commend

ICX Protocol

PRODUCT MANUAL

ENGLISH

ICX Protocol

MANUAL VERSION 9.5/0322



Preliminary information on using these interface specifications

This interface documentation describes the bi-directional Commend standard protocol for integrating third-party devices via Commend ICX interfaces.

Disclosure of the Interface specifics shall be subject to the following conditions:

If, in partial fulfilment of a contract, customer should make the interface available to third parties (licences) with whom Commend maintains no contractual relationships, customer shall be granted an usage right transferable to such third parties.

Furthermore, Commend shall not accept any liability for the completeness or appropriateness of this documentation for customer's software application purposes.

Customer and its licences (if available) agree to hold any information acquired and documentation received in this connection strictly confidential. They agree to use such information and documentation exclusively for the purposes for which they have received them and, further, to treat them in the same way as their own industrial secrets by refraining from making them available to unauthorised third parties.

With regard to liability claims, customer and Commend expressly agree that, applicable statutory burden-of-proof requirements notwithstanding, customer shall be required to furnish proof of Commend's responsibility for the damage in question.

Commend reserves the right to modify the Interface protocol at its discretion. Commend shall not be required to ensure the compatibility of new protocol versions with previous ones. Any risks that may arise from such changes of the interface software protocol shall be borne by customer.

In the event that Customer should document and furnish reproducible proof of discrepancies between protocol features and functions and the documentation, Commend shall provide customer with improvements free of charge, excluding any further claims by customer.

Furthermore:

1. In case two, or more, systems by different manufacturers are connected via a bi-directional ICX interface, this may raise the question of liability for possible damage, overall system failures, etc. that might result from such a connection. This applies crucially to system connections with and within security facilities used for the safeguarding of legally protected objects such as life and limb and real assets.
2. Unless customer (principal) has exempted Commend from liability for such damage, it is necessary to establish appropriate means of determining the party to be held responsible for the damage by ensuring proper traceability, provability and documentation, as otherwise the burden of risk with respect to customer (principal) would become unacceptably high for Commend.
3. In such cases customer shall therefore take appropriate measures to ensure that the connected third-party system does not interfere with or damage the Commend system. In particular, customer shall ensure, in accordance with current technical standards, that the system to be connected does not pose any danger of causing damage to persons or system components. Customer shall, further, ensure compliance with applicable statutory directives concerning device safety.
4. Commend shall not be held liable for changes in applicable statutory provisions. Any risk, for example of losing or failing to obtain required certifications, shall be borne exclusively by customer.

5. The scope of Commend's responsibility within the overall system and the corresponding liability for possible resulting damages shall extend no further than to the point of interface shared with the third-party system. This means that:
   a. Customer shall be responsible for the connection to third-party systems beyond this point. This applies in particular to possible requirements for technical adjustments.
   b. An appropriate testing device shall be used for checking the connection in case of a fault. A special testing software can be obtained from Commend to run bi-directional interface and protocol checks. The interface described in this document can be monitored permanently by means of an interface monitor provided by Commend. If required, it can also generate a log.
   c. The interface monitor is not part of the contract but is only provided as a service tool for Commend. Should the tests confirm the proper functionality of the interface provided by Commend, this shall be deemed sufficient proof to exonerate Commend with respect to its system responsibility.
6. Unless stipulated otherwise, any instructions, trainings or support services that may be required in addition to this documentation shall be subject to payment of a fee. Customer, in consultation with Commend, shall schedule these services and define their technical scope and effort in writing.
7. Customer shall implement appropriate measures for monitoring the interface in order to document possible faults in the connection leading to the Commend system. The interface monitoring tool must also be implemented on the third-party system to allow for detecting Interface problems within the Commend system.
8. The Commend interface protocol may only be used for the intended purpose and within the defined scope of functionality as specified in the interface documentation.
9. Customer is assumed to have appropriate industry and device specific knowledge.
10. The obligation to monitor the product shall lie with customer.

Legal Notice:

The manufacturer guarantees the functionality of its products as described in the datasheets and/or technical documentation. For error-free operation of the Intercom system, faultless transmission paths are mandatory. The functionality of transmission paths, in particular of IP networks, exclusively is the responsibility of the operating company of the transmission path and therefore the manufacturer can not be responsible in any manner, for errors and problems, which result from problems or malfunctioning of the transmission path.

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Attention:

Mounting and installation of the Intercom Servers and of the equipment may be carried out by authorised service personnel only.

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General information

PDF format

Supported viewers

The PDF manual can be used with the following viewers:

- Adobe Reader from version 6.0
- Foxit Reader from version 5.0

Info boxes

ATTENTION
This information box addresses all necessary configuration options and actions which will allow an error-free operation. Also, this box will warn you if a certain configuration, option or entered value could lead to a malfunction of the application or a loss of data.

NOTE
This information box serves multiple purposes: It ranges from basic configuration tips to additional advices and comments on occasional settings and events.

GOOD TO KNOW
This information box provides background knowledge which helps understand the basic principles behind different configurations and the application itself.

Legend of requirements

In the left-hand margin, requirements for the respective features are displayed as follows:

Symbol	Requirement
6.1	Required firmware version for Intercom Server IS 300, GE 150, GE 300, GE 800 and VirtuoSIS (for VirtuoSIS up to firmware version 6.1).
D	Required feature level of the subscriber card. [1)]

[1)] This information is only displayed if it is required for the respective feature.

Terminology

Term	Description
Pro	Operation system of the Intercom Server GE 100, GE 200 and GE 700.
PRO 800	Operation system of the Intercom Server GE 800, GE 300, VirtuoSIS, IS 300 and Gx-IP-32.

The ICX protocol

The ICX protocol (IntercomExchange) is used for connection internal and external systems to an Intercom system. The ICX protocol is bi-directional:

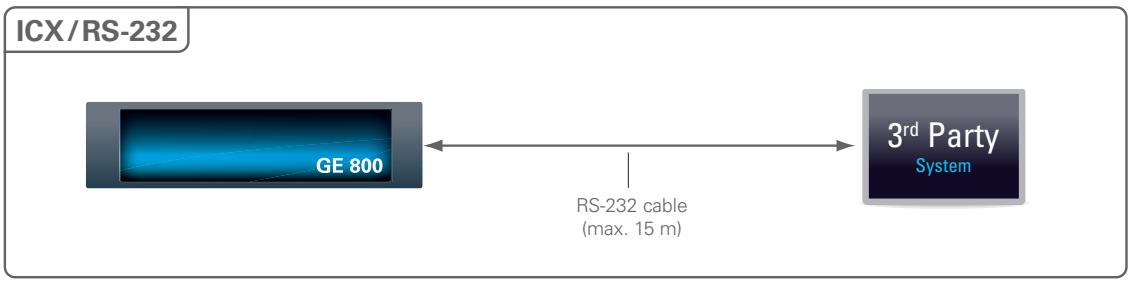
- **ICX commands** (see page 44): for control of Intercom Server events.
- **ICX message** (see page 32): for indication of Intercom Server events in internal and third-party systems. These will be put out at events depending on the configuration via a definable interface.

Transmission types

There are two types of ICX transmission protocols:

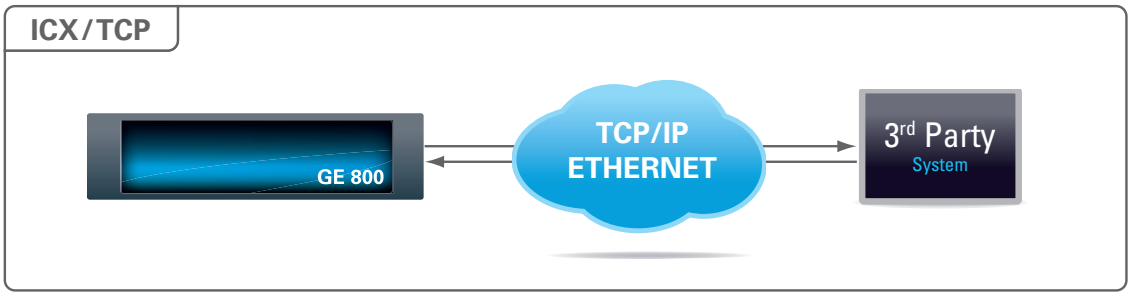
ICX/RS-232

Connection of the systems via a serial cable.



ICX/TCP

Connection of the systems via Ethernet/Cat. 5 cabling.



Video matrix

The following video protocols are available for video matrixes:

- Softvideo
- Video extended
- Video 4-digit
- Pelco (third-party interface)
- Milestone XProtect (third-party interface)

NOTE: Remote interfaces only for TCP/IP
Third-party interfaces are only available for the transmission protocol TCP/IP.

The video protocols differ in types of application:

	Call number of camera		Call number of subscriber	
	2-digit	4-digit	4-digit	8-digit
Softvideo	✓	✓ [1)]	✓	-
Video extended	✓	✓	✓	-
Video 4-digit	✓	✓	✓	✓

[1)] When there is no need for a camera text request, the use of 4-digit camera call numbers is possible.

Configuration CCT 800 (RS-232)

To change the video protocol for a RS-232 interface, follow the instructions below:
1. Go to: ***Interfaces > Data interfaces >*** *tab* ***RS232***
2. In the drop-down list **Protocol**, select the desired video protocol.

Configuration CCT 800 (TCP/IP)

To change the video protocol for a TCP/IP interface, follow the instructions below:
1. Go to: ***Interfaces > Data interfaces >*** *tab* ***TCP/IP***
2. In the drop-down list **Type of connection**, select the desired video protocol.

Data format

- An ICX message consists of the **ICX data** and the **Header**:



- The ICX data is the same at transmission via “ICX/RS-232” and “ICX/TCP”. The ICX data is transmitted in ASCII coding (0 – 9 = 0x30 – 0x39; A – F = 0x41 – 0x46).
- The header is different at transmission via “ICX/RS-232” and “ICX/TCP”.
- At an ICX/TCP connection, a network socket connection has to be built-up first (see page 11) in order to transmit the ICX messages bi-directionally. Optionally, an authentication can be carried out (see page 13).
- The ICX protocol is available in four different data formats (short, long, long 8-digit, system message). The data formats differ in the task number (3rd/4th digit of the ICX message).

ICX commands to the Intercom Server

Short (Task < 60)



E.g.: 00 40 00 F101 F102 80
Establish call between subscriber “101“ and subscriber “102“

Long (Task ≥ 60): ICX commands with variable length



E.g.: 00 60 00 81 F101 F123 4567
Dialling simulation of ❶❷❸❹❺❻❼ at subscriber “101“

Long, 8-digit (Task ≥ 80): ICX commands with 5 to 8-digit call numbers



E.g.: 00 80 00 81 FF10 1101 F123 4567
Dialling simulation of ❶❷❸❹❺❻❼ at subscriber “101101“

Data format	Task range	Parameter 1 (in hex)	Parameter 2 (in hex)
Short	Task < 60	4-digits	4-digits
Long	60 ≤ Task < 80	4-digits	Variable length
Long, 8-digit	Task ≥ 80	8-digits	Variable length
System message	Task ≥ A0	-	-

With sending the ICX commands, the data format can be selected arbitrary (“short”, “long”, “long 8-digits”). Therefore, it is possible to e.g. send an ICX command with Task “80” even if the call numbers are 4-digits long (see page 9).

Example:
No matter which of the following ICX messages will be sent,

- 004000 F101 F102 80,
- 006000 80 F102 F101,
- 006000 80 F102 FFFF F101 or
- 008000 80 FFFF F102 F101

will be returned, because none of the call numbers has more than 4-digits.

ICX messages from the Intercom Server

Data format	Task range	Parameter 1 (in hex)	Parameter 2 (in hex)
Short	Task < 60	4-digits	4-digits
Long	60 ≤ Task < 80	8-digits	Variable length
System message	Task ≥ A0	-	-

The Intercom Server automatically calculates which ICX message data format will be sent.

- ICX messages are only put out in data format short and long.
- The data format long, 8-digits is NOT sent.

Calculation of task numbers

GOOD TO KNOW: Video ICX messages have fixed task numbers
Video ICX messages (e.g. for requesting camera text, camera status or camera parameter) have fixed task numbers (5F, 9C, 9D, 9E and 9F), independent from the data format.

If an ICX message is transmitted across WAN or with a 8-digit call number, the task number will be calculated as follows:

Data format "long" (ICX message/command with variable length)

Task "long" = Task "short" +20

Example 1:
00 42 00 F123 F456 12 (establish call between subscriber "123" and "456" with data format "short")

... turns into ...

00 62 0012 F004 3123 F456 (establish call between subscriber "123" in region "0043" and "456" with data format "long")

Example 2:
00 42 00 F101 F102 12 (establish call between subscriber "101" and "102" with data format "short")

... with 8-digit call number turns into ...

00 62 00 12 FFF1 2345 FFFF F102 (establish call between subscriber "12345" and "102" with data format "long")

Data format "long, 8-digits" (only ICX commands with 5 to 8-digit call numbers)

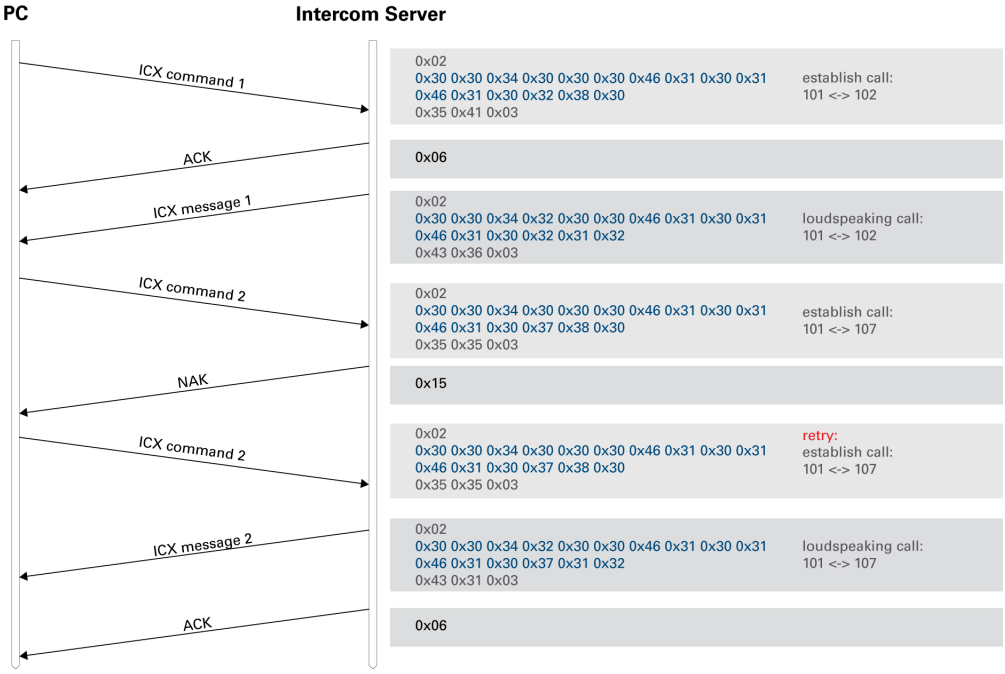
Task "long" = Task "short" +40

Example:
00 40 00 AAAA BBBB 80 (establish call between subscriber "A" and "B" with data format "short")

... with 8-digit call number turns into ...

