock menu

Pressing the 'GPS config' button on the front panel of the device for approximately 3 sec (all three LED's switch ON and OFF) configures the Hopf GPS System (exclusive the communication parameter). For more detail refer to the Appendix of this document.

Attention: To use the configuration feature the output of System Clock has to be connected in an appropriate manner (refer to chapter Hardware installation).

Note: If more than one System Clock is used, all devices have to run in **Slave** mode and can be installed on every backplane subject to the condition that all backplanes are linked together accordingly (refer to chapter Hardware installation).

4.2 Application without GPS System

4.2.1 Configuration of System Clock in Master mode

If the System Clock is running in **Master** mode, it generates the time signal by using an internal RTC. The created NV nvoClock is send to all connected devices and additional the time information is supplied via RS422 to enable other System Clocks (in **Slave** mode) to handle it.

The following steps are necessary to change the mode:
1. *Connect the System Clock to the backplane*
2. *Change the System Clock mode to **Master** using the MMI*
    - Select System Configuration and enter
    - Select Mode, change it to Master and enter
    - Press function key Send
    - Escape the System Clock menu

Notes:

Now the System Clock is configured as **Master**. If the time sent by the module is not correct or the Receive Error LED is shining (indicates an invalid RTC time) set new time and date with the following steps:

3. *Set new date and time using the MMI*
   - Select System Configuration and enter
   - Select Date/Time and enter
   - Change the value via encoder wheel and the position with ➡ and ⬅ function keys
   - Press function key Send
   - Escape the System Clock menu

Attention: To ensure a error free running of System Clock and all connected devices use always UTC for system time.

Note: If more than one System Clock is used, all additional devices has to run in **Slave** mode (see above) and can be installed on each backplane provided that all backplanes are linked together (refer to chapter Hardware installation).

4.2.2 Configuration of System Clock in Slave mode

If the System Clock is running as **Slave**, it can receive time signal via RS422 and supply the connected devices with the generated output NV (nvoClock).

If a System Clock is used the first time, the default setting is **Slave** mode. No configuration is required.

The following steps have to be done to change the mode:
1. *Connect the System Clock to the backplane*
2. *Change the System Clock mode to* ***Slave*** *using the MMI*
   - Select System Configuration and enter
   - Select Mode, change it to Slave and enter
   - Press function key Send
   - Escape the System Clock menu

Notes:

5 Accuracy of time and time stamp within INSUM

5.1 Time accuracy in the INSUM system

If the System Clock is used within an INSUM system, the following deviations of time within and between MCU's do exists:

5.1.1 MCU internal

The first deviation is the difference between the correct UTC (world time) and MCU-time. The longer the MCU runs free (without synchronization signal) the higher the difference between both times raises. A deviation of 1ms/s (MCU time <-> GPS time) exists in the MCU. In dependency of the desired time accuracy, time synchronization signals have to be generated. Sending synchronization messages more frequently leads to lower total inaccuracy.

Note: Sending the time signal more frequently increases the bus load on the INSUM system!

The synchronization of MCUs is done every 5 seconds. The time deviation of 5 ms is compensated and does not affect the time stamp.

5.1.2 Between MCUs

Another deviation is the temporal difference between all MCU-times. This fact has got two reasons. On one hand the internal clocks of the MCU's run apart by free running (<0,1ms/s). On the other hand there is an aspect of receiving the time signal (sent by System Clock).
When time synchronization message is received by MCU, internal clock is set given according to the new value. The internal cycles of all MCU's don't work synchronous. So there is a difference between the "fastest" MCU (discerned nvoClock first) and the "slowest" MCU (discerned nvoClock last). The deviation is typically <35ms. This deviation can not be compensated.

Note: By sending the time signal every 5 seconds, this deviation is minimized.

5.1.3 Transmission and internal delay (System Clock)

The last inaccuracy is the transmission time of the time stamp from the Hopf GPS System through System Clock and Router to the MCU. Altogether the delay time is < 10ms and can be compensated in the sent message nvoClock. The same applies if a System Clock is used as Master.

5.1.4 Conclusion

The existing accuracy of time signal distribution is presented in the table below.

