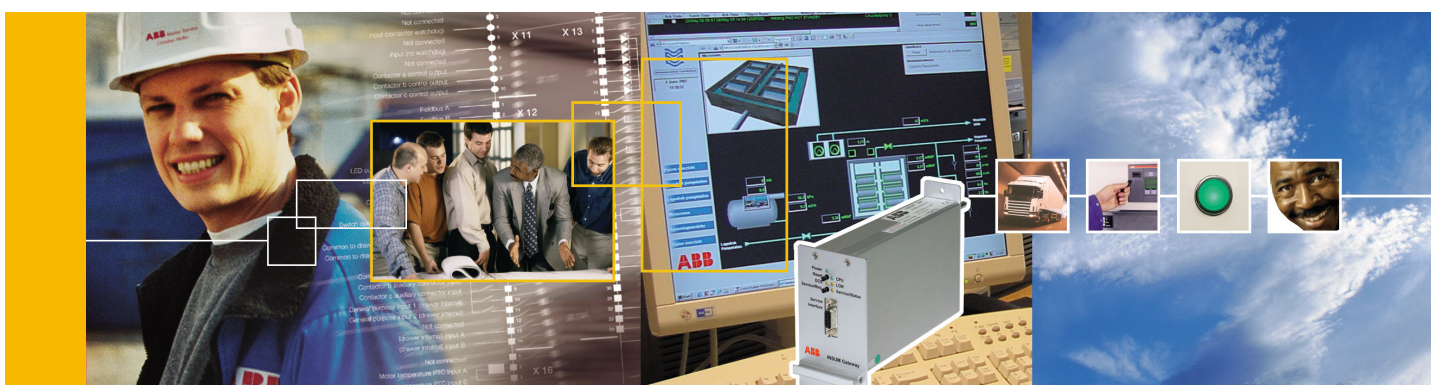


Protect^{IT} – MNS Motor Management INSUM[®]

Ethernet Gateway Manual Version 2.3



ABB



INSUM[®]
Ethernet Gateway Manual

Version 2.3

NOTICE

The information in this document is subject to change without notice and should not be construed as a commitment by ABB Schaltanlagentechnik GmbH. ABB Schaltanlagentechnik GmbH assumes no responsibility for any errors that may appear in this document.

In no event shall ABB Schaltanlagentechnik GmbH be liable for direct, indirect, special, incidental, or consequential damages of any nature or kind arising from the use of this document, nor shall ABB Schaltanlagentechnik GmbH be liable for incidental or consequential damages arising from use of any software or hardware described in this document.

This document and parts thereof must not be reproduced or copied without ABB Schaltanlagentechnik GmbH's written permission, and the contents thereof must not be imparted to a third party nor be used for any unauthorized purpose. Permission to translate the document shall be obtained from ABB Schaltanlagentechnik GmbH. The translated document shall be sent to ABB Schaltanlagentechnik GmbH together with the confirmation that the content of the document is the same.

The software described in this document is furnished under a license and may be used, copied, or disclosed only in accordance with the terms of such license.

© 2002 ABB Schaltanlagentechnik GmbH, Germany

TRADEMARKS

MNS and INSUM are registered trademarks of ABB Schaltanlagentechnik GmbH

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

Echelon, LON, LONWORKS, LonTalk, Neuron are trademarks of Echelon Corporation registered in U.S. and other countries.

Reference document 1TGB 350021 R1.1

ABB Ethernet Gateway Manual

Version 2.3b

1	General Information	4
1.1	Objective	4
1.2	Related Software version	4
1.3	Related documents	4
2	Product Overview	5
2.1	Connection of INSUM Gateway Ethernet TCP/IP	5
2.2	Connection of OS Interface	5
3	Mechanical Setup	6
3.1	Device types	6
3.1.1	INSUM Gateway Ethernet TCP/IP	6
3.1.2	OS Interface	6
3.2	Indications and Control elements	7
3.2.1	Indications	7
3.2.2	Pushbuttons	7
3.2.3	Interfaces	7
4	Configuration	8
4.1	Initial configuration	8
4.2	Configuration of the LON network and Gateway parameters	9
4.2.1	System	9
4.2.2	Device Data	9
4.2.3	TCP/IP	10
4.3	Setting Gateway time and date on power on	11
4.3.1	OS Server Setup	11
4.3.2	Telnet	12
5	Integration in an Ethernet network	13
5.1	Direct Uplink	13
5.2	Connection via HUB / SWITCH	13
5.3	Connection via Router	14
5.4	Network communication	15
6	Diagnosis	16
6.1	"Ping" command	16
6.2	"Ipconfig" command	16
7	Annex A: Technical Data	17
7.1	Mechanical Data	17
7.2	Electrical Data	17
7.3	Standards	17
7.3.1	EMC	17
7.3.2	Insulation test	18
7.3.3	Environmental Testing	18
8	Annex B – INSUM Terms and Abbreviations	19
9	Index	22

INSUM[®]

Ethernet Gateway Manual

Notes:

1 General Information

1.1 Objective

This manual provides detailed information on the integration of the Ethernet Gateway into an INSUM system. The main focus is to give information on installation and configuration of the Ethernet Gateway.