00 80 00 80 FFF1 2345 F678 (establish call between subscriber "12345" and "678" with data format "long")

ICX protocol over RS-232 (ICX/RS-232)



Message structure



Either an Acknowledge “<ACK>” (i.e. ICX message has been received) or a Not Acknowledge “<NAK>” (i.e. ICX message has not been received) will be sent for quitting the transmitted ICX messages. If a Not Acknowledge is received, the respective ICX message will be sent again. By default. The timeout for quitting is 512 ms and ICX messages will be sent up to 3 times before the sending process will be cancelled.

ATTENTION: Quitting during sending of an ICX message possible
An <ACK> or <NAK> for acknowledgement can be transmitted during the sending of an other ICX message (see illustration above). These acknowledgement characters must not be included into the calculation of the checksum of the transmitted ICX message!

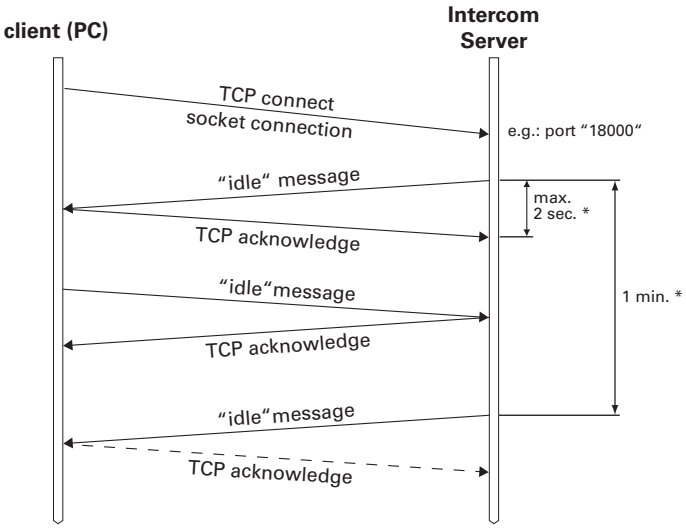
Calculation of the checksum

The checksum is calculated as follows:
1. Addition of all data bits (ASCII coding).
2. Subtract the sum from the hex value FFFF FFFF.
3. The checksum is the LSB (Least Significant Bit).

Example:
The ICX command “004000F101F10280” will be sent to the Intercom Server.

- The sum of all bits is 2A5 (00+40+00+F1+01+F1+02+80 = 2A5).
- The sum 2A5 will be subtracted from the hex value FFFF FFFF. The result is FFFFFE5A.
- The checksum is the LSB (Least Significant Bit). The checksum is 5A.

ICX protocol over TCP (ICX/TCP)



* Value can be configured via CCT 800.
In this example, the standard values was used.

"idle" monitoring (Intercom Server)

- The Intercom Server sends "idle" messages to monitor the connection to the connected PC.
- **Rule:** The connected PC must answer to each "idle" message within 2 seconds.
  - If the "idle" answer is not received within 2 seconds, the TCP socket connection in the Intercom Server will be closed and has to be built-up again.

"idle" monitoring (PC/client)

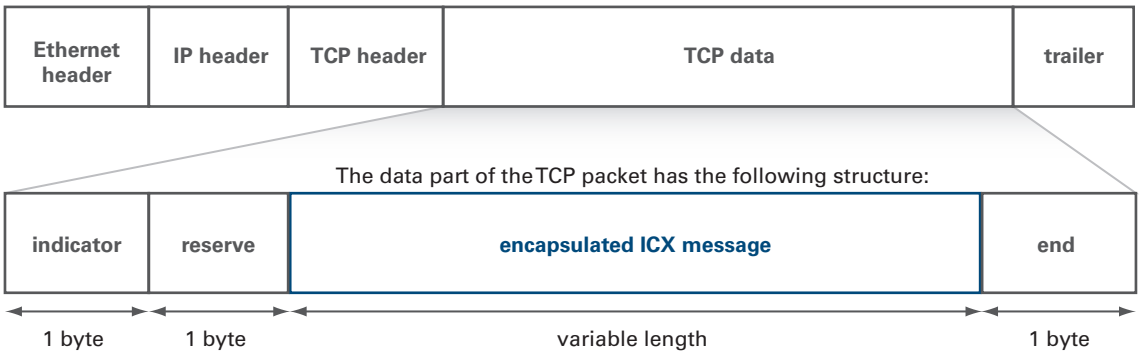
- After the "idle" message has been acknowledged on the TCP level, the "idle" message is valid ("TCP ACK").
- "Idle" messages will not be automatically returned.

General

By default, ICX messages will be encapsulated in TCP packets by the ICX/TCP protocol (TCP header complies with the IETF standard "RFC 793"). The respective card (G8-GEP, G3-GEM or Gx-IF) runs a TCP server at port 18000 (dynamic source port). Only one client connection can be built-up via this TCP server. When a socket connection has been established to this TCP server, a Challenge-Response-Authentication can be performed (see page 13). After a successful authentication, bi-directional sending and receiving of ICX protocols is possible. An existing socket connection will be monitored permanently via idle messages. These idle messages must be sent and received successfully, otherwise the socket connection will be reset in the Intercom Server. Unique indicator bytes are used for start and end of encapsulated ICX messages within the socket stream (start: 0xF1 to 0xF5, end: 0xFF, see page 12). ICX messages will not be buffered in the Intercom Server if no socket connection is established. At a reconnection, ICX messages of past events will not be sent again.

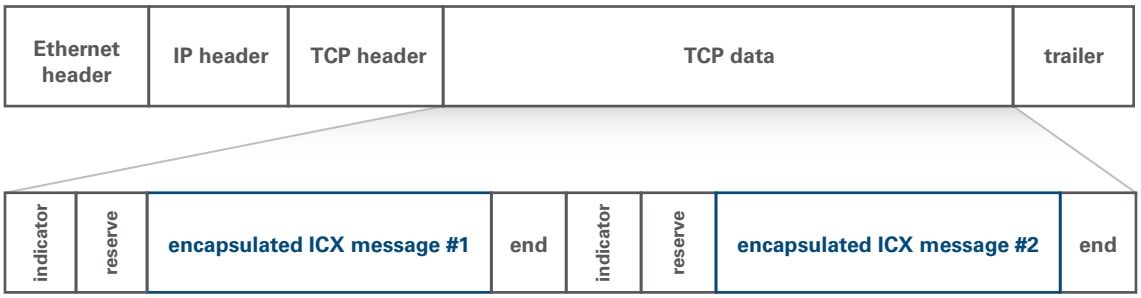
Message structure

Ethernet frame



Multiple ICX messages in one TCP packet

It is also possible to enclose multiple ICX messages in one TCP packet:



Indicator

This byte specifies the transmitted data type:

Byte	Description
0xF1	**IDLE message**: The ICX protocol has to be sent and received. Otherwise, the socket connection in the Intercom Server will be reset.
0xF2	**DATA message**: An ICX message will be transmitted.
0xF3	**LOGIN message**: Only in use for G7-V24ProIP and G8-V24ProIP.
0xF4	**CHALLENGE message**: For authentication (see page 13).
0xF5	**RESPONSE message**: For authentication (see page 13).

Reserve

This byte is reserved for future extensions and shall always be set to “0x00”.

Encapsulated ICX message

Variable length. Depends on the respective indicator byte (example see page 11):

Message	Description
IDLE	No data bytes are included.
DATA	The ICX message is included in plain text (ASCII coding).
CHALLENGE	16 byte hash value (“nonce”) is calculated from random number. This value will be generated new at each connection attempt.
RESPONSE	16 byte hash value is calculated from “nonce” and “password”.

End

This byte indicates the end of the ICX message and has to be set to hex value 0xFF.

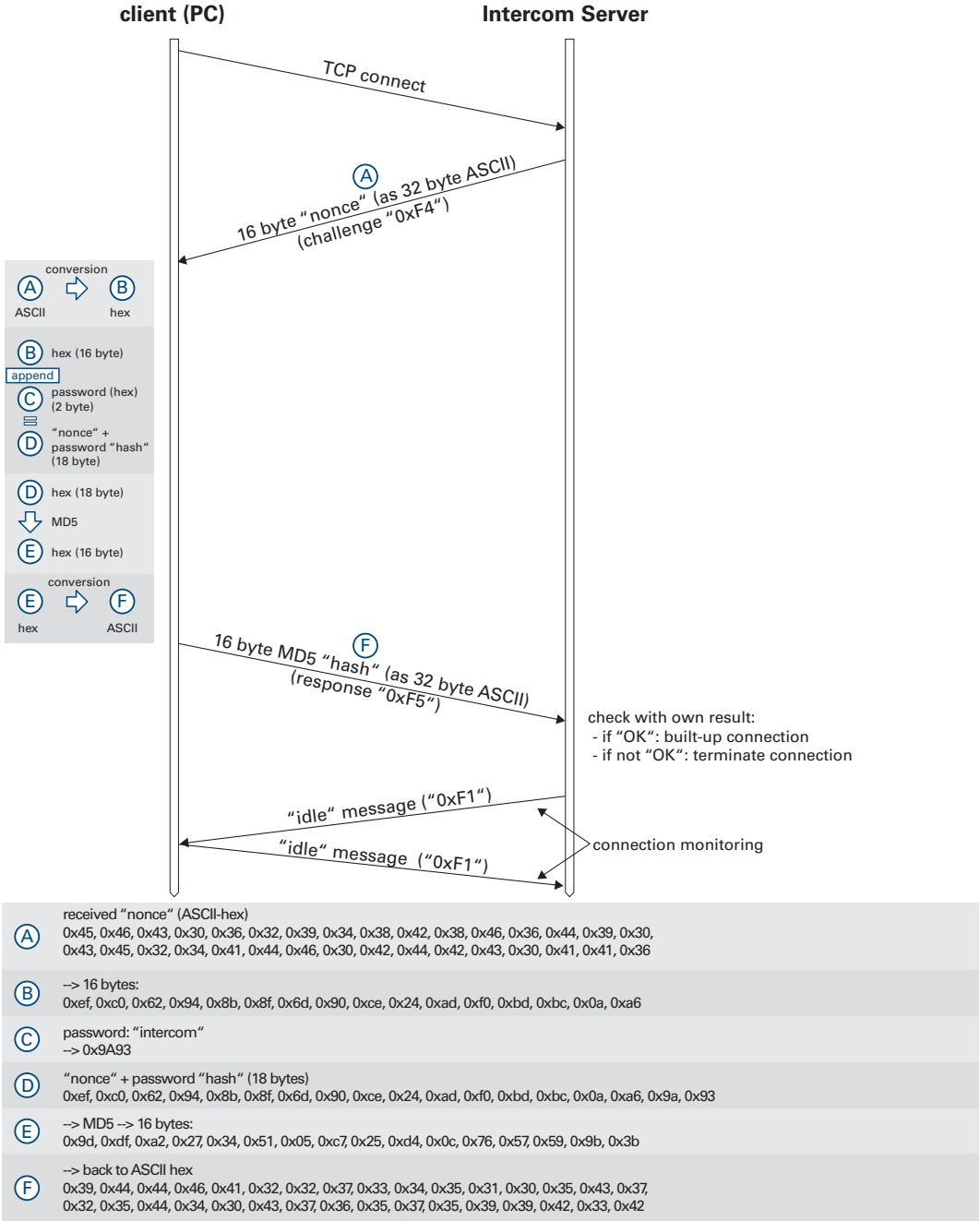
Challenge-Response-Authentication

If a password has been configured for the ICX interface via CCT 800, an authentication procedure has to be carried out to use this ICX interface.

MD5 based Challenge-Response-Authentication

The configured password will never be transmitted. Only “nonce” and “hash”. “Nonce” is a randomly generated 16 byte hash value. This value will always be randomly new generated at each connection attempt.

Example: Communication via TCP (with authentication)



An “idle” message has to be sent to keep the connection alive (see page 11).