Deviation UTC <-> MCU-time	< 1ms/s	compensated
Deviation MCU-time <-> MCU-time	< 35ms	
Time for transmission	< 10ms	compensated

Table 3. Time deviation

Only the deviation UTC <-> MCU-time and the time for transmission are compensated by the System Clock by correcting received time information.

For time accuracy depending on the System Clock modes see below:

5.2 Slave mode

The accuracy of the time stamp sent on the LON network and distributed to all MCU's on that network by the System Clock (**Slave** mode) depends on internal delays and delays caused by transmission through the Routers. This system inherit delay is compensated by the sent NV (nvoClock).

Note: If the System Clock is used in an INSUM system the accuracy depends on the different factors mentioned in paragraph 5.1.

5.3 Master mode

The accuracy of the time information sent by the System Clock (**Master** mode) depends mainly on the used RTC crystal. The provided accuracy is +/- 20ppm.

Notes:

6 Alarm and Maintenance functions

In addition to the main function, System Clock performs some additional system tests to verify the system integrity and the valid time signal. The status of the System Clock is shown by LEDs on the front panel of the System Clock module.

6.1 Lifesign signal

The device is sending a Lifesign signal (nvoLifeSign) cyclically. It is used to detect if the module has a physical connection to the backplane and to identify if the device is running. The temporal interval between two signals is constant and can not be changed.

6.2 Running on RTC / GPS

The System Clock always shows the running mode by LED 'GPS active'. That means the System Clock receives the signal from the GPS unit. The yellow LED indicates the status of synchronization. If the LED is shining the System Clock runs with GPS information.

Note: The 'GPS active' LED is only in **Slave** mode available.

6.3 'No connection' detection

If the System Clock is running as **Slave** and does not get a time signal via RS422 within 5 seconds, the connection to a time sending device (Hopf GPS System or System Clock **Master** mode) could be broken. The System Clock indicates this situation by a shining 'Receive error' LED. In that case the cable connection has to be checked.

6.4 No valid time detection

If the System Clock is running as **Master**, but the on board RTC does not provide a valid time it is indicated by a shining 'Receive error' LED. To reset the error the user has to set the RTC time and date using the MMI as described in chapter Configuration.

6.5 Detection Master/ Slave mode

It is possible to detect the mode of the System Clock by pressing the button 'GPS config'. In case of **Master** setting all three indication LEDs are flashing three times.

Notes:

7 Parameter Configuration of Hopf GPS System

The following parameters are set during configuration:

7.1 Configuration of serial parameter interface 1

- output UTC
- transmission every second
- transmission with control characters
- transmission with ETX on second change
- transmission with second forerun
- transmission sequence of control characters CR/LF
- standard string date and time

7.2 Configuration of serial parameter interface 2

- output UTC
- transmission every second
- transmission with control characters
- transmission with ETX on second change
- transmission with second forerun
- transmission sequence of control characters CR/LF
- standard string date and time

7.3 Configuration of mode of reception (GPS reception quality)

- 3/D reception

Note: This mode allows the calculation of the accurate position and consequently the accurate time.

7.4 Configuration of optical coupler 1

- Mode 5 (one shot)
- Hour: 0
- Second: 0
- Day: 0
- Month: 0
- Year: 0
- Cycle time: 0

Note: These settings never allow an output.

7.5 Configuration of optical coupler 2

- Mode 5 (one shot)
- Hour: 0
- Second: 0
- Day: 0
- Month: 0
- Year: 0
- Cycle time: 0

Note: These settings never allow an output.

7.6 Configuration of optical coupler 3

- Mode 5 (one shot)
- Hour: 0
- Second: 0
- Day: 0
- Month: 0
- Year: 0
- Cycle time: 0

Note: These settings never allow an output.