1.2 Related Software version

The manual is applicable to the Ethernet Gateway software version V2.3, suitable for the use together with INSUM OS V2.3 and MMI V2.3.

1.3 Related documents

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 901080 M0201 INSUM System Clock 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)

INSUM[®]

Ethernet Gateway Manual

Notes:

2 Product Overview

The INSUM Gateway Ethernet TCP/IP is available in two different types:

- INSUM Ethernet Gateway for stationary installation on the ICU in the switchboard.
- INSUM OS Interface for non-stationary use with INSUM OS only.

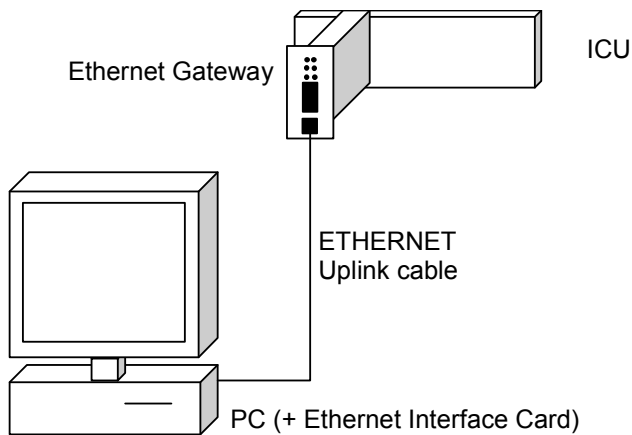
Both have the same hardware and software characteristics. The most suitable device is selected depending on the application as mentioned hereunder.

2.1 Connection of INSUM Gateway Ethernet TCP/IP

The Gateway is a hardware module, fix installed on the INSUM ICU. It is used for communication with the INSUM OS Client or for connection to DCS / PLC systems.

Note:

The DCS communication application is limited to few DCS systems. The DCS manufacturer has to develop a driver for the DCS side of the connection. Please contact ABB to clarify details.

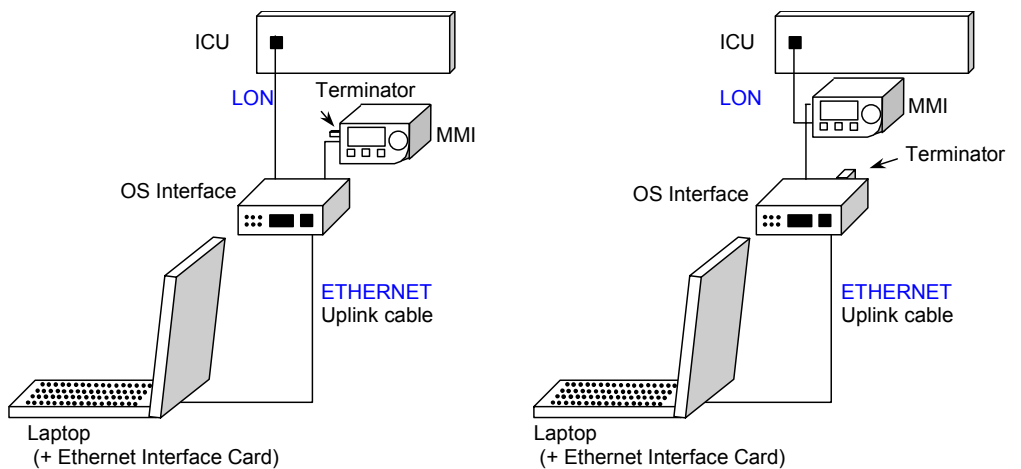


Picture 1. Connection of Ethernet Gateway

2.2 Connection of OS Interface

A dedicated hardware design is available for mobile applications. This OS interface is a hardware module which can be used for maintenance and system diagnosis connected temporarily to the INSUM OS client software running on a mobile PC.

The INSUM OS Interface can be either connected directly to the ICU or to the MMI, always using the MMI connection cable (see figure 2).



Picture 2. Connection of OS Interface

INSUM[®]

Ethernet Gateway Manual

Notes:

3 Mechanical Setup

3.1 Device types

3.1.1 INSUM Gateway Ethernet TCP/IP

The Gateway has to be connected to the INSUM ICU. The mechanical setup of the Gateway is plug-in type. Power supply and internal LON connection is provided via the ICU. The Ethernet network interface is located on the front plate of the module. The Gateway can be installed on any place of the ICU suitable for Gateways (incl. extension plate).



Picture 3. Mechanical setup Ethernet Gateway

3.1.2 OS Interface

The OS Interface connects both to the INSUM system and the Ethernet. Instead of the ICU connection plug it provides a connector for the MMI cable at the rear side. All connectors, LED indicators and pushbuttons on the front are similar to the ones of the Ethernet.