©-C# code example for calculation of the password (in hex):

```
/// <summary>
/// Calculate the PasswordHash for a given password
/// </summary>
/// <param name="password">the password</param>
/// <returns>the password's hash-code</returns>

public static UInt16 CalculatePasswordHash(string password)
{
    try
    {
        //is password empty?
        if (string.IsNullOrEmpty(password))
            return 0x0000;

        //limit the password to max 8 characters
        password = password.Substring(0, Math.Min(8, password.Length));

        //initialize the weight-vector
        UInt16[] weightVector
        = new UInt16[8] { 0x0001, 0x0020, 0x0400, 0x8000, 0x0082, 0x0808, 0x2080,
        0x1248 };

        //calculate the weighted-sum
        UInt32 passwdSum = 0;
        for (int index = 0; index < password.Length; index++)
            passwdSum += (UInt32)(weightVector[index] * (UInt16)password[index]);

        //add high word and low word
        UInt16 hash = (UInt16)((passwdSum >> 16) + (passwdSum & 0x0000FFFF));

        //switch high an low bytes
        hash = (UInt16)(((hash & 0x00FF) << 8) + ((hash & 0xFF00) >> 8));

            return hash;
    }
    catch (Exception ex)
    {
        return 0;
    }
}
```

ⓓ➪ⓔ-C# code example for MD5 calculation:

```
/// <summary>
/// Calculate the correct response to an Intercom Server ChallengeResponse
/// </summary>
/// <param name="nonce">byte[] received from IntercomServer
/// (NOTE: data sent from IntercomServer is 2-byte-ascii data; must be converted to
single-byte[] before calling this routine)</param>
/// <param name="password"></param>
/// <returns>16-byte-hashcode
/// (NOTE: must be converted to 2-byte-ascii data before sending back to
IntercomServer)</returns>

private byte[] CalcChallengeResponse(byte[] nonce, string password)
{
    //calculate the password-hash
    ushort hash = CalculatePasswordHash(password);

    //concatenate nonce and hash
    byte[] nonceAndHash = new byte[nonce.Length + 2];
    Array.Copy(nonce, 0, nonceAndHash, 0, nonce.Length);
    nonceAndHash[nonceAndHash.Length - 2] = (byte)((hash >> 8) & 0xFF); //hash high
    byte
    nonceAndHash[nonceAndHash.Length - 1] = (byte)((hash >> 0) & 0xFF); //hash low
    byte

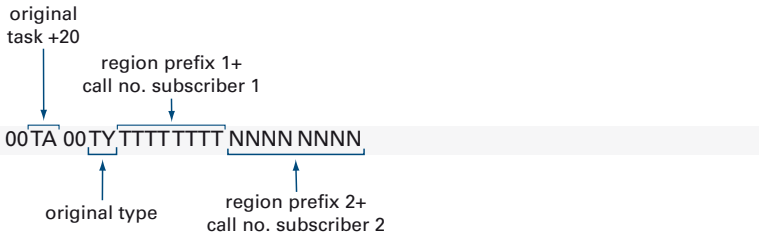
    //calculate the MD5 hash and return...
    byte[] reply =
    System.Security.Cryptography.MD5.Create().ComputeHash(nonceAndHash);

    return reply;
}
```

ICX messages from the Intercom Server (WAN)

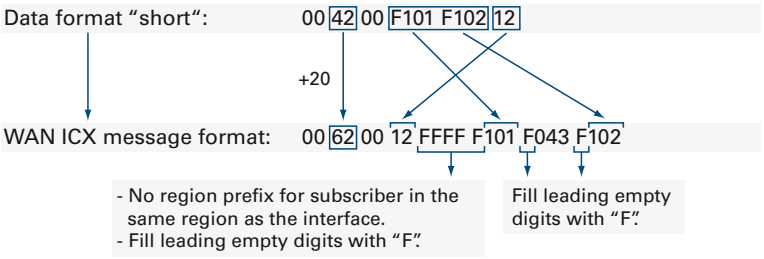
A modified version of the original ICX message with the data format “short” and the WAN prefix will be received from the Intercom Server:

Format for WAN ICX messages



- For subscriber in the same region as the interface, no region prefix is required.
- Fill leading empty digits with “F”.
  (e.g. region “043” and call no. “219” = “F043F219”).
- “Subscriber 1” is the trigger.

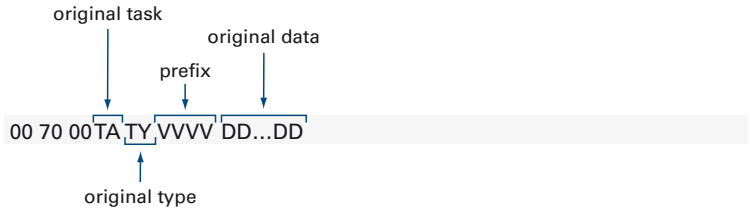
Example:
Establish call between subscriber “101” (in same region as the interface) and subscriber “102” (in remote region with region prefix “043”).



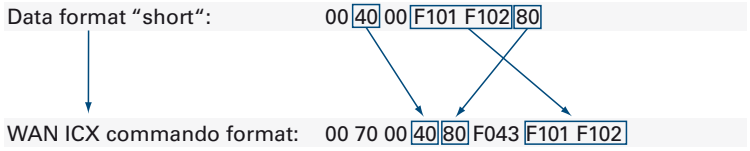
ICX commands to the Intercom Server (WAN)

A modified version of the original ICX command with the data format “short” and the WAN prefix will be sent to the Intercom Server:

Format for WAN ICX commands

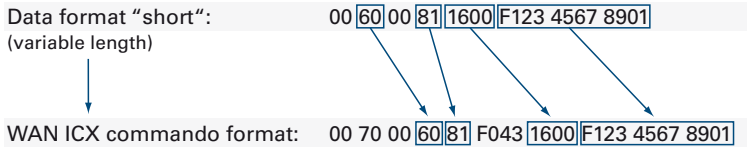


Example 1:
Establish call between subscriber “101” and subscriber “102”.



Establish call between subscriber “101” and subscriber “102” with region prefix “043”.

Example 2:
Dialling simulation 11-digits* (”12345678901”) at subscriber “1600”.



Dialling simulation of “12345678901” at subscriber “1600” in region “043”.

* Even number of digits. Fill leading empty digits with “F”.

If ICX commands will be sent via WAN connections, the following configuration has to be carried out via CCT 800:

Configuration CCT 800

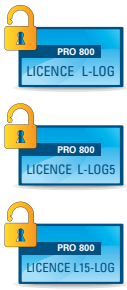
To enable receiving of ICX commands from WAN networks, follow the instructions below:
1. Go to: ***Network > IP-Connections >*** *desired Intercom Server* ***>*** *tab* ***WAN-connections***
2. Activate the checkbox **Allow ICX commands** for the desired WAN connection.

ICX configuration in CCT 800

TCP/IP

The following settings are available for TCP/IP connections:

Function	Description
	Interfaces > Data interfaces > tab TCP/IP
Call number	In this field, the call number of the interface can be changes (in hex).
Description	In this field, the description of the interface can be changed (e.g. “ComAccess”).
Type of connection	In this drop-down list, the connection type can be selected. If a connection type is selected, the checkbox **Log** is enabled (except for “Pelco” and “Milestone XProtect”).



Feature PRO 800 6.0 – save ICX messages in the Intercom Server
Incoming and outgoing ICX messages of an IP interface can be saved in the Intercom Server directly without the need of an external equipment. The ICX messages storage can be read out i.e. with the program ComLOG. This function is available with the following licences:

- **C-L-LOG**: Saves ~ 100,000 ICX messages [1)]
- **C-L-LOG5**: Saves ~ 5,000 ICX messages [1)]
- **C-L15-LOG** (only for Intercom Server GE 150): Saves ~ 500 ICX messages [1)]

[1)] **Note**: The number of storable ICX messages depends on the length of the respective ICX messages (see below).

6.0 **Log**	Activate this checkbox to save ICX messages of the respective IP interface in the Intercom Server.
Local port	In this field, the port of the local interface can be changed, via which the connection is carried out (by default 17000).
Remote IP Address	In this field, the IP address of the device can be entered, to which the connection is established.
Remote port	In this field, the port of the device can be entered, to which the connection is established. [1)]
Idle interval	In this drop-down list, the time interval can be selected, after which an idle request is sent to the third-party system.
Idle response time	In this drop-down list, the time interval can be selected, within which the remote system has to confirm the TCP data packet.
DSCP	In this field, the bits for “DSCP Packet Marking” (Differentiated Services Code Point) can be entered (value range: 0-63, e.g. “46” for “Expedited Forwarding”).
Password	In these fields, passwords can be entered for the remote system (see page 13).
Length ICX-messages	In this drop-down list, the data format of the ICX messages can be selected. The following data formats are available: › **Always long**: ICX messages are always put out with data format “long”. › **Call number based**: Data format of ICX message depends on the length of the call numbers.
Lenel protocol	Activate this checkbox to enable ComINT, the interface to Lenel’s Onguard.

[1)] When a remote port is configured, the Intercom Server acts as TCP client.

Function	Description
1.2 **Parallel Call Number**	In this drop-down list, an additional interface can be selected for parallel outputs of ICX messages (see page 23). [2]



Feature licence "C-L-ICX" – Parallel output of ICX messages
ICX messages can be put in parallel at a further interface

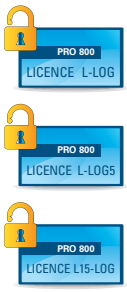
1.2 **IAX/SIP-T-Caller-ID Information**	Activate this checkbox to enable ICX messages with the data format "long" at incoming SIP calls (including IAX channel, control desk number, numeric SIP number and alphanumeric caller ID). [3] [4] [5]

[2] It is recommended to configure only one parallel output of ICX messages.
[3] The second interface (e.g. 1/0-11) of the G8-GEP/G3-GEM can only be used for CCT 800 configuration.
[4] For the output of ICX messages at an interface, licences are required (see page 25). Without a licence, only the configuration via CCT 800 can be carried out.
[5] When configuring an Intercom Server with server number 100 or higher, call numbers for data interfaces will automatically be generated (e.g. D009), which do not allow to send ICX commands. The call numbers must be changed manually.

RS-232

The following settings are available for RS232 connections:

Function	Description
	Interfaces > Data interfaces > tab RS232
Call number	In this field, the call number of the interface can be changed (in hex).
Description	In this field, the description of the interface can be changed (e.g. “ComAccess”).
Baud rate	In this drop-down list, the baud rate of the interface can be selected.
Data bits	In this drop-down list, the data bit configuration of the interface can be selected.
Protocol	In this drop-down list, the interface protocol can be selected. If a protocol is selected, the checkbox **Log** is enabled (except for “Ultrak”).



Feature PRO 800 6.0 – save ICX messages in the Intercom Server
Incoming and outgoing ICX messages of a serial interface can be saved in the Intercom Server directly without the need of an external equipment. The ICX messages storage can be read out i.e. with the program ComLOG. This function is available with the following licences:

- **C-L-LOG**: Saves ~ 100,000 ICX messages
- **C-L-LOG5**: Saves ~ 5,000 ICX messages
- **C-L15-LOG** (only for Intercom Server GE 150): Saves ~ 500 ICX messages

Note: The number of storable ICX messages depends on the length of the respective ICX messages (see below).

6.0	**Log**	Activate this checkbox to save ICX messages of the respective serial interface in the Intercom Server.
	Hardware-Handshake	Activate this checkbox to enable the hardware-handshake mode.
	Level	Select the desired radio button to define the level of the interface. [1]
	Retries	In this field, the number of retries can be changed.
	Timeout (ms)	In this field, the timeout time of the interface can be changed.
	Length ICX-messages	In this drop-down list, the data format of the ICX messages can be selected. The following data formats are available: › **Always long**: ICX messages are always put out with data format “long”. › **Always short**: ICX messages are always put out with data format “short”. › **Call number based**: Data format of ICX message depends on the length of the call numbers.
	Lenel protocol	Activate this checkbox to enable ComINT, the interface to Lenel’s Onguard.
1.2	**Parallel Call Number**	In this drop-down list, an additional interface can be selected for parallel outputs of ICX messages (see page 23). [2]



Feature licence “C-L-ICX” – Parallel output of ICX messages
ICX messages can be put out in parallel at a further interface

1.2	**IAX/SIP-T-Caller-ID Information**	Activate this checkbox to enable ICX messages with the data format “long” at incoming SIP calls (including IAX channel, control desk number, numeric SIP number and alphanumeric caller ID).

[1] With Gx-IF revision AB, RS-422 is not longer available.
[2] It is recommended to configure only one parallel output of ICX messages per interface.

Function	Description
Port (Moxa)	In this field, the port number of the Moxa Ethernet/IP converter can be entered.
IP Address (Moxa)	In this field, the IP-address of the Moxa Ethernet IP converter can be entered. [3] [4]

[3] It is recommended to exclusively use the Moxa Ethernet/IP converter "Nport 5110A".
[4] Before configuring via CCT 800, the Moxa Ethernet/IP converter has to be configured via the web interface. For further information see the configuration manual "**VirtuoSIS Setup Guide**".

D Control desk with ICX connection

With this connection type, all ICX messages will be put out. Excluded are remote dialling messages.

Configuration CCT 800

To configure an ICX connection for a control desk, follow the instructions below:
1. Go to: ***Subscriber > Control Desks***
2. Right-click on the desired subscriber and select „Add control desk function".
3. Go to: ***Subscriber > Control Desks >*** *tab* ***IP/RS232-ICX***
4. In the drop-down lists **ICX 1 connection** and/or **ICX 2 connection**, select the desired interface for the output of ICX messages for the respective control desk.
5. *(Optional)* Click on the button **Configure** to configure the respective interface.

NOTE: Further information
For further information about the control desk configuration, see manual "**Intercom Server Configuration**".

Remote dialling for subscriber

With this connection type, only remote dialling messages will be put out. At a remote dialling, key entries will be sent to a station as ICX message. All other buttons will still be processed in the Intercom Server.

Configuration CCT 800

To configure remote dialling for a subscriber, follow the instructions below:

1. Go to: ***Subscriber > Remote Stations >*** *tab* ***Remote station***
2. Right-click on the desired subscriber and select “Add Remote Subscriber”.
3. In the drop-down lists **ICX 1 connection**, select the desired interface for the output of ICX messages.
4. *(Optional)* Click on the button **Configure** to configure the respective interface.
5. Activate the checkbox **Remote Subscriber conversation partner** so that all conversation partners are able to send remote dialling messages.
6. Go to: ***Subscriber > Remote Stations >*** *tab* ***Processing***
7. *(Optional)* In the field **Remote Dialling via buttons**, the buttons can be changed, which are put out via the selected interface.
8. In the drop-down list **Mode**, select the entry “Special Mode”. The following modes are available:
9. *(Optional)* In the drop-down lists **Process**, the output of the function keys can be selected.

SA101 connection

With this connection type, all ICX messages will be put out. Excluded are ICX messages for call request, input message, call transfer control desk and remote dialling messages.

Configuration CCT 800

To configure a SA101 connection, follow the instructions below:

1. Go to: ***Intercom Server > General Settings >*** *tab* ***General***
2. In the drop-down list **Connection SA101**, select the desired interface for the output of ICX messages.

B If a call request shall be sent by this sent by this subscriber in case of a line fault, carry out the following configuration in CCT 800:

1. Go to: ***Subscriber > Remote Stations***
2. Configure the function “Remote dialling for subscriber” for the subscriber to be monitored (see above).
3. Go to: ***Subscriber > Control Desks***
4. Right-click on the desired subscriber and select “Add control desk function”.
5. Go to: ***Subscriber > Call Request >*** *tab* ***Trigger***

Ø 6. Right-click on the subscriber to be monitored and select “Add Call Request”.

7. Go to: ***Subscriber > Call Request >*** *tab* ***Parameter***

Ø 8. Activate the checkbox **Line-monitoring** for the subscriber to be monitored.