Notes:

8 Annex A:Technical Data

8.1 Mechanical Data

Enclosure	Aluminium metal case
Dimensions	67mm x 135mm x 215mm (B x H x T)
Weight	~ 0,75kg
Protection class	IP 30

8.2 General Electrical Characteristics

Power Supply	24VDC (18VDC...36VDC)
Power Consumption (max.)	1,2 W
Nominal current (typ.)	50 mA (at 24VDC)
Inrush current	< 75mA
Storage Temperature	-20°C to +80°C
Operating Temperature	-5°C to +70°C

8.3 Electromagnetic Compatibility

Standard *	Subject	Level	Class	Criteria
EN 50081-1	0,15-0,5 MHz (230VAC **)	79/66 dBuV	B	-
	05 –30 MHz (230VAC **)	73/60 dBuV	B	-
EN 50081-1	30 - 230 MHz (Case)	30 dBuV	B	-
	230 – 1000 MHz (Case)	37 dBuV	B	-
EN 61000-4-2	contact discharge	6kV	3	A
EN 61000-4-3	sinus modulation	10V/m	3	-A
EN 61000-4-4	230VAC **	4kV	4	A
	24VDC power supply lines	2 kV	3	A
	Lon XP 1250	2kV	4	A
	RS 422	2kV	4	A
EN 61000-4-5	230VAC ** Asymetrical / symetrical	2/1 kV	3	A
	24VDC power supply lines, asymetrical / symetrical	1 kV/0.5 kV	2	A
	Lon XP	2 kV	3	A
	RS 422	2kV	3	A
EN 61000-4-6	230 VAC **	10 V	3	A
	24VDC	10 V	3	A
	Lon XP	10 V	3	A
	RS 422	10 V	3	A
EN 61000-4-11	230 VAC 70 % Un	10 ms	A	-
	40 % Un	1000 ms	A	-
	<5% Un	5000 ms	C	-
PR EN 61000-4-29	Voltage dips 24 VDC 70 % Un	1000 ms	A	-
	Voltage dips 24 VDC 40 % Un	100ms	A	-
	Voltage dips 24 VDC 0% Un	30ms	A	-

Notes:

8.4 Insulation test

According IEC 60255-5 chap. 4

Subject	Reference Point	Level	Class
24VDC	Ground plane	± 0.8 kV	3
24VDC	Internal bus lines	± 0.8 kV	3
Bus lines	Ground plane	± 0.8 kV	3

8.5 Environmental Testing

Subject	International	European
Vibration (sinusodial)	IEC 255-21-1	
Shock and bump	IEC 255-21-2	
Cold	IEC 68-2-1	EN 60068-2-1
Dry heat	IEC 68-2-2	EN 60068-2-2
Vibration (sinusodial)	IEC 68-2-6	EN 60068-2-6
Damp heat, cyclic	IEC 68-2-30	EN 60068-2-30

Notes:

9 Annex B - INSUM Terms and Abbreviations

Abbreviation	Term	Explanation / Comments
	Alarm	Alarm is defined as status transition from any state to abnormal state. Status transition to abnormal state can be data crossing over the predefined alarm limit.
	Backplane	INSUM backbone, holds following INSUM devices: Router, Gateways, Clock, Power Supply. Part of the INSUM Communication Unit, see ICU
CA	Control Access	A function of INSUM system that allows definition of operating privileges for each device level (e.g. PCS, Gateway, field device)
CAT	Control Access Table	Table containing control access privileges
CB	Circuit Breaker	Circuit breaker unit (here: ABB SACE Emax with electronic release PR112-PD/LON)
CT	Current Transformer	Current Transformer
DCS	Distributed Control System	see also PCS
Eth	Ethernet	Ethernet is a local area network (LAN) technology. The Ethernet standard specifies the physical medium, access control rules and the message frames.
	Event	An event is a status transition from one state to another. It can be defined as alarm, if the state is defined as abnormal or as warning as a pre-alarm state.
FD	Field Device	Term for devices connected to the LON fieldbus (e.g. motor control units or circuit breaker protection)
FU	Field Unit	see Field Device
GPI	General Purpose Input	Digital input on MCU for general use
GPO	General Purpose Output	Digital output on MCU for general use
GPS	Global Positioning System	System to detect local position, universal time and time zone, GPS technology provides accurate time to a system
GW	Gateway	A Gateway is used as an interface between LON protocol in INSUM and other communication protocols (e.g. TCP/IP, Profibus, Modbus)
HMI	Human Machine Interface	Generic expression for switchgear level communication interfaces to field devices, either switchboard mounted or hand held
ICU	INSUM Communications Unit	INSUM Communications Unit consists of devices such as backplane, Gateways, Routers, System Clock and Power Supply. It provides the communication interface within INSUM and between INSUM and control systems. Formerly used expressions: SGC, SU
INSUM	INSUM	Integrated System for User optimized Motor Management. The concept of INSUM is to provide a platform for integration of smart components, apparatus and software tools for engineering and operation of the motor control switchgea
INSUM OS	INSUM Operator Station	Tool to parameterise, monitor and control devices in the INSUM system
ITS	Integrated Tier Switch	The Intelligent Tier Switch is an ABB SlimLine switch fuse with integrated sensors and microprocessor based electronics for measurement and surveillance
LON	Local Operating Network	LON is used as an abbreviation for LonWorks network. A variation of LON is used as a switchgear bus in the INSUM system
LonTalk	LonTalk protocol	Fieldbus communication protocol used in LonWorks networks