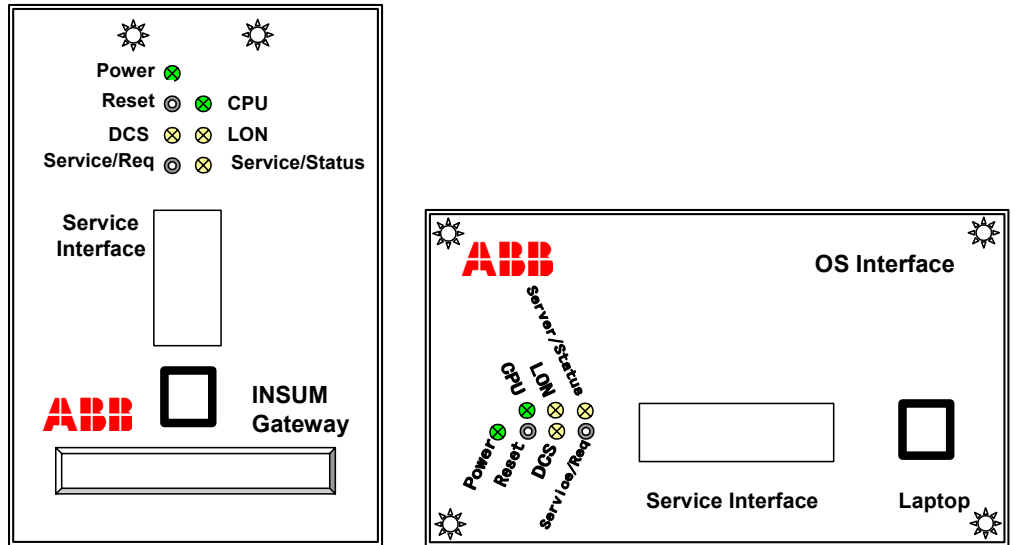
Picture 4. Mechanical setup OS Interface

INSUM[®] Ethernet Gateway Manual

Notes:

3.2 Indications and Control elements

The following indications are applicable for the Ethernet Gateway and the OS Interface.



Picture 5. Gateway and OS Interface module front view

3.2.1 Indications

Indication	Function
Power	A steady green LED indicates that the 24VDC-power supply for the module is available.
CPU	A steady green LED indicates that the Gateway CPU is functioning properly.
DCS	A flashing yellow LED indicates traffic on the TCP/IP network. A red LED indicates connection failure.
LON	A flashing yellow LED indicates traffic on the LON bus.
Service/Status	A yellow LED indicates the Service/Status of the NEURON (LON Communication Chip) inside the Gateway.

3.2.2 Pushbuttons

Pushbutton	Function
Reset	Executes a hardware reset of the Gateway.
Service/Req.	Used during the installation of Gateway on LON network via MMI. The pressing of switch sends a 'Service Pin Message' that is used by the MMI or LNT to locate the Gateway and logically install it on the network (assigning LON network address).

3.2.3 Interfaces

PCS/DCS Communication Interface:

The Ethernet interface is based on the physical interfaces according to IEC 802.3 standard. The internal serial link to the processor MC68331 is galvanically isolated. The terminals/connectors for the Ethernet interface are located on the front plate (RJ45 connector).

Service Interface (Gateway Firmware Download Interface):

A 9-pin SUB-D female connector is provided for communication to RS232C interface of PC. The new system software (firmware) can be downloaded via this port using HyperTerminal (Standard terminal program supplied with Microsoft Windows Operating system).

LON Interface:

Echelon[®] Transceiver TP/XF-1250 (1,25 Mbd) and Gesytec Watcher Interface, can be accessed via ICU.

Notes:

4 Configuration

This section describes the procedure to configure the Ethernet Gateway. For OS Interface the same steps have to be done. The following table shows the utilities which are used to configure the Gateway.

	Initial configuration (see 4.1)			LON network and Gateway configuration (see 4.2)		
Parameter →	IP Address	MAC Address	Time / Date	LON Address	Other Parameters	Firmware Download
Modification via ↓						
Serial Interface (e.g. Hyperterminal)	X	X ¹⁾	X			X
MMI	X			X	X	
INSUM OS	X				X	
OS Server Setup	X		X	X		

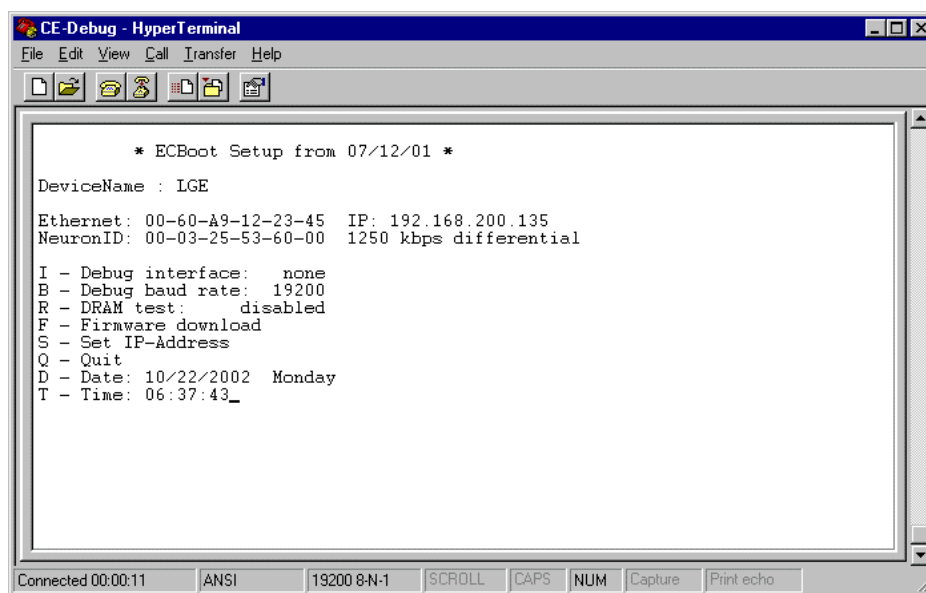
4.1 Initial configuration

The initial configuration is the procedure to bring a device online. Different steps have to be executed:

- Bootcode download
- Setting MAC¹⁾ and TCP/IP address
- Setting time and date (UTC or GMT)
The time and date information are recommended to be set before the firmware download in order to get the correct date of software download.
- Firmware download.

The initial configuration has to be done using a serial connection between the Gateway and a PC. The serial download cable (1TGB366001) and a HyperTerminal program available as part of Microsoft Windows have to be used. A terminal file is available with the required settings for the communication (start "CE-Debug.ht").

After establishing the connection and starting the program the 'Reset' pin on the Gateway front plate has to be pressed to start the configuration mode of the Gateway. After pressing <return> the following configuration menu is started in the HyperTerminal window.



Picture 6. HyperTerminal Window

The detailed procedure of download and setting of MAC, IP address, time/date and download of software is described in the INSUM System Clock Manual.

¹⁾ The MAC address is set by the manufacturer of the device. A modification is required only if it is not equal with the labeled (on the device cover) MAC address.

Notes:

4.2 Configuration of the LON network and Gateway parameters

The INSUM components on the LON network communicate to each other using LON network addresses and network variables. The subnet/node address range for the Ethernet Gateway is from 5/35 to 5/39. The setting of the network address as well as the binding is done with the help of the MMI in the following way:

1. Select MMI menu: SYSTEM INSTALLATION
2. Choose address 5/35 (first Gateway)
3. Press the function key INSTALL on the MMI
4. Press Service button on the Gateway
5. Press the function key DEFAULT on the MMI

The following Gateway parameter can be set by using Telnet or MMI (recommended). In the next tables all parameter, the available range and a short description sorted by the MMI entry are shown.

4.2.1 System

Parameter	Range	Description
Field Device Timeout	1 (1) 100	The update from MCU must be received within the time specified in this parameter.
Control Command Timeout	Disabled, 0.4 (0.1) 20	If the Gateway doesn't receive an acknowledgement to a sent control command by the MCU within this specified time it repeats the control command.
Failsafe Heartbeat	Disabled, 0.5 (0.5) 60	This parameter defines the time interval at which the failsafe heartbeat is broadcasted.
SU Lifesign Heartbeat	1 (1) 60	This parameter determines the time interval at which the SU Lifesign Heartbeat is to be sent by the SU device.
SU Lifesign Timeout	1 (1) 100	This parameter defines the max. time interval in which all SU Lifesign signals have to be collected. After the specified time the missing device is removed from the SU Lifestlist.
SU Lifestlist Heartbeat	Disabled, 1 (1) 60	This parameter defines the time interval at which the SU lifestlist to be sent to the MCU's.
CA Priority	2 (1) 13	This parameter assigns the priority order to the SU device in CA mechanism.
CA Name		The name assigned in this parameter is used as the device name in the MCU CA Table.
Failsafe Mode	Passive/Active	Specifies the reaction of the Gateway when the DCS connection interrupts. Passive ...Gateway will interrupt the failsafe signal Active ...Gateway will send an activate failsafe command

Note: All shown parameters can be changed either by using the MMI or INSUM OS. A new Gateway from factory uses default parameters. Do not change these if not necessary.

4.2.2 Device Data

Parameter	Description
Firmware Version	This parameter is related to the firmware version of the device.
Hardware Version	This parameter is related to the hardware version of the device.
Parameter File Version	This parameter is related to the parameter file version of the device.

INSUM[®]

Ethernet Gateway Manual

Notes:

4.2.3 TCP/IP

Parameter	Value	Description
Server IP Address	0.0.0.1 ... 255.255.255.254	TCP/IP address of the OS Server 32 Bit address to identify a device in a IP network (e.g. 192.168.7.27)
Server Port	2000(1)65535	This parameter defines the Port-Number to be used by OS Client for connection to OS Server via TCP/IP. (default value: 2000)
Service Port	2000(1)65535	This parameter defines the Port-Number to be used by OS Server for Log-Viewer and Server-Parameterizing Tool. (default value: 2001)
Subnet Mask	Default: 255.255.255.0	This parameter is used by the transmitter to detect if the receiver of a message is part of the same network.
Default Gateway	0.0.0.0 ... 255.255.255.254 (0.0.0.0 if no default Gateway is used)	This parameter specifies the IP address of a Router, which transfers not local data packets to the destination network.

Note: After changing TCP/IP related parameters the Gateway will restart automatically, within 5 seconds. All connections are disrupted. The CPU LED on the front of the Gateway will be switched off shortly and then on again for about 30sec. After that the Gateway works with the new IP address.