9. Go to: ***Subscriber > Call Requests >*** *sub-folder of the respective subscriber* ***>*** *tab* ***Control Desks***

Ø 10.Right-click and select the desired control desk via “Add Control Desk”.

Ø 11.Activate the checkbox **Line fault** for the subscriber to be monitored.

Masking of ICX messages

The increasing number of ICX messages of various conditions and operations, which will be sent from the Intercom Server to ICX interfaces, can be separated limited outwards for each interface with a mask. Therefore, the “Task” and “Type” area can be enabled by a configurable up to 8-stage filter (all other areas will be locked).

Configuration CCT 800

To configure a masking of ICX messages, follow the instructions below:

1. Go to: ***Interfaces > Data interfaces >*** *tab* ***Masking of ICX messages***
2. In the field **Unblocking mask**, enter up to 8 task and type ranges in the format “[TaskFrom]-[TaskTo] : [TypeFrom]-[TypeTo]”, which can be sent via the respective interface (several definitions are separated via commas). See the following examples:

Data format “short”	Data format “long”
50-7F	50-7F:00-FF
80:10	80-80:10-10
90:10-20	90-90:10-20
A0	A0-A0:00-FF
B0-BF:15	B0-BF:15-15

NOTE: Restrictions

- If “[TaskTo]” is not entered, “[TaskFrom]-[TaskFrom]” will be taken over.
- If “[TypeTo]” is not entered, “[TypeFrom]-[TypeFrom]” will be taken over.
- If no entry is entered for “[TypeFrom]-[TypeFrom]”, “00-FF” will be taken over.

1.2 Parallel output of ICX messages



Feature licence “C-L-ICX” – Parallel output of ICX messages
ICX messages can be put in parallel at a further interface

The output of ICX messages can be distributed to several interfaces in parallel (e.g. multiple interfaces for third-party systems per control desk).

ATTENTION: Configure only one parallel output
It is recommended to configure only one parallel output of ICX messages!

Configuration CCT 800

To configure a parallel output of ICX messages, follow the instructions below:

1. Go to: ***Interfaces > Data interfaces > tab RS232*** *or* ***Interfaces > Data interfaces >*** *tab* ***TCP/IP***
2. In the drop-down list **Parallel call number**, select the desired interface for parallel outputs of ICX messages.

B Send ICX messages via direct dialling

1.3

Pre-configured ICX messaged can be sent with dialling a direct dialling code (function code “9T5”).

Configuration CCT 800

To enable sending of ICX messages via direct dialling, follow the instructions below:

1. Go to: ***Parameter > ICX parameter***
2. Right-click on the desired subscriber and select “Add parameter”.
3. Click on the button **Configure** to open the configuration dialogue.
4. Right-click and select “add entry”. The field **ID** is enabled.
5. In the field **ID**, enter any ID for the ICX message (01 – 99). The fields **task**, **type** and **data** are enabled.

> **NOTE: Unique ID per subscriber**
> The ID of the ICX message must be unique per subscriber.

6. In the field **Task**, enter the task number of the ICX message (e.g. “40”). In order to send an ICX message to an other ICX interface, an ICX tunnel message has to be sent (task “6A”).
7. In the field **Type**, enter the type for the ICX message (e.g. “80”).
8. *(optional)* In the field **Data**, enter the data of the ICX message.
9. Go to: ***Subscriber > Direct dialling***
10. In the field **Direct Dialling**, enter the direct dialling code “9T5” followed by the ID of the ICX message for the subscribers, which shall be entitled to send this ICX message (e.g. “0=9T501” to send the ICX message with ID “01”).

> **ATTENTION: Restrictions**
> - The ICX messages ID is always 2 digits long!
> - Spaces are not allowed for direct dialling targets!

Data format of ICX messages



> **Feature PRO 800 2.x – Force long ICX messages**
> It is possible to permanently put out ICX messages with data format “long”.

Configuration CCT 800

1. Go to: ***Interfaces > Data interfaces >*** *tab* ***TCP/IP*** *or* ***Interfaces > Data interfaces >*** *tab* ***RS232***
2. In the drop-down list **Length ICX-messages**, select the desired data format of the ICX messages. The following data formats are available:
   - **Always long**: ICX messages are always put out with data format “long”.
   - **Always short**: ICX messages are always put out with data format “short”.
   - **Call number based**: Data format of ICX message depends on the length of the call numbers.

Licensing

General

In order to put out ICX messages via an interface (TCP or RS-232), the following steps has to be carried out via CCT 800:

1. Allocate a licence to the desired interface port on the respective card..

> **NOTE: Further information**
> For further information about licensing see the manual "**Intercom Server Configuration**".

2. Configure an ICX message output (see page 18).

Interfaces

Onboard interfaces G8-GEP/G3-GEM/IS3-GEP

The G8-GEP/G3-GEM has two virtual ICX/TCP interfaces and one ICX/RS-232 interface. The IS3-GEP and the G8-GEP of the Plug-In Server G8-IP-32 have two virtual ICX/TCP interfaces. They can be licensed as follows:

Description	Type	Description
n/0-08	RS-232	Depending on allocated licence (e.g. ICX or Studio). Without licence: only CCT 800 configuration possible. [1)]
n/0-10	IP	Depending on allocated licence (e.g. ICX or Studio). Without licence: only CCT 800 configuration possible.
n/0-11	IP	Only CCT 800 configuration possible.

n = Intercom Server ID

[1)] Not for Intercom Server IS 300 and Plug-In Server G8-IP-32.

Without licence, only the CCT 800 and ComLOG configuration can be carried out for the G8-GEP/G3-GEM interfaces. If an ICX command will be sent to an interface without a licence, the interface responds with an answer message and the previously received ICX command.

Additional interface cards G8-IF/G3-IF

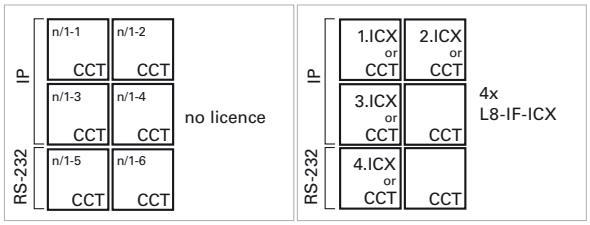
G8-IF (min. rev. AB)

The G8-IF card has up to four virtual TCP/IP and two RS-232 interfaces, which has to be licenced (see illustration below). Without licence, only the CCT 800 configuration can be carried out for the G8-IF card.

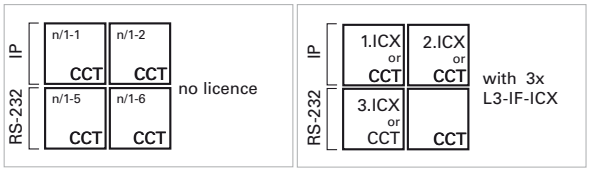
G3-IF (min. rev. AB)

The G3-IF card has up to two virtual TCP/IP and two RS-232 interfaces, which has to be licenced (see illustration below). Without licence, only the CCT 800 configuration can be carried out for the G3-IF card.

G8-IF (rev. AB)



G3-IF (rev. AB)



n = Intercom Server ID

ICX messages with PRO 800 licence

A PRO 800 licence is required for the Intercom Server to use the following ICX messages.

Licensed ICX messages	PRO 800 2U	PRO 800 3U	PRO 800 4U	PRO 800 5U	PRO 800 6U	VirtuoSIS 7.0	VirtuoSIS 7.1	VirtuoSIS 8.0	see page
Force ICX messages with data format “long”	✓	✓	✓	✓	✓	✓	✓	✓	24
DTMF tone for telephone interface	✓	✓	✓	✓	✓	✓	✓	✓	45
Establish call with certain call mode				✓	✓	✓	✓	✓	47
Follow me	✓	✓	✓	✓	✓	✓	✓	✓	51
Fix privacy when calling	✓	✓	✓	✓	✓	✓	✓	✓	52
LED/button simulation	✓	✓	✓	✓	✓	✓	✓	✓	55
Group call with pre-recorded audio	✓	✓	✓	✓	✓	✓	✓	✓	56
70 V/100 V line monitoring	✓	✓	✓	✓	✓	✓	✓	✓	58
Temporary deactivation of audio recording	✓	✓	✓	✓	✓	✓	✓	✓	65
Recording of voice message		✓	✓	✓	✓	✓	✓	✓	68
Logic module			✓	✓	✓	✓	✓	✓	71
EN81-28 button monitoring	✓	✓	✓	✓	✓	✓	✓	✓	36/51
Switching external/internal loudspeaker (only EX 7000)					✓	✓	✓	✓	62
RTP mode	✓	✓	✓	✓	✓	✓	✓	✓	41/65/79
VOX mode					✓	✓	✓	✓	79

NOTE: Further information
For further information about licensing, see the manual “**Intercom Server Configuration**”.

ICX protocol features

Interface messages

	Task	Type	Parameter 1	Parameter 2	Server SW
Sender	4A	XX	YYYY	XXXX	Pro 05.3
Receiver	4A	00	YYYY	XXXX	

XX Various hex-values (0-F for 1-15) to be transmitted
XXXX Various hex-values (0-F for 1-15) to be transmitted
YYYY Call number of destination ICX interface [1)]

[1)] The ICX interface is shown in CCT 800 at ***Interfaces > Data interfaces >*** *tab* ***RS232*** and ***Interfaces > Data interfaces >*** *tab* ***TCP/IP***.

Note: If the value "FFFF" will be used only for the "parameter 1", the interface message will be sent to all interfaces.

	Task	Type	Data (data format variable length)	Server SW
Self-extracting transparent message	6A	XX	YY ZZZZ	PRO 800 3.0

XXYY Call number of destination ICX interface
ZZZZ Data that shall be put out at the interface "XXYY" (in hex) [1)]

[1)] Must be an ICX command with format "short" (task < 60) or "long" (task ≥ 80).

Note: The system number of the receiver must be "00" (see page 8).

Interface status monitoring

Alive message

The following alive message can be sent by a third-party system in configurable intervals to the Intercom Server for monitoring the functionality:

Alive message		Task	Type	Parameter 1	Parameter 2	Server SW
Alive message		40	A2	Call number input	XXXX	Pro 05.4
XXXX	Time (in seconds; decimal) until input simulation of level "short"					

When the Intercom Server receives the alive message for the first time, the Intercom Server expects the alive message always after the configured interval. The time defined in the alive message should be configured a little bit longer than the interval, after which the third-party system sends the alive message.

If the alive message does not arrive within this time, the input level "short" will be simulated for an input (input is defined in the alive message). For example, this input can be used for indication at a control desk.

Watchdog message

The following watchdog message can be sent by the Intercom Server in configurable intervals to an other Intercom Server or third-party system for monitoring the functionality:

Watchdog		Task	Type	Parameter 1	Parameter 2	Server SW
Message from the Intercom Server		42	A4	XXXX	00GG	Pro 05.4
Answer from third-party system		40	A4	XXXX	00GG	
XXXX	Input number					
GG	Group number (01–99).					

If the answer of the watchdog message does not arrive within the defined time (see configuration below), the input level "short" will be simulated for an input (input is defined in the alive message). For example, this input can be used for indication at a control desk.

ATTENTION: Network monitoring only in same WAN region
Network monitoring is only possible within the same WAN region!

Configuration CCT 800

To enable sending of watchdog messages via direct dialling, follow the instructions below:

1. Go to: ***Inputs > Input message***
2. Right-click on the desired input and select "Add Input message".
3. Go to: ***Inputs > Input message >*** *sub-folder of the respective input* ***>*** *tab* ***Network Monitoring***
4. Right-click on the desired input and select "Add monitoring".
5. *(Optional)* In the field **Waiting time [s]**, the time for all groups can be changed, after which a watchdog message will be sent after a restart of the system (max. 1049 seconds (ca. 17 minutes), by default 30 seconds). This time shall assure that all connections are built up before the network monitoring has been activated. The waiting time of group 1 is used for all groups of the system.
6. In the field **Polling time [s]** enter the interval for sending watchdog messages for the respective group (max. 245760 seconds (ca. 68 hours)).

7. In the drop-down lists **Answer time [min]** and **Answer time [s]**, select the time for the respective group to wait for an answer from the monitored Intercom Server, before an error is indicated (max. 15 seconds or 15 minutes).

NOTE: Restrictions
- At Intercom Servers connected via S0, the time for build-up of connection has to be observed.
- The answer time is not used at NET networks.

8. In the drop-down list **V24 - call number**, select the desired interface for the respective group, via which the watchdog messages shall be put out.
9. *(Optional)* In the field **Intercom Servers**, the ID of the monitored Intercom Server can be entered for the respective group (several definitions are separated by a comma).

Control display areas of dot-matrix displays

Area 1	Row 1	**141**
	Row 2	
Area 2	Row 3	Name
Area 3	Row 4	
	Row 5	privacy call
Area 4	Row 6	1-open door
	Row 7	< >-volume
	Row 8	X-quit

Each ICX message can control several areas of a dot-matrix display. With overwriting one or several rows, all other blank rows will automatically be overwritten with blanks (code ID 20). E.g. if “privacy call 1” is sent to “row 4”, then “row 5” will be filled with blanks.