Notes:

Abbreviation	Term	Explanation / Comments
LonWorks	LonWorks network	A communication network built using LonWorks network technology, including e.g. Neuron chip and LonTalk protocol
MCU	Motor Control Unit	Motor Control Unit is a common name for a product range of electronic motor controller devices (field device) in INSUM. A MCU is located in a MNS motor starter, where its main tasks are protection, control and monitoring of motor and the related motor starter equipment.
MMI	Man Machine Interface	The switchgear level INSUM HMI device to parameterize and control communication and field devices.
MNS	MNS	ABB Modular Low Voltage Switchgear
	Modbus, Modbus RTU	Fieldbus communication protocol
NV,nv	LON Network Variable	Network variable is a data item in LonTalk protocol application containing max. 31 bytes of data.
Nvi, nvi	LON Network Variable input	LON bus input variable
Nvo, nvo	LON Network Variable output	LON bus output variable
OS	Operator Station	see INSUM OS
PCS	Process Control System	High level process control system
PLC	Programmable Local Controller	Low level control unit
PR	Programmable Release	Circuit breaker protection/release unit (here: ABB SACE Emax PR112-PD/LON)
	Profibus DP	Fieldbus communication protocol with cyclic data transfer
	Profibus DP-V1	Fieldbus communication protocol, extension of Profibus DP allowing acyclic data transfer and multi master.
PTB	Physikalisch-Technische Bundesanstalt	Authorized body in Germany to approve Ex-e applications.
PTC	Positive Temperature Coefficient	A temperature sensitive resistor used to detect high motor temperature and to trip the motor if an alarm level is reached.
RCU	Remote Control Unit	Locally installed control device for motor starter, interacting directly with starter passing MCU for local operations.
	Router	Connection device in the LON network to interconnect different LON subnets. Part of the INSUM Communications Unit.
RTC	Real Time Clock	Part of the INSUM System Clock and and optionally time master of the INSUM system
SCADA	Supervisory Control and Data Acquisition	
SGC	Switchgear Controller	Former term used for INSUM Communications Unit
SU	Switchgear Unit	Former term used for INSUM Communications Unit
	System Clock	INSUM device providing time synchronisation between a time master and all MCUs. Part of the INSUM Communication Unit, see ICU
TCP/IP	Transmission Control Protocol /Internet Protocol	TCP/IP is a high-level, connection oriented, reliable, full duplex communication protocol developed for integration of the heterogenous systems.
TFLC	Thermal Full Load Current	See MCU Parameter Description for explanation
TOL	Thermal Overload	See MCU Parameter Description for explanation
	Trip	A consequence of an alarm activated or an external trip command from another device to stop the motor or trip the circuit breaker.

Notes:

Abbreviation	Term	Explanation / Comments
UTC	Coordinated Universal Time	Coordinated Universal Time is the international time standard, formerly referred to as Greenwich Meridian Time (GMT). Zero (0) hours UTC is midnight in Greenwich England, which lies on the zero longitudinal meridian. Universal time is based on a 24 hours clock.
VU	Voltage Unit	Voltage measurement and power supply unit for MCU 2
	Wink	The Wink function enables identification of a device on the LON network. When a device receives a Wink-message via the fieldbus, it responds with a visual indication (flashing LED)

Notes:

Index

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