INSUM[®]

Ethernet Gateway Manual

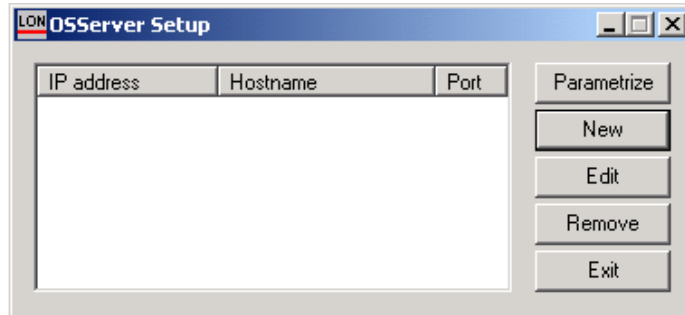
Notes:

4.3 Setting Gateway time and date on power on

If there is no System Clock existing, it is required to set the time and date information of the Gateway each time the Gateway is powered on. One way is to use the OS Server Setup (provided with INSUM OS) and the other way is to use Telnet (provided with Microsoft Windows operating system). In both cases TCP/IP network is used to transfer the parameterization data. The precondition is that Gateway and PC have the correct TCP/IP setting.

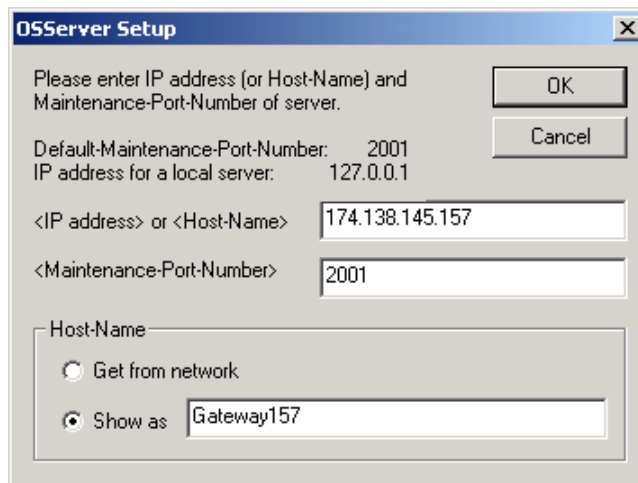
4.3.1 OS Server Setup

The OS Server Setup is part of the INSUM OS installation. To parameterize the time and date information in the Gateway different steps have to be done to allow a working TCP/IP communication. To reach this the OS Server Setup tool has to be started.

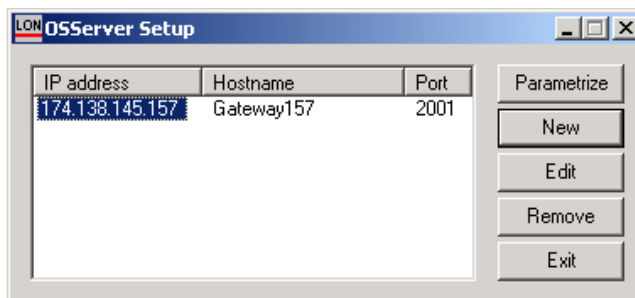


In the shown dialog the **New** button has to be pressed, to create a new data set. The entry IP address has to be specified. To allow an easy identification the entry **Show as** can be used.

Note: Do not change the **Maintenance-Port-Number**.



After finishing and selecting the new data set the **Parameterize** button has to be pressed to establish the connection.



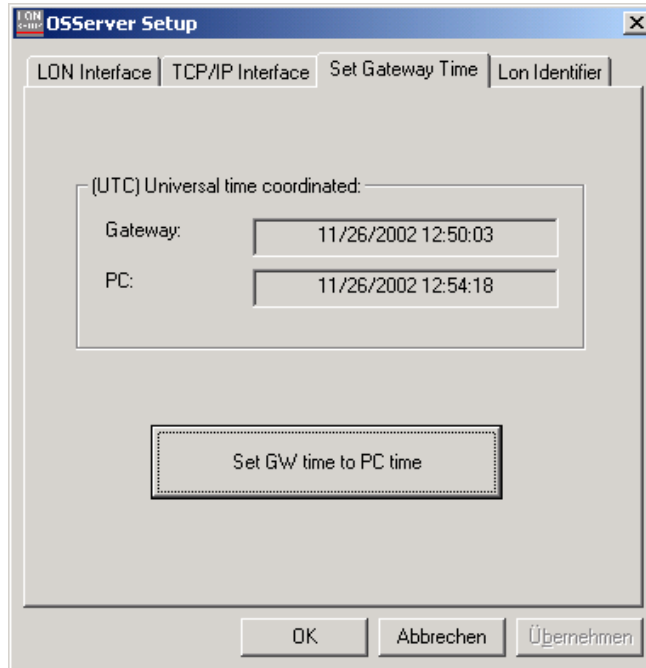
On tab **Set Gateway Time** the time and date can be set to local PC time.

Note: The used time has to be UTC or GMT.