Encoding of segment and dot-matrix display

Dot-matrix display

For controlling the dot-matrix display, the following standard ASCII character set (7 Bit) is used:

	Code		Code		Code		Code		Code		Code		Code		Code
blank	20	(	28	0	30	8	38	@	40	H	48	P	50	X	58
!	21	)	29	1	31	9	39	A	41	I	49	Q	51	Y	59
”	22	*	2A	2	32	:	3A	B	42	J	4A	R	52	Z	5A
#	23	+	2B	3	33	;	3B	C	43	K	4B	S	53	[	5B
$	24	’	2C	4	34	<	3C	D	44	L	4C	T	54	\	5C
%	25	-	2D	5	35	=	3D	E	45	M	4D	U	55	]	5D
&	26	.	2E	6	36	>	3E	F	46	N	4E	V	56	^	5E
'	27	/	2F	7	37	?	3F	G	47	O	4F	W	57	_	5F
`	60	d	64	h	68	l	6C	p	70	t	74	x	78	|	7C
a	61	e	65	i	69	m	6D	q	71	u	75	y	79	}	7D
b	62	f	66	j	6A	n	6E	r	72	v	76	z	7A	~	7E
c	63	g	67	k	6B	o	6F	s	73	w	77	{	7B		

	Code		Code		Code		Code		Code		Code		Code		Code
Ä	01	ä	04	é	08	▼	0C	Š	10	Ž	14	F1	1A	▲	1E
Ö	02	ö	05	è	09	↵	0D	š	11	ž	15	F2	1B	↵	1F
Ü	03	ü	06	d	0A	X	0E	Œ	12	Ÿ	16	F3	1C		
		ß	07	▲	0B	T	0F	œ	13			▼	1D		

The following additional characters can be used for the dot-matrix display:

	Code		Code		Code		Code		Code		Code		Code		Code
À	C0	Ä	C4	Ì	C8	Ì	CC	Đ	D0	Ô	D4	Ø	D8	Ü	DC
Á	C1	Å	C5	É	C9	Í	CD	Ñ	D1	Õ	D5	Ù	D9	Ý	DD
Â	C2	Æ	C6	Ê	CA	Î	CE	Ò	D2	Ö	D6	Ú	DA	Þ	DE
Ã	C3	Ç	C7	Ë	CB	Ï	CF	Ó	D3	×	D7	Û	DB	ß	DF
à	E0	ä	E4	è	E8	ì	EC	ð	F0	ô	F4	ø	F8	ü	FC
á	E1	å	E5	é	E9	í	ED	ñ	F1	õ	F5	ù	F9	ý	FD
â	E2	æ	E6	ê	EA	î	EE	ò	F2	ö	F6	ú	FA	þ	FE
ã	E3	ç	E7	ë	EB	ï	EF	ó	F3	÷	F7	û	FB	ÿ	FF

Segment display

	Code		Code		Code		Code		Code		Code		Code		Code
0	00	8	08	_	10	H	18	P	20	X	28	a	30	n	38
1	01	9	09	A	11	I	19	Q	21	Y	29	b	31	o	39
2	02	-	0A	B	12	J	1A	R	22	Z	2A	c	32	r	3A
3	03	>	0B	C	13	K	1B	S	23	*	2B	d	33	t	3B
4	04	<	0C	D	14	L	1C	T	24	+	2C	h	34	u	3C
5	05	->	0D	E	15	M	1D	U	25	=	2D	i	35	v	3D
6	06	<-	0E	F	16	N	1E	V	26	/	2E	k	36	w	3E
7	07	blank	0F	G	17	O	1F	W	27	]	2F	m	37	z	3

The data must be entered with EE411 coding (incl. dot and colon):

- Hexadecimal addition of “40”: Character with dot (e.g. “71” = “b.”)
- Hexadecimal addition of “80”: Character with colon (e.g. “92” = “B:”)

Studio (WAN)

The ICX message will be sent to the configured ICX block within the region. This ICX message will also be sent via all WAN connections for which this ICX block is configured. In a remote region, the ICX message will be forwarded to the respective ICX block of that region (therefore, it is possible to configure different ICX blocks for regions). ICX messages can be separated into the following 3 categories:

	Parameter 1	Parameter 2
Category 1 (e.g. 420D) [1]	Call number	Code digits
Category 2 (e.g. 4212) [2]	Call number	Call number
Category 3 (e.g. 5B60)	Unique call number	Unique call number

[1] When parameter 1 does not contain a call number, the value “0000” is set automatically.
[2] Both call numbers will be expanded with the WAN prefix when sending over WAN.

NOTE: Restrictions

- Category 3 messages are not converted and keep the data format “short”. For control desk transfers (“5B6x”) and secretary transfer (“4217”), both call numbers must have been configured with the data format “short” and must be unique.
- At start or failure of an Intercom Server, ICX messages will only be sent to the regional ICX interfaces.

ICX tunnel message

With the following message format, an ICX tunnel message can be sent to a remote region:

Tunnel message	Message format	Server SW
Tunnel message	007000 TA TY XXXX YYYY...	Pro 06.0
TA Task TY Type XXXX Pre-dialling code (e.g. F200) YYYY Data		

ICX messages from the Intercom Server

Feature	see page	Feature	see page
General Intercom function	32	Door function	38
Privacy, busy, re-call request	36	Control desk function	38
Direct dialling button	36	DSP function	39
Input, output	36	Video	40
Group call, All Call	36	Speech recording	41
Conference	37	Time and date	42
Music, radio conference, conference	37	WAN function	42
PA	37	Features with additional interface	43
Alarm function	38		

General Intercom function

System fault	Task	Type	Parameter 1	Parameter 2	Server SW
Intercom Server offline	42	00	XXYY	ZZZZ [1]	Pro 04.1
Intercom Server online	42	01	XXYY	ZZZZ	
All cards in normal operation [2]	42	02	XXYY	0000*	
Card failure	42	02	XXYY	Code	

XX Housing number (00–FF for 00–255)
YY Internal data (variable, with software min. Pro 05.5 fix "00")
ZZZZ Software version (e.g. 0407 = Pro 04.7)
Code **Code for slot**:

1–4000	9–0040
2–2000	10–0020
3–1000	11–0010
4–0800	12–0008
5–0400	A–0004
6–0200	B–0002
7–0100	C–0001
8–0080	

If more than one card fails, the codes are added hexadecimal (1 bit per slot):

slot:	hex:	bin:			
1:	4000	0100 0000 0000 0000	9:	0040	0000 0000 0100 0000
2:	2000	0010 0000 0000 0000	10:	0020	0000 0000 0010 0000
3:	1000	0001 0000 0000 0000	11:	0010	0000 0000 0001 0000
4:	0800	0000 1000 0000 0000	12:	0008	0000 0000 0000 1000
5:	0400	0000 0100 0000 0000	A:	0004	0000 0000 0000 0100
6:	0200	0000 0010 0000 0000	B:	0002	0000 0000 0000 0010
7:	0100	0000 0001 0000 0000	C:	0001	0000 0000 0000 0001
8:	0080	0000 0000 1000 0000			

Examples:

If card in slot 4 fails	0800
If card in slot 5 fails in addition	0C00
If card in slot 4 works again	0400
If card in slot 5 works again	0000

[1] From Pro 06.3/SIS 10.0 on the parameter value is 0000.

[2] The ICX message for "all cards in normal operation" will not be put out at the start of the Intercom Server (e.g. after exchanging of a faulty card). The ICX message "start of Intercom Server" can be used as reset string in that case. If the card is still faulty, the fault ICX message will be re-sent.

Invalid call number	Task	Type	Parameter 1	Parameter 2	Server SW
Invalid call number (up to 8-digits)	42	23	Call number calling subscriber	Dialed number	PRO 800 1.2
Invalid call number (more than 8-digits)	42	62	Call number calling subscriber	Dialed number	

Carry out the following configuration in CCT 800:

1. Go to: ***Intercom Server-Block No. > General >*** *tab* ***Common***
2. In the field **Number of digits**, enter the number of digits, after which an ICX message is put out for invalid dialling (0 = not activated).

Messages for error tone or microphone mute	Task	Type	Parameter 1	Parameter 2	Server SW
Message for error tone [1]	42	1D	Call number subscriber	000X	PRO 800 2.0
Message for microphone mute [1] [2] [3]	42	27	Call number subscriber	000Y	PRO 800 3.0

X **Error tone status**
- 0 Off
- 1 On

Y **Microphone status**
- 0 Off
- 1 On

[1] **Note**: The following configuration has to be carried out via CCT 800:

- Up to CCT 800 2.1: ***Subscriber > Remote Subscribers >*** *tab* ***Remote Subscriber***
- With CCT 800 3.0 or higher: ***Subscriber > Entitlements >*** *tab* ***Alarm, Common***
- Activate the checkbox **Subscriber specific ICX messages** for the respective subscriber.

[2] **Note**: The following configuration has to be carried out via CCT 800:

1. Got to: ***Subscriber > Remote Station >*** *tab* ***Processing***
2. In the drop-down-list **Mode**, select the entry "special mode" for the respective subscriber. The following fields will be enabled in CCT 800.
3. In the drop-down list **Process after dialling 0-9**, select the entry "Intercom Server" for the respective subscriber to activate the microphone mute.

[3] **Requirement**: Upgrade licence "C-L-PRO3U" is required.

Remote dialling	Task	Type	Parameter 1	Parameter 2	Server SW
Button pressed	42	1B	Call number subscriber	000X	Pro 04.6
Button released	42	1B	Call number subscriber	010X	
Button pressed during audio reception (e.g. conversation)	42	1B	Call number subscriber	008X	
Button released during audio reception (e.g. conversation)	42	1B	Call number subscriber	018X	
Function button	42	50	Call number subscriber	000Y	Pro 05.3

X **Button** (0–9)
- A T
- B X
- E Privacy

Y **Button**
- 0 Function button released
- 1 A
- 2 B
- 3 C
- 4 D
- 5 E
- 6 F

Conversation	Task	Type	Parameter 1	Parameter 2	Server SW
End of conversation (subscriber free) [1]	42	10	Call number calling subscriber	Call number called subscriber	Pro 04.0
Loudspeaking conversation	42	12	Call number calling subscriber	Call number called subscriber	
Conversation partner private	42	13	Call number calling subscriber	Call number called subscriber	
Conversation partner busy	42	14	Call number calling subscriber	Call number called subscriber	
Conversation interrupted (transfer, conference)	42	11	Call number calling subscriber	Call number called subscriber	Pro 04.6
[1] Tieline call canceled with F6 at EE 580 (with SA 101): 2 ICX messages	42 42	10 10	Call number calling / called subscriber	Call number calling / called subscriber	

Conversation	Task	Type	Data (data format variable length)	Server SW
Subscriber not available	62	23	TTTT TTTT NNNN NNNN	PRO 800 1.2
Subscriber not available	42	23	TTTT NNNN	

TTTT	4-digit call number of the subscriber (leading empty digits are filled with “F”)
TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)
NNNN	4-digit call number of the subscriber (leading empty digits are filled with “F”)
NNNN NNNN	8-digit call number of the subscriber (leading empty digits are filled with “F”)

Line fault with fault type	Task	Type	Data (data format variable length)	Server SW
Line fault with fault type	62	05	TTTT TTTT 0000 XXYY	see below
Line fault with fault type	42	05	TTTT XXYY	

TTTT	4-digit call number of the subscriber (leading empty digits are filled with “F”)
TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)

XX	**Error code** (min. PRO 800 1.2)
10	Digital two-wire transmission interrupted
11	Audio line monitoring
12	Timeout life-message
13	WS sabotage contact
14	Button stuck
15	Expansion-Bus fault
16	SPI fault (WS camera and monitor subscribers)
1A	Error main connection
1B	Error secondary connection (or first fallback connection)
1F	Error RS-485
20	EE4xx line break A/B
21	EE4xx line break A/C
22	EE4xx short A/B
23	EE4xx short A/C (button stuck)
70	S0-layer1 fault
71	GTEL line fault
80	Error slave client

XX	**Error code** (min. PRO 800 1.3)
19	Error primary/external power supply
1C	Error third connection (or second fallback connection)
27	AF earth fault AF 50, AF 125, AF 250, AF 500: R < 50 kΩ
28	AF short circuit fault AF 50: R < 50 Ω for 70 V line, R < 100 Ω for 100 V line AF 125: R < 20 Ω for 70 V line, R < 40 Ω for 100 V line AF 250: R < 10 Ω for 70 V line, R < 20 Ω for 100 V line AF 500: R < 5 Ω for 70 V line, R < 10 Ω for 100 V line
29	AF disconnection AF 50: R > 10 kΩ for 70 V line and 100 V line AF 125: R > 10 kΩ for 70 V line and 100 V line AF 250: R > 1 kΩ for 70 V line and 100 V line AF 500: R > 1 kΩ for 70 V line and 100 V line
2A	AF impedance too high (depends on the configuration)
2B	AF impedance too low (depends on the configuration)
2C	AF AMP error AF 50: e.g. overload protection active – more than 50 W AF 250: e.g. overload protection active – more than 250 W

XX	**Error code** (min. PRO 800 2.0)
17	EN81-28 Button Monitoring
1D	Error expansion bus ET 901
1E	Error UART interface

XX	**Error code** (min. PRO 800 3.1)
AN	LAN connection failure (N = 0–F for 0–15; LAN connection configured via CCT 800)

XX	**Error code** (min. PRO 800 5.1)
30	SIP-C subscriber not available
31	SIP-T primary trunk not available
32	SIP-T secondary trunk not available
33	SIP-T primary and secondary trunk not available

XX	**Error code** (min. PRO 800 6.3 Build 9, VirtuoSIS 8.1)
2D	G8-TEL4 SLIC voltage error or line fault

XX	**Error code** (min. PRO 800 6.3 Build 16, VirtuoSIS 9.0)
2E	No audio output on the amplifier
26	The temperature in the amplifier is too high
25	The cooling fan(s) do(es)n't work properly
18	Error secondary power supply

YY	**Fault status**
00	No fault
01	Fault active

Note: With PRO 800 1.2 or higher an additional ICX message will be put out additionally to the old line fault message which includes various line fault types.

Remote menu	Task	Type	Data (data format variable length)	Server SW
Selection of a menu entry	82	93	TTTT TTTT XX YY ZZ	PRO 800 1.2

TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)
XX	Menu ID (01–FF for 1–255)
YY	Text ID (currently selected row in the display)
ZZ	**Cause for menu end**
01	End with X button
02	Via timeout
04	When the menu ID does not exist
20	End via scrolling to a different entry

Status indication of connection of an IP-subscriber	Task	Type	Data (data format variable length)	Server SW
Connection switch	62	A8	TTTT TTTT 0000 UXYZ	PRO 800 1.2
Connection switch	42	A8	TTTT UXYZ	

TTTT	4-digit call number of the subscriber (leading empty digits are filled with “F”)
TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)
U	**Queried connection**
0	No connection queried
1	Standard connection
2	Fallback 1
3	Fallback 2
X	**Active connection**
0	No connection active
1	Standard connection
2	Fallback 1
3	Fallback 2
Y	**Error**
0	No error existing
1	Standard connection
2	Fallback 1
3	Fallback 2
4	Standard connection and fallback 1
5	Standard connection and fallback 2
6	Fallback 1 and fallback 2
7	All
Z	**Mode**
0	Automatic
1	Standard connection fixed
2	Fallback 1 fixed
3	Fallback 2 fixed

Configuration CCT 800

1. Go to: ***Subscriber > Call Request >*** *tab* ***Parameter***
2. Activate the checkbox **Line-monitoring** for the respective subscriber. For further information about the line monitoring, see the manual “**Intercom Server Configuration**”.

Caller-ID information (S0/IAX/SIP-T) at incoming calls	Task	Type	Data (data format variable length)	Server SW
Call request	9B	21/22	TTTT TTTT NNNN NNNN RRRR... XXXX...	PRO 800 1.2
State of conversation	92	10/12	TTTT TTTT NNNN NNNN RRRR... XXXX...	

TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)
NNNN NNNN	8-digit call number of the channel (leading empty digits are filled with “F”)
RRRR	24-digit numeric call number (leading empty digits are filled with “F”)
XXXX	Alphanumeric caller ID of the call number (length variable)

Attention: In order to use this ICX message next to the control desk ICX connection (***Project > Subscriber > Control Desks >*** tab ***IP/RS232 - ICX***), it is necessary to configure **S0/IAX/SIP-T - Caller-ID Information** at ***Project > Interfaces > Data Interfaces*** in the tab ***RS232*** or in the tab ***TCP/IP***.

Requirements:
IAX card with firmware version min. 1.3 is required.
SIP-Trunk min. VirtuoSIS 8.0 is required.

Example: Incoming phone call resulting in call request from channel to control desk

Call number control desk	101
Call number channel	129
Call number phone	6001
Caller ID	45542D534950
ICX message	009B0021 FFFFF101 FFFFF129 6001FFFFFFFFFFFFFFFFFF 45542D534950

EN 81-28 button monitoring	Task	Type	Data (data format variable length)	Server SW
Monitoring of button “OK”	62	05	TTTT TTTT 0000 1700	PRO 800 2.0
Monitoring of button “OK”	42	05	TTTT 1700	
Monitoring of button “ERROR”	62	05	TTTT TTTT 0000 1701	
Monitoring of button “ERROR”	42	05	TTTT 1701	

TTTT 4-digit call number of EN 81-28 (leading empty digits are filled with “F”)
TTTT TTTT 8-digit call number of EN 81-28 (leading empty digits are filled with “F”)

Note: An answer message will be put out for each subscriber of the configured interface. If a line fault has been indicated, the answer message “ERROR” will be sent. The line fault will be acknowledged at a successful test.

Privacy, busy, re-call request

Privacy, transfer	Task	Type	Parameter 1	Parameter 2	Server SW
End of privacy/Follow Me/secretary	42	17	Call number subscriber	0000	Pro 04.6
Activation privacy by turning subscriber	42	17	Call number subscriber	0200	
Activation privacy with “031”	42	17	Call number subscriber	0100	
Activation Follow Me/secretary	42	17	Call number subscriber	Target subscriber	
Transfer	42	19	Call number calling subscriber	Call number called subscriber	Pro 05.3
Transfer (called subscriber “button 9”)	42	1A	Call number calling subscriber	Call number called subscriber	Pro 05.4
Transfer (calling subscriber “button 9”)	42	18	Call number calling subscriber	Call number called subscriber	
Re-call request/call reminder	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Activate	42	A5	Call number subscriber	Call number subscriber with reminder	Pro 05.7
Deactivate	42	A6	Call number subscriber	Call number subscriber with reminder	

Direct dialling button

Direct dialling button control	Task	Type	Data (data format variable length)	Server SW
Direct dialling button control	82	9E	TTTT TTTT NNNN NNNN DF YZ GG	PRO 800 2.1

TTTT TTTT 8-digit call number of the subscriber (leading empty digits are filled with “F”)
NNNN NNNN Configured call number/function for button via CCT 800 (leading empty digits are filled with “F”)
DF Remote control [1] [2]
YZ **Mode**
01 Button pressed
02 Button released
GG Group number (00–89, BCD encoded, see “Group call, All Call” on page 56).

Note: This function is only valid for subscribers with direct dialling buttons (e.g. EE 380A, Conductor, Intercom Client, ...).

[1] Up to PRO 800 6.0, this function is only supported by Conductor. With PRO 800 6.1 or higher, this function will also be supported by EE 380A, Intercom Clients (ICCAA and ICCNA) and EE 980.

[2] For Conductor the mode “Release button” is available with PRO 800 6.1 or higher.

Input, output

Feedback from output [1]	Task	Type	Parameter 1	Parameter 2	Server SW
Output inactive	5B	40	Call number output	FFFF [2]	Pro 04.0
Output active	5B	41	Call number output	FFFF [2]	
Output blinking	5B	43	Call number output	FFFF [2]	
Output as control desk buzzer	5B	45	Call number output	FFFF [2]	Pro 05.5

[1] A feedback of outputs is only required if a call number is configured for the respective output or either “never”, “on change” or “on restart and on change” is selected in the drop-down list **ICX message** for the respective output (not for subscriber outputs; except real outputs).

[2] “FFFF” only for e.g. attendant contacts. If the output will be switched manually, the call number of the subscriber will be sent.

Group call, All Call

Group call, All Call	Task	Type	Parameter 1	Parameter 2	Server SW
End of announcement	42	10	Call no. calling subscriber	XXXX	Pro 04.0
Start of All Call/group call	42	12	Call no. calling subscriber	XXXX	
Busy all All Call/group call	42	14	Call no. calling subscriber	XXXX	

XXXX All Call/group call (e.g. “FF00” or “F010”)

Conference				
OpenDuplex® conference status	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
OpenDuplex® conference started or terminated	42	TY1	TTTT XXYY	PRO 800 6.3 VirtuoSIS 7.1
Status change of OpenDuplex® conference participant	42	TY2	TTTT ZZZZ	
Status change of OpenDuplex® conference participant	82	TY2	TTTT TTTT ZZZZ ZZZZ	

TY1 **OpenDuplex® conference status**
- 80 Conference terminated
- 81 Conference started
- 0F Subscriber joined or has left conference [3]

TY2 **OpenDuplex® conference participant status**
- 82 Subscriber joined at start of conference
- 83 Subscriber joined conference subsequently
- 84 Subscriber has left conference
- 85 Conference inactive at participant [1]
- 86 Conference active at participant [2]

TTTT 4-digit call number of the conference initiator (leading empty digits are filled with "F")
TTTT TTTT 8-digit call number of the conference initiator (leading empty digits are filled with "F")
XX Status information 00 = conference ended, 01 = conference started
YY Conference number 01-40 at 6T and 7T conference (leading empty digits are filled with "F"), EE at 8T conference
ZZZZ 4-digit call number of the conference participant (leading empty digits are filled with "F")
ZZZZ ZZZZ 8-digit call number of the conference participant (leading empty digits are filled with "F")

[1] The ICX message will be sent when the button 8 is pressed during an active OpenDuplex® conference to invite a subscriber.

[2] The ICX message will be sent when the button 8 or X is pressed during an inactive OpenDuplex® conference and the conference participant re-joins the conference.

[3] The ICX message is only transmitted for the initiator of an OpenDuplex® conference and for every participant of a Party Line conference.

Notes:
- An ICX connection must be configured for the control desk (see page 21).
- The order of the received ICX messages with type 82 – 86 does not need to be the same as the order in which the respective events occurred.

Music, radio conference, conference					
Radio conference (6T), predefined conference (7T)	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Initiate	42	0D	Call number subscriber	01XX	Pro 04.6
Switch on	42	0D	Call number subscriber	02XX	
Listen (after talk)	42	0D	Call number subscriber	03XX	
Talk	42	0D	Call number subscriber	10XX	
Switch off	42	0D	Call number subscriber	00XX	
Button "T" pressed for talking	42	0D	Call number subscriber	04XX	Pro 05.5
Changed volume	42	B3	Call number subscriber	XXYY	PRO 800 1.2

XX **Conference number**
- 01 – 40 at 6T and 7T conference
- EE at 8T conference

YY Volume (00–0C for 0–12)

Music switch on/off	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Switch music on	42	0E	Call number subscriber	02XX	Pro 05.4
Switch music off	42	0E	Call number subscriber	00XX	

XX Music channel number

PA					
PA announcement	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Start of announcement	42	22	Call no. PA subscriber	Dialed code	Pro 04.1
(2 ICX messages)	42	12	Call number calling subscriber	Dialed code	
End of announcement	42	10	Call number calling subscriber	Dialed code	

PA announcement	Task	Type	Data (data format variable length)	Server SW
State indication PA announcement	82	AD	TTTT TTTT GG XX...GG XX	PRO 800 1.3

TTTT TTTT 8-digit call number of the subscriber (leading empty digits are filled with "F")
GG **PA zone number** (01–30; group 60–89)
00 All PA zones
XX **Mode**
00 Group is not selected
01 Group is selected

Note: The state indication is available for group calls only, which are initiated via an ICX message.

Alarm function

Alarm message	Task	Type	Parameter 1	Parameter 2	Server SW
Start of alarm	4C	20	Call number initiator	GGXY	Pro 04.0
End of alarm	4C	30	Call number initiator	GGXY	
Acknowledge alarm at initiator	4C	31	Call number initiator	GGXY	
Acknowledge alarm at receiver	4C	32	Call number receiver	GGXY	
Deactivate transfer with "9T3T"	4C	33	Call number initiator	GGXY	

GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
X Priority digit
Y Transfer level (0–F for 1–15; replayed starting at the 16th transfer level)

Door function

Door message	Task	Type	Parameter 1	Parameter 2	Server SW
Valid code input	42	09	Call no. door station	Code	Pro 04.0
Invalid code input	42	08	Call no. door station	Code	
Door opened with button	42	0A	Call no. door station	Call no. control station	
Door opened with button	42	0A	Call no. door station	Call no. door opener	Pro 05.5
Door ringing	42	0B	Call no. door station	XXXX	Pro 06.0

XXXX e.g. "F980" for ringing at group "0". "9801" for ringing at group "1" with 2-digit groups

Control desk function

Call suppression	Task	Type	Parameter 1	Parameter 2	Server SW
Call suppression	5B	6F	Call number subscriber	00XY	Pro 05.6

X Mask for call suppression
Y Mask for buzzer suppression

Call transfer control desk	Task	Type	Parameter 1	Parameter 2	Server SW
Call transfer activated	5B	6X	Call number control desk	Call number target	Pro 04.7
Call transfer deactivated	5B	6X	Call number control desk	FFFF	
Parallel indication activated	5B	7X	Call number control desk	Call number target	
Parallel indication deactivated	5B	7X	Call number control desk	FFFF	
Taking of calls activated	5B	8X	Call number control desk	Call no. control desk	
Taking of calls deactivated	5B	8X	Call number control desk	FFFF	
Night transfer activated	5B	61	Call number control desk	9499	Pro 05.6
Night transfer deactivated	5B	60	Call number control desk	9499	
Call transfer after time initiated	5B	61	Call number control desk	949Y	Pro 06.0
Call transfer after time end	5B	60	Call number control desk	949Y	

X **Call group**
1 "Call 1": normal call from an intercom station
2 "Call 2": emergency call from an intercom station
3 All Call requests: All Call requests from intercom stations (as of Pro 05.5 incl. parked calls)
4 All input messages without buzzer
5 "Active 1": normal call from an input (with buzzer)
6 "Active 2": emergency call from an input (with buzzer)
7 All input messages with buzzer
8 Line faults (from intercom stations and inputs)
9 All call types (as of Pro 05.5 incl. parked calls)
Y Transfer number

Note: An ICX connection must be configured for the control desk (see page 21).

Call request	Task	Type	Parameter 1	Parameter 2	Server SW
Call request “call 1”	5B	21	Call number control desk	Call number calling subscriber	Pro 04.0
Call request “call 2”	5B	22	Call number control desk	Call number calling subscriber	
“Call park” function activated	5B	23	Call number control desk	Call number calling subscriber	
Call request/call park function deleted	5B	30	Call number control desk	Call number calling subscriber	Pro 04.7
Acknowledge, buzzer off	5B	31	Call number control desk	Call number calling subscriber	
Call request/call park function deleted by this control desk	5B	35	Call number control desk	Call number calling subscriber	Pro 05.7
Acknowledged by this control desk [1)]	5B	36	Call number control desk	Call number calling subscriber	
Automatically conversation end	5B	39	Call number control desk	Call number calling subscriber	Pro 06.2
Line fault occurred	42	15	Faulty subscriber	0001	Pro 04.6
Line fault removed	42	15	Faulty subscriber	0000	

[1)] **Note**: The following configuration has to be carried out via CCT 800:

1. Go to: ***Intercom Server-Block No. > General >*** *tab* ***Control desk system***
2. Activate the checkbox **Additional ICX messages for “acknowledged” and “deleted”**.

Start-up message	Task	Type	Parameter 1	Parameter 2	Server SW
Start-up message	42	1E	[1)]	[1)]	Pro x.x

Note: This start-up message will be sent for compatibility reasons and can be ignored.