INSUM[®]

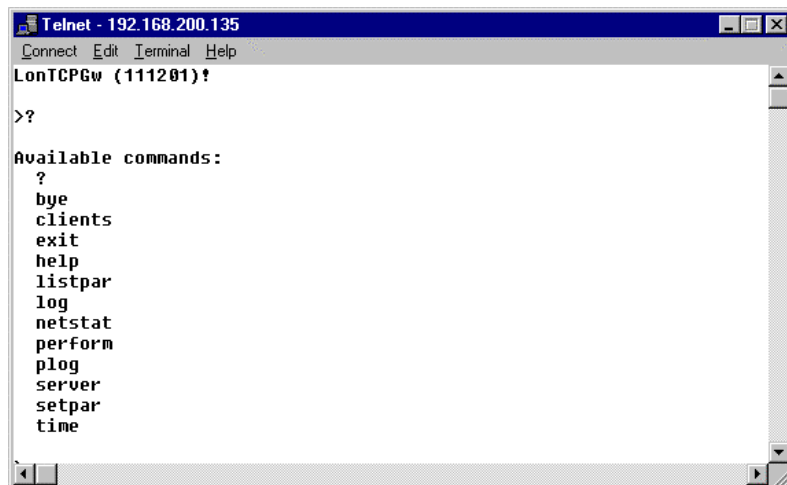
Ethernet Gateway Manual

Notes:



4.3.2 Telnet

The connection from the PC has to be done by running Telnet and connect to IP address and Port 2001 of the Gateway. The following window shows all available commands:



Picture 7. Telnet Window

The inputs below are requested for reading and setting the time:

```
time get    print time
time set <yyyy/mm/dd HH:MM:SS:XXX>  set time
```

INSUM[®]

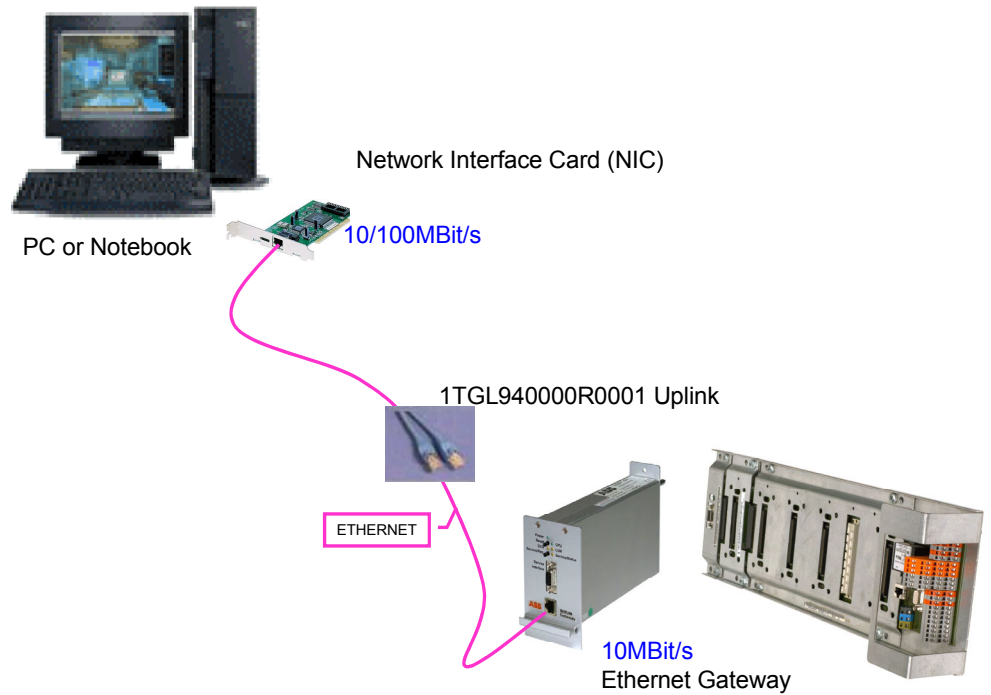
Ethernet Gateway Manual

Notes:

5 Integration in an Ethernet network

5.1 Direct Uplink

The simplest solution is a direct peer-to-peer connection between the communicating devices using a specific (crossover) cable.