[1)] Internal data

Answer: automatic transfer	5B	61	Call number subscriber	0000	Pro 04.7

Input message	Task	Type	Parameter 1	Parameter 2	Server SW
“Active 1” (call type 4)	5B	24	Call number control desk	Call number input	Pro 04.0
“Active 1” (call type 5)	5B	25	Call number control desk	Call number input	
“Active 2” (call type 6)	5B	26	Call number control desk	Call number input	
“Active 2” (call type 7)	5B	27	Call number control desk	Call number input	
“Active 1” (call type 10)	5B	2A	Call number control desk	Call number input	
“Active 2” (call type 11)	5B	2B	Call number control desk	Call number input	
“Active 1” (call type 12)	5B	2C	Call number control desk	Call number input	
“Active 1” (call type 13)	5B	2D	Call number control desk	Call number input	
“Active 2” (call type 14)	5B	2E	Call number control desk	Call number input	
“Active 2” (call type 15)	5B	2F	Call number control desk	Call number input	
Line fault (call type 8)	5B	28	Call number control desk	Call number input	
Line fault (call type 9)	5B	29	Call number control desk	Call number input	
Input message acknowledged	5B	31	Call number control desk	Call number input	
Input message deleted	5B	30	Call number control desk	Call number input	

DSP function

Audio monitoring	Task	Type	Parameter 1	Parameter 2	Server SW
Audio monitoring off	42	8F	Call number subscriber	00YY	Pro 05.5
Audio monitoring on	42	8F	Call number subscriber	XXYY	

XX **Trigger dB-value**

Hex	00	01	02	03	04	05	06	07	0A	0D	
dBA	off	60	63	67	70	73	77	80	83	87	standard values
dBA	off	50	56	62	68	74	80	90	100	110	extended values
+10 = Off after start of Intercom Server							+20 = Multifunction-LED permanently on				
+40 = Multifunction-LED permanently off							+80 = Permanent				

YY **Integration**

Hex	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
s	0	0.5	0.7	1	1.4	2	2.8	4	5.6	8	10	11	12	13	14	15
+20 = Extended values for parameter “trigger dB-value”																
+40 = Audio monitoring with speech recording									+80 = Short integration							

Loudspeaker/microphone monitoring	Task	Type	Parameter 1	Parameter 2	Server SW
Answer from Intercom Server	42	8E	Call number subscriber	XYZZ	Pro 05.7

X **Cycle time**
- 0 15min
- 1 30 min
- 2 45 min
- 3 60 min (max. 1 hour)
- 8 Check only once
- 9 Switch off

Y Volume white noise (1–F for 1–15)
ZZ Retry time (in seconds; 00–FF for 0–255)

dB-level changing (2-step volume control)	Task	Type	Parameter 1	Parameter 2	Server SW
Current dB-level	42	96	Call number subscriber	VXYZ	PRO 800 1.3

V Configured dB-level (in hex) for "Range 1" (e.g. "1" corresponds to dB-value of 42 dB)
X Configured dB-level (in hex) for "Range 3" (e.g. "F" corresponds to dB-value of 84 dB)
Y **Current range**
- 1 "Range 1"
- 2 "Range 2"
- 3 "Range 3"
- 0 Off

Z Currently measured dB-step (in hex, 1 – F for 15 steps in 3 dB increments, from 42 dB to 84 dB)
For more information, see manual "**Intercom Server Configuration**".

Video

Camera control (softvideo)	Task	Type	Parameter 1	Parameter 2	Server SW
Press button	5E	FU	000V	0000	Pro 05.6
Release button	5E	EU	000V	0000	
Camera control	5E	XX	YYYY	ZZZZ	

U Button (0–9)
V Camera number
E Fixed value
XX **Camera status**
- 00 Switch off camera
- 01 Switch on camera
- A0-A9 Pre-defined position
- F0-F9 After-dialling for press button
- E0-E9 After-dialling for release button

YYYY Camera number (decimal)
ZZZZ Monitor number (decimal)

Camera text (softvideo)	Task	Type	Parameter 1	Parameter 2	Server SW
Camera text	9F	00	XXXX	Text	Pro 05.6

XXXX Camera number (decimal)
Text 14-digit (ASCII coding; fill leading empty digits with blanks)

Camera state (softvideo)	Task	Type	Data (data format variable length)	Server SW
Camera state	9E	XX	YYYY ZZZZ TTTT NNNN	PRO 800 2.0
Camera state	9C	XX	YYYY ZZZZ TTTT TTTT NNNN NNNN	
Camera switched to monitor	5E	01	XXXX YYYY	Pro 05.6
Camera switched off from monitor	5E	00	0000 YYYY	

TTTT 4-digit call number of the subscriber which initiating the call (leading empty digits are filled with "F")
TTTT TTTT 8-digit call number of the subscriber which initiating the call (leading empty digits are filled with "F")
NNNN 4-digit call number of the subscriber which receive the call (leading empty digits are filled with "F")
NNNN NNNN 8-digit call number of the subscriber which receive the call (leading empty digits are filled with "F")
XX **Reason of video connection**
- 00 Manual connection (over dialling code "96" or "97")
- 10 Conversation
- 21–2F Call request/input message active (over dialling code "96" or "97")
- 31–3F Call request/input message receipted

YYYY Camera number (decimal)
ZZZZ Monitor number (decimal)

Camera text	5F	XX	YYYY	Pro 05.6

XXXX 1 byte non-specific data
Text 14 byte text, 2 byte non-specific data, 1 byte camera number (in hex; the camera text is put out as one single byte per character)

Example: Text "Barrier 11" for camera 1 and type 00: "00 5F 00 42 61 72 72 69 65 72 20 31 31 20 20 20 20 20 20 01 00"

Speech recording				
RTP mode	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
RTP mode	8D	XY	TTTT TTTT NNNN NNNN RRRR RRRR	PRO 800 2.1

TTTT TTTT	8-digit call number of the recording subscriber (leading empty digits are filled with "F")
NNNN NNNN	8-digit call number of the recorded subscriber (leading empty digits are filled with "F")
RRRR RRRR	8-digit call number of the subscriber/initiator of the recording (leading empty digits are filled with "F"; in case the mode "OFF" is activated, all digits are filled with "F")
X	**Active mode**
0	Off
1	24/7
2	Activities without tones
3	Only audio
4	RTP server
Y	**State**
0	Idle mode
1	General activity
2	Conversation
3	Group call/alarm
4	Recording
XY	
0B	Interruption of the recording
0C	Continuation of the recording

G8-AUD4	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Conversation started	8E	11	TTTT NNNN RRRR	Pro 05.5
Conversation terminated	8E	10	TTTT NNNN RRRR	
Alarm started	8E	21	TTTT XXXX YYYY	Pro 05.5
Alarm terminated	8E	20	TTTT XXXX YYYY	
All Call/group call started	8E	31	TTTT XXXX YYYY	
All Call/group call terminated	8E	30	TTTT XXXX YYYY	
Conference started	8E	41	TTTT XXXX ZZZZ	
Conference terminated	8E	40	TTTT XXXX ZZZZ	
State of conference recording	8E/8F	UU	TTTT SSSS SSSS ZZZZ	Pro 05.6

TTTT	4-digit call number of the recorder (leading empty digits are filled with "F")
NNNN	4-digit call number of called subscriber (leading empty digits are filled with "F")
RRRR	4-digit call number of calling subscriber (leading empty digits are filled with "F")
SSSS SSSS	**8-digit call number of radio feed-in** (leading empty digits are filled with "F")
4 digit	Task "8E"
5-8 digit	Task "8F"
UU	**Pause state**
00	Recorder is programmed, not recording
01	Continuing recording
02	Pause
XXXX	Initiator
YYYY	Number All Call/group call/alarm
ZZZZ	Radio conference channel (e.g. F6A1)

Note: The following configuration has to be carried out via CCT 800:

1. Go to: ***Subscriber > Feed-in > Radio conference***
2. In the drop-down list **Squelch-Input [s]**, select the input to which the squelch output or the radio system is connected.
3. Go to: ***Speech Recording > Audio channel-allocation***
4. In the drop-down list **ICX messages**, select the interface to which audio card messages shall be put out.

Time and date				
Time controlled ICX events	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
ICX event	71	State	XXYY NNNN Task Type	PRO 800 1.1

State **State of the event entry**
- 00 Entry deleted or not used
- 80 to FF Entry active
- 11 Entry is currently executed
- 10 Entry is not executed

XX Intercom Server ID
YY **Position of entry** (decimal 01–32)
- 00 Empty slot used

NNNN 4-digit identification number (0001–9999)
Task Task of the configured ICX command
Type Type of the configured ICX command

Note: If the flag "ICX message at execution" is activated for the time-controlled ICX command. the status information will also be sent when executing the respective ICX command (see "Time controlled ICX events" on page 69).

WAN function				
WAN conversation	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Conversation build-up	62	12	TTTT TTTT NNNN NNNN	Pro 06.0
End of conversation	62	10	TTTT TTTT NNNN NNNN	

TTTT TTTT 8-digit call number of the subscriber (leading empty digits are filled with "F"; subscriber including WAN prefix)
NNNN NNNN 8-digit call number of the subscriber (leading empty digits are filled with "F"; subscriber 2 including WAN prefixes)

Note: The ICX messages for WAN conversations are the same within a region. For supra-regional WAN conversations the format above is valid.

WAN feedback of output	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Output on	7B	41	40 TTTT TTTT NNNN NNNN	Pro 06.0
Output off	7B	40	40 TTTT TTTT NNNN NNNN	

TTTT TTTT 8-digit call number of the output (leading empty digits are filled with "F"; including WAN prefix)
NNNN NNNN 8-digit call number of the subscriber that controls the output (leading empty digits are filled with "F"; including WAN prefix only when a subscriber dials to an output or at opening of doors via after-dialling)

A feedback message will be sent to the configured output block within the region (or the ICX block if the output block is not configured). This ICX message will also be sent via all WAN connections for which this ICX block is configured. In a remote region, the ICX message will be forwarded to the respective output block of this region (therefore, it is possible to configure different output blocks for regions).

Attention: A prefix must be separated clearly from the call number (e.g. prefix "89" and call number "101" → "FF89F101")!

WAN call request	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Call request call type 1 initiated	7B	21	TTTT TTTT NNNN NNNN	Pro 06.0
Call request call type 2 initiated	7B	22	TTTT TTTT NNNN NNNN	
Call request call type 1 or call type 2 acknowledged	7B	30	TTTT TTTT NNNN NNNN	

TTTT TTTT 8-digit call number of control desk (leading empty digits are filled with "F"; including WAN prefix)
NNNN NNNN 8-digit call number of call request initiator (leading empty digits are filled with "F"; including WAN prefix)

Note: The ICX messages for WAN call requests remain a same within the region. For supra-regional WAN call requests the format above is valid.

Features with additional interface					
G7-DSP-TEL-4	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Telephone on-hook	42	1C	Call number subscriber	0000	Pro 05.5
Telephone off-hook	42	1C	Call number subscriber	0001	
Telephone mode (S0, IAX, SIP-T)	**Task**	**Type**	**Data (data format variable length)**		**Server SW**
Incoming call	82 83	61	TTTT NNNN XXXX... TTTT TTTT NNNN NNNN XXXX...		Pro 05.4
Outgoing call	82 83	62	TTTT NNNN XXXX... TTTT TTTT NNNN NNNN XXXX...		
Outgoing call busy	82 83	64	TTTT NNNN XXXX... TTTT TTTT NNNN NNNN XXXX...		

TTTT	4-digit call number of the subscriber (leading empty digits are filled with “F”)
TTTT TTTT	8-digit call number of the subscriber (leading empty digits are filled with “F”)
NNNN	Interface all number (S0, IAX or SIP-T; leading empty digits are filled with “F”)
NNNN NNNN	Interface all number (S0, IAX or SIP-T; leading empty digits are filled with “F”)
XXXX	Telephone number (for Symphony Bridge the value is always “FF”)

Note: This ICX message will be put out after the telephone has been lifted (off-hook).

ICX commands to the Intercom Server

Feature	see page	Feature	see page
General Intercom function	44	DSP function	60
Privacy, busy, re-call request	51	Video	64
Direct dialling, button disabling, hierarchy	52	Speech recording	65
Direct dialling button	52	Pre-recorded audio	66
Inputs, outputs	56	Time and date	68
Group call, All Call	56	WAN function	70
Radio conference, conference	57	User management	70
PA	58	Logic module	71
Door function	59	Miscellaneous	71
Control desk function	59		

General Intercom function

Conversation	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Build-up conversation	40	80	Call no. subscriber 1	Call no. subscriber 2	Pro 04.0
Cancel conversation	40	80	Call no. subscriber 1	FFFF	
Volume	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Temporary volume	40	AF	Call no. subscriber	93XX	Pro 05.6
Define volume mode [1]	40	92	Call no. subscriber	020Y	Pro 05.7

XX **Hex value for offset**

F0 = Offset 0	F1 to F9 = +1 to +9 (temporary)	FF = Offset +1
	E1 to E9 = -1 to -9 (temporary)	EF = Offset -1

Y **Volume status**

- 0 Low
- 1 High
- 2 Toggle

[1] **Requirement**: DSP software with firmware version min. 3.0 is required.

Cancel on site (with button "X")	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Use configuration of CCT 800 file	40	AE	XX00	0000	Pro 05.7
Deactivate	40	AE	XX00	0002	
Activate	40	AE	XX00	0003	

XX **Intercom Server block** (other values according to the configuration)

- EF "Own" Intercom Server
- 00 GEV block

Change audio input source and volume of a subscriber	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Set audio source and volume	40	97	Call no. subscriber	00XY	PRO 800 2.0

X **Audio input**

- 0 Dynamic
- 1 Microphone
- 2 Line In

Y Volume (0–9)

Attention: This configuration will be reset at the next warm start of the respective Intercom Server!

Station volume	Task	Type	Parameter 1	Parameter 2	Server SW
Change the volume	40	93	Call no. subscriber	FX 0Y	PRO 800 1.3
Change the volume range	40	93	Call no. subscriber	ZX 0Y	

X Volume level (in hex)
Y **Volume class**

1 = Tones	2 = Gong	3 = Music	4 = All Call	5 = Duplex	6 = Simplex
7 = Full duplex	8 = Handset	9 = Buzzer	A = 6T feedback	B = Conference	C = Headset

Z **Volume status**
0 Low
1 High
2 Toggle

Call suppression	Task	Type	Parameter 1	Parameter 2	Server SW
Call suppression	40	AF	Call number subscriber/input	B0XY	Pro 05.6

B0 Fixed value
X **Mask for call suppression** (calls will not be created)
Y **Mask for buzzer suppression** (calls will be indicated without buzzer)

X/Y	0	1	2	3	4	5	6	7
Normal calls	normal	---	normal	---	normal	---	normal	---
Emergency calls	normal	normal	---	---	normal	normal	---	---
Errors	normal	normal	normal	normal	---	---	---	---

--- Call is not issued or without buzzer
A combination of call and buzzer is possible. Call suppression has higher priority than buzzer suppression

Examples:
004000 TTTT B0 10 AF Suppression "normal call"
004000 TTTT B0 12 AF Suppression "buzzer normal call", suppression "normal call"
004000 TTTT B0 30 AF Suppression of all calls except errors

Note: The following ICX command will be sent as answer: "00 5B 00 TTTT 00XY 6F".