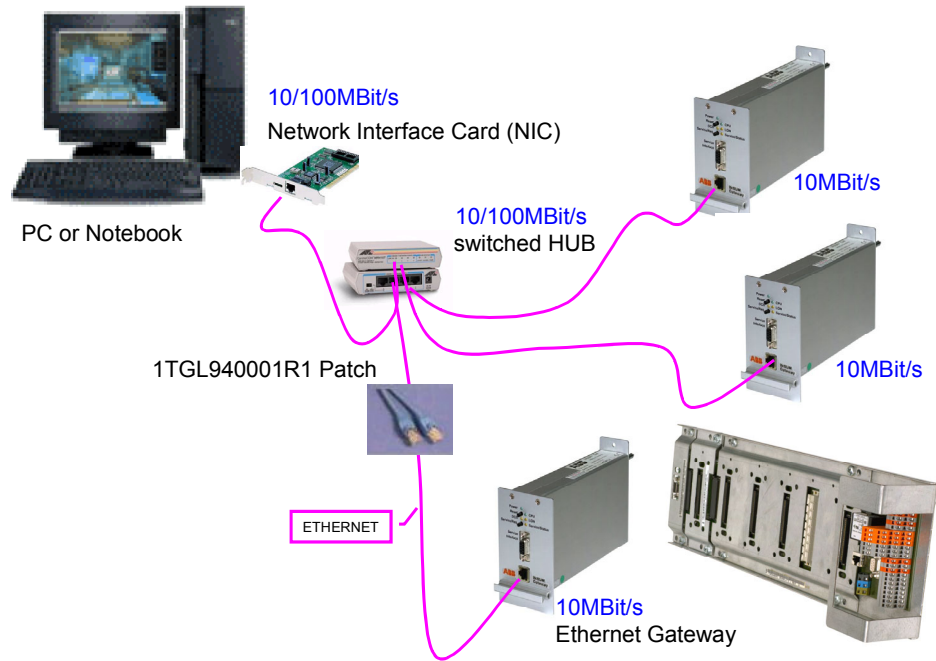
Picture 8. Peer-to-Peer Topology

5.2 Connection via HUB / SWITCH

If more than two Ethernet devices have to communicate to each other, a star topology has to be used. In that case all devices have to be connected to a central point, the hub. It is recommended to use a switched hub. All data packets have to run through the hub, before continuing to its destination. The hub manages all functions of the network and also acts as repeater for the data flow. This configuration is common with twisted pair cable 10Base-T. Each device is connected directly in a peer-to-peer connection to the hub (cable 1TGL940001R1). The max. length of the cable is 100m.

INSUM[®] Ethernet Gateway Manual

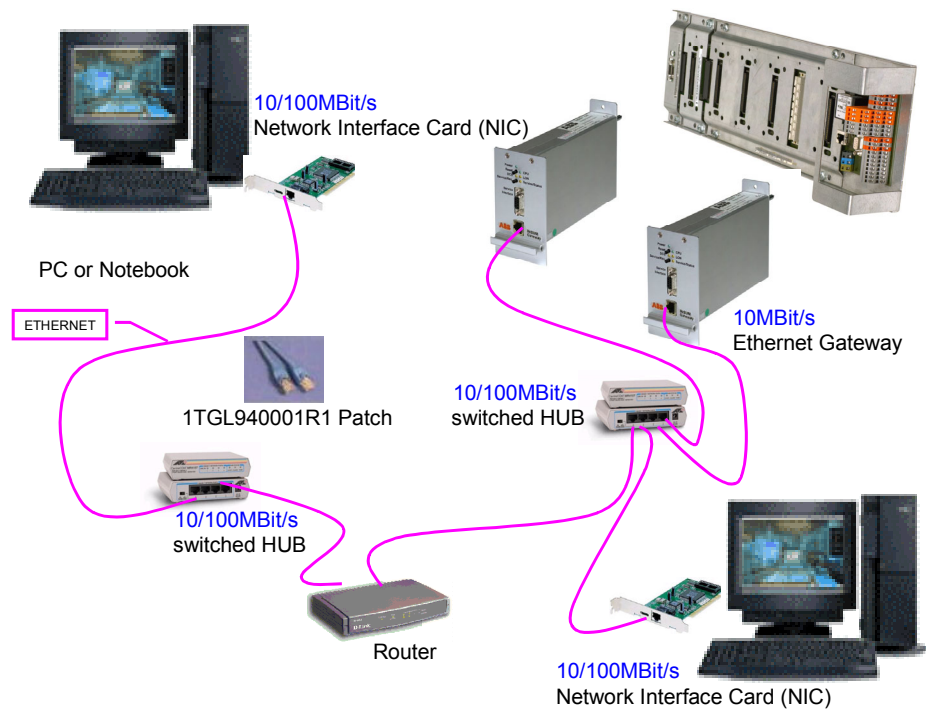
Notes:



Picture 9. Star Topology (with switched HUB)

5.3 Connection via Router

To allow a communication between devices in different subnets in a TCP/IP network Routers have to be used. The following picture illustrates one possible configuration. In all cases the subnet mask and the default Gateway parameter of the TCP/IP Gateway has to be set accordingly. In the shown picture the subnet mask parameter depends on the respective subnet and the default Gateway parameter corresponds to the IP address of the Router.



Picture 10. Router Topology (with switched HUB)

INSUM[®]

Ethernet Gateway Manual

Notes:

5.4 Network communication

The standard connection is one Gateway to one client (PC with OS software or DCS interface).

Several Gateways can be installed in an Ethernet network. The limitation depends on the total number of Ethernet devices (e.g. PC, Printer, Router etc.). The network configuration depends on the specific application.

Standard Ethernet network devices can be used whereby no specific hardware is required.

Note:

The Gateway supports up to 8 clients connected via an Ethernet network. I.e. if more than 8 clients are used (e.g. 10 OS Clients), then more Gateways have to be connected to the INSUM system. Only 4 DCS clients can be connected to one Gateway. This limitation is due to performance requirements for process operation.

Notes:

6 Diagnosis

If there is no communication between the PC and the Gateway different steps can be done to identify the problem. This chapter describes two different operating system commands to verify an existing connection.

6.1 "Ping" command

To check if it is possible to communicate with the Gateway Microsoft Windows operating system offers the possibility to use the **ping** command.

In a DOS-Command box the command ,ping' together with the IP address has to be entered. The following example shows an expected result.

Note: The time could be different, depending on the network layout.

```
C:\>ping 192.168.100.20

Pinging 192.168.100.20 with 32 bytes of data:
Reply from 192.168.100.20: bytes=32 time<10ms TTL=128
Reply from 192.168.100.20: bytes=32 time<10ms TTL=128
Reply from 192.168.100.20: bytes=32 time<10ms TTL=128
Reply from 192.168.100.20: bytes=32 time<10ms TTL=128

Ping statistics for 192.168.100.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

If it is not possible to reach the device with the ping command the window shows the following line.

```
Request timed out.
```

If **Request timed out** is shown, the TCP/IP address of the Gateway (using the MMI) and the Ethernet connection (using "ipconfig" command) have to be checked.

Note: If the connection to the Ethernet network is established the DCS LED on the Gateway front plate has to be off or flashing yellow.

6.2 "Ipconfig" command

To identify the IP address of the PC the "ipconfig" command is to use. In a DOS-Command box the command ,ipconfig' has to be entered. The following example shows an expected result.

```
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix  . :
IP Address . . . . . : 174.138.145.156
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
```

The IP address and the Subnet Mask of the Gateway has to be set accordingly (using the MMI).

Note: If a Router is part of the configuration the default Gateway value has to be set to the IP address of the Router.

INSUM[®]

Ethernet Gateway Manual

Notes:

7 Annex A: Technical Data

7.1 Mechanical Data

Characteristic	Ethernet Gateway	OS Interface
Enclosure	Aluminium metal case	
Dimensions (WxHxD)	67 x 135 x 215 mm	50 x 105 x 210 mm
Weight (ca.)	0,8 kg	0,9 kg
Protection class	IP 30	

7.2 Electrical Data

Characteristic	Ethernet Gateway, OS Interface
Power Supply	24VDC (18VDC...36VDC)
Power Consumption (max.)	4.8 W
Nominal current (typ.)	160 mA
Inrush current	< 300mA
Storage Temperature	-20°C to +80°C
Operating Temperature	-5°C to +70°C
MTBF	14.5 years

7.3 Standards

7.3.1 EMC

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
	Ethernet	2kV	4	A
EN 61000-4-5	230VAC ** Asymmetrical / symmetrical	2/1 kV	3	A
	24VDC power supply lines, asymmetrical / symmetrical	1/0.5 kV	2	A
	Lon XP 1250	2 kV	3	A
	Ethernet not tested yet	2 kV		
EN 61000-4-6	230 VAC **	10 V	3	A
	24VDC	10 V	3	A
	Lon XP 1250	10 V	3	A
	Ethernet	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
		40 % Un	100ms	A
		<5% Un	30ms	A

* see Appendix A

** with power supply 1TGB302006

INSUM[®]

Ethernet Gateway Manual

Notes:

7.3.2 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

7.3.3 Environmental Testing

Subject	International	European
Vibration (sinusoidal)	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 (sinusoidal)	IEC 68-2-6	EN 60068-2-6
Damp heat, cyclic	IEC 68-2-30	EN 60068-2-30

INSUM[®]

Ethernet Gateway Manual

Notes:

8 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 switchgear
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

INSUM[®]

Ethernet Gateway Manual

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.

INSUM[®]

Ethernet Gateway Manual

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)

INSUM[®]

Ethernet Gateway Manual

Notes:

9 Index

- Abbreviations 20
- Binding 9
- Bootcode download 8
- CA Name 9
- CA Priority 9
- Configuration 8, 9
- Connection 5
- Control Command Timeout 9
- DCS communication, limitations 5
- Diagnosis 16
- Dimensions 17
- Direct Uplink 13
- Documents, related 4
- Electrical Data 17
- EMC 17
- Environmental Testing 19
- Ethernet network, integration into 13
- Failsafe Heartbeat 9
- Failsafe Mode 9
- Field Device Timeout 9
- Firmware download 8
- Firmware Version 9
- Hardware Version 9
- Indications 7
- Insulation test 19
- Interfaces 7
- Ipconfig command 16
- MAC address 8
- Maintenance-Port-Number 11
- Mechanical Setup 6
- Network address, setting 9
- OS Server Setup 11
- Parameter File Version 9
- Parameters, device data 9
- Parameters, system 9
- Parameters, TCP/IP 10
- Ping command 16
- Power Supply 17
- Pushbuttons 7
- Router, connection via 14
- Server IP Address 10
- Server Port 10
- Service Port 10
- Software version 4
- Standards 17
- SU Lifelist Heartbeat 9
- SU Lifesign Heartbeat 9
- SU Lifesign Timeout 9
- Subnet Mask 10
- TCP/IP address 8
- Technical Data 17
- Terms 20
- Time and date, setting of 8, 11



ABB Schaltanlagentechnik GmbH
Wallstadter Str. 59
D - 68526 Ladenburg / Germany

Editor: DEAST/BT
Publication No: 1TGC901060M0201

Related Products, News, Local Contacts:
www.abb.com/mns