Network monitoring	Task	Type	Parameter 1	Parameter 2	Server SW
Activate once	40	A4	XXXX	01GG	Pro 05.5

XXXX Input number
GG Group number

Low volume for demo-case	Task	Type	Parameter 1	Parameter 2	Server SW
Set a general (low) volume	40	AE	0001	00XX	Pro 06.0

XX Volume (00–09)

DTMF tone for telephone interface	Task	Type	Data (data format variable length)	Server SW
Put out several DTMF tones via telephone interface	80	8A	TTTT TTTT 0X0X	PRO 800 2.0
Put out several DTMF tones via telephone interface	60	8A	TTTT 0X0X	
Put out DTMF tones via G-TEL and IAX	40	8A	TTTT 000X	PRO 800 1.3
Put out DTMF tones via S0	40	8A	TTTT 000X	Pro 06.0

TTTT 4-digit call number of telephone interface (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of telephone interface (fill leading empty digits with "F")
X **Digit that should be put out** (variable length; 0–9)
* A
# B

Display illumination of EE811A	Task	Type	Data (data format variable length)	Server SW
Control display illumination	60	AF	TTTT 9301 XXXX YZ AF	Pro 06.1

TTTT 4-digit call number of EE811A (fill leading empty digits with "F")
XXXX **Switch off time display illumination** (in seconds; 0001–0999)
0000 No change
FFFF No automatic switch off
Y **Idle state illumination intensity** (0-9)
F No change
Z **Active state illumination intensity** (0-9)
F No change
AF Fixed Value

Note: Changing the display intensity and switch off time will overwrite the CCT 800 configuration.

Dialling simulation	Task	Type	Data (data format variable length)	Server SW
Button sequence (any amount off buttons)	60	81	TTTT XXXX...	Pro 05.4
Button sequence with pre-dialling "XX"	40	80	TTTT Button sequence	Pro 04.0
Button sequence without pre-dialling "XX"	40	81	TTTT Button sequence	
Press button	40	82	TTTT 000X	
Release button	40	82	TTTT 008X	
Press and release function button	40	81	TTTT FFEY	Pro 04.6
Press button (call request) [1]	40	86	TTTT 000X	Pro 05.3
Release button (call request) [1]	40	86	TTTT 008X	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
XXXX Button sequence with desired length (see "Data format" on page 8, e.g. for dialling out of an telephone interface)
X **Button** (0–9)
- A T
- B X
- E Privacy

Y **Button**
- 1 F1
- 2 F2
- 3 F3
- 4 Down
- 5 Up
- 6 Enter

E Fixed value

Attention:
- Does not work for dialling of configured direct dialling codes!
- Dialling pauses must be observed!

[1] **Note**: With activated remote dialling or disabled button, this function is **not** available for the respective button.

Press EE880 button	40	68	Call no. control desk	XXYY	Pro 05.6
Release EE880 button	40	69	Call no. control desk	XXYY	
Press and release EE880 button	40	6A	Call no. control desk	XXYY	

XX Module number (decimal)
YY Button number of the module (decimal)

Requirement: EE 880 software with firmware version min. 1.1 is required.

C

Manipulate direct diallings	Task	Type	Data (data format variable length)	Server SW
Change or add direct dialling	80	97	TTTT TTTT XXXX YYYY YYYY	PRO 800 6.3 VirtuoSIS 7.1
Change or add direct dialling	60	97	TTTT XXXX YYYY YYYY	
Request direct dialling	80	97	TTTT TTTT XXXX	
Request direct dialling	60	97	TTTT XXXX	
Delete direct dialling	80	97	TTTT TTTT XXXX FFFF FFFF	
Delete direct dialling	60	97	TTTT XXXX FFFF FFFF	

TTTT TTTT 8-digit call number of the subscriber [1]
TTTT 4-digit call number of the subscriber [1]
XXXX 4-digit direct dialling code [1]
YYYY YYYY 8-digit direct dialling target [1]
[1] Fill leading empty digits with "F".

Note: The following ICX message will be sent as answer: "00 82 00 97 TTTT (TTTT) XXXX YYYY YYYY". Excepted are global direct diallings and direct dialling targets with more than 8 digits.

Attention: Global and extended direct diallings (more than 8-digit call numbers) cannot be added, changed or requested with these ICX commands!

Renewed output of audio and/or display data	Task	Type	Data (data format variable length)	Server SW
Renewed output of audio and/or display data	80	2D	TTTT TTTT XX	PRO 800 3.0
Renewed output of audio and/or display data	60	2D	TTTT 0000 03	

TTTT TTTT 8-digit call number of subscriber (fill leading empty digits with "F")
TTTT 4-digit call number of subscriber (fill leading empty digits with "F")
XX **Mode**
- 01 Output of audio data
- 10 Output of display data
- 11 Output of display and audio data



Establish call with certain call mode	Task	Type	Data (data format variable length)	Server SW
Establish call with certain call mode	81	07	TTTT TTTT 00 F0 F0 01 03 03 04 NNNN NNNN 20 01 XX 21 01 YY	PRO 800 5.1

TTTT TTTT 8-digit call number of the calling subscriber (fill leading empty digits with "F")
NNNN NNNN 8-digit call number of the called subscriber (fill leading empty digits with "F")
XX **Privacy mode** (in hex)
- 00 According to the CCT 800 configuration
- 01 Privacy mode enabled for calling subscriber
- 02 Privacy mode disabled for calling subscriber

The following values can be added to the selected value "privacy mode" (optional):
- +04 Without call transfer (e.g. Follow Me or secretary transfer)
- +08 Without call conversion at the called control desk

YY **Call mode**
- 00 According to the CCT 800 configuration
- 01 Simplex: the calling subscriber speaks and the called subscriber hears
- 02 Simplex: the calling subscriber hears and the called subscriber speaks
- 03 OpenDuplex® [1]
- 04 Duplex [1]

[1] OpenDuplex® and Duplex is not available when the duplex mode "Simplex" is configured for the subscriber in CCT 800 at ***Subscribers > Audio - Features >*** *tab* ***General >*** *field* ***Duplex mode***.

Example:
Establish call between calling subscriber "12345" and called subscriber "789" with the selected privacy mode "privacy mode enabled for calling subscriber" (01), "without call transfer" (+04), "without call conversion at the called control desk" (+08) and the call mode "OpenDuplex" (03). The sum of the value "privacy mode" is 0D (01 + 04 + 08 = 13 = 0D).

The resulting ICX command is: "00 81 00 07 FFF12345 00 F0 F0 01 03 03 04 FFFFF789 20 01 0D 21 01 03"

Switch connection of an IP subscriber	Task	Type	Data (data format variable length)	Server SW
Switch connection of an IP subscriber	80	AF	TTTT TTTT 93 XX YYYY	PRO 800 1.2
Switch connection of a group of IP subscribers	80	AF	FFFF EEGG 93 XX YYYY	

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX **Mode**
- 10 Fully automatic [1], controlled [3]
- 11 Standard connection fixed, controlled [3]
- 12 Fallback 1 fixed, controlled [3]
- 13 Fallback 2 fixed, controlled [3]

XX **Mode** (min. PRO 800 4.0 required)
- 21 Standard connection fixed, immediately
- 22 Fallback 1 fixed, immediately
- 23 Fallback 2 fixed, immediately
- 3F Semi-automatic [2], controlled [3]

YYYY **Time of switching** (in seconds)
- 0000 Unlimited

EE Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

[1] **Fully automatic**: Switching of connection is carried out automatically to the next higher connection (descending order: fallback 2, fallback 1, standard connection).
[2] **Semi-automatic**: Switching of connection is carried out automatically to the next lower connection (ascending order: standard connection, fallback 1, fallback 2). Switching to the next higher connection is not possible.
[3] **Controlled**: Switching of connection if no audio signal is active at the loudspeaker.

Change button	Task	Type	Data (data format variable length)	Server SW
Change all buttons at a group (except function buttons)	60	A7	EEGG XY0Z	Pro 06.2
Change all buttons (except function buttons)	40	A7	TTTT FY0Z	Pro 06.0
Change button	40	A7	TTTT XY0Z	Pro 5.6
Put back all changes and set new one	40	A7	TTTT XY1Z	
Put back all changes	40	A7	TTTT FF1F	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
X Button "X" changes to button "Y"
Y Button "X" changes to button "Y"
Z For button "Z" an answer message will be sent (usually button "Z" is the same as button "X")
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
EE Fixed value

Note: The following ICX message will be sent as answer: "00 42 00 TTTT Z*0Z A7" (* = Current button instead of button Z)

Attention: This configuration will be reset at the next warm start of the respective Intercom Server!

Text message in display	Task	Type	Data (data format variable length)	Server SW
Send text to display of individual subscriber	60	90	TTTT UU VX YYZZ...	Pro 05.3
Send text to a group of subscribers	60	90	EEGG UU VX YYZZ...	Pro 05.6

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F"; e.g. F101)
EE Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
UU **Priority**

00	Quit control
02	Always visible except at: All Calls, alarms, control desk with calls, conversation, reception radio conference
03	Always visible except at: All Calls, alarms, control desk with calls, conversation
04	Always visible except at: control desk with calls
06	Always visible

V **Level** (1–9) ICX commands can be grouped in several levels.
Level 1 Lowest level
Level 9 Topmost level
X **Row**
0 Segment display (e.g. EE 211, EE 311 or EE 411)
1–8 Dot matrix display (e.g. EE 711 or EE 811; otherwise ICX command is ignored)
YY **Attributes** (hex addition is possible)

Dot-matrix display	EE 211 / EE 311 / EE 411	Attribute
00	00	Normal indication
01	-	Inverse
02	-	Underlined
04	-	Double size (2-rows; not possible in the last row of an area)
08	08	Centred
-	20	Blinking
+80	-	Delete entire area first ("80" can be added to the attributes, e.g. "attribute 04" (double size) is active, with "08" the text is centred but remains double size, however with "88" (80+08) the text is set to normal size and is centred.

ZZ **Data**
EE711 Data (ASCII coding; 1–14 characters (remaining digits are ignored))
EE411 Data EE211/311/411 coding; 1–6 characters (remaining digits will be ignored)

For further information about text on dot-matrix displays see "Control display areas of dot-matrix displays" on page 29.

Note: It is not possible to write display text messages in TFT displays.

Attention: This configuration will be reset at the next warm start of the respective Intercom Server!

RGB LED control	Task	Type	Data (data format variable length)	Server SW
RGB LED control	60	90	TTTT PP XA YZ	Pro 06.1

Note: This function is supported only by EE 301A, EE 311A, EE 811A and EE 900A.

TTTT 4-digit call number of subscriber (fill leading empty digits with "F")

PP **Priority**

00	Quit control
02	Always visible except at: All Calls, alarms, control desk with calls, conversation, reception radio conference
03	Always visible except at: All Calls, alarms, control desk with calls, conversation
04	Always visible except at: control desk with calls
06	Always visible

X **Level** (1–9) ICX commands can be grouped in several levels.

Level 1 Lowest level

Level 9 Topmost level

A Fixed value

YZ **LED settings**:

Y (Colour)		Z (Rhythm)	
0	OFF colour:-	0	Switch off
+4	OFF colour: red	1	ON colour: always on
+8	OFF colour: green	2	8 Hz (62ms)
+C	OFF colour: blue	3	4 Hz (125ms)
0	ON colour:-	4	2 Hz (250ms)
+1	ON colour: red	5	1 Hz (500ms)
+2	ON colour: green	6	0,5 Hz (1 s)
+3	ON colour: blue		

LED control of EF 962H	Task	Type	Data (data format variable length)	Server SW
LED control of EF 962H	80	90	TTTT TTTT PP XD YY ZZ	PRO 800 3.1

Note: This function is supported only by EF 962H.

TTTT TTTT 8-digit call number of subscriber (fill leading empty digits with "F")

PP **Priority**

00	Quit control
02	Always visible except at: All Calls, alarms, control desk with calls, conversation, reception radio conference
03	Always visible except at: All Calls, alarms, control desk with calls, conversation
04	Always visible except at: control desk with calls
06	Always visible

X **Level** (1–9) ICX commands can be grouped in several levels.

Level 1 Lowest level

Level 9 Topmost level

D Fixed value

YY **Controlled LED**:

	Type
01	Conversation
02	Call request
03	Relay

ZZ **LED mode**:

	LED mode
00	Off
01	On
02 – 0F	Blinking (different modes; e.g. tones)

Remote menu	Task	Type	Data (data format variable length)	Server SW
Write text to remote menu	80	93	TTTT TTTT UU XX T1 YY T2 ZZ T3 Text 00	PRO 800 1.2

TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with “F”)
NNNN	4-digit call number of the ICX connection (fill leading empty digits with “F”)
UU	**Menu ID** (01–FF for 1–255)
00	All (only valid at delete)
XX	**Priority**
01–05	Standard values
11–25	Same as with standard value but subscriber is not busy
20–FF	Special
00	End the menu function
FF	No change of priority (only for continuing messages)
YY	**Identification number text for selection**
00	No change
FF	No selection
ZZ	**Position** (line number)
00	Title
Text	**Text for title row/menu row**

T1 automatic switch off time	
00	Off. No automatic switch off
0X	X times 0.5 s (up to 7,5 s)
1X	X times 1 s (up to 15 s)
2X	X times 2 s (up to 30 s)
3X	X times 4 s (up to 60 s)
4X	X times 8 s (up to 2 min)
5X	X times 15 s (up to 4 min)
6X	X times 30 s (up to 7.5 min)
7X	X times 1 min (up to 15 min)
80–FF	Invalid

T3 identification number of the text	
00	Blank line, cannot be selected
01–EF	ID
F0–F9	Text help line for button “0-9”
FA	Text help line for button “T”
FB	Text help line for button “X”
FC	Text help line for button “up/down”
FD	Text help line for button “enter”
FF	Text help line for button “-”

T2 flags (addition of values for combinations)	
+01	Message when scrolling
+02	Rollover mode (after last row → first row)
+04	No numbering of lines and no direct selection [1]-[6]
+08	No end of menu when line is selected
+10	No end with [X] (only after timeout or ICX message)
+20	No end of the hierarchical menu (timeout)
+40	Default (no options). No rollover, indication of the row number 1–6 and direct selection [1]-[6] End after timeout (except 00), with [X] or [Enter] or ICX messages
00	Default (keine Optionen), d.h. kein Rollover, Anzeige der Zeilennummer 1–6 und Schnellwahl [1] bis [6] Beendigung nach Timeout (außer 00), durch [X] oder [Enter] oder ICX-Kommandos

The maximum length of the ICX command is 254 digits. This enables the sending of the title row and +14 menu rows with each 14-digits texts (header = 13 + title = 16 + 14 x menu = 14 x 16) via one ICX command. It is also possible to send ICX commands with the data format “short” and without text, whereby only the priority, switch off time and/or an entry can be selected.

To **end of all menus** the ICX command with the menu ID “00” and priority “00” can be used. A status request of a menu can be carried out via an ICX command with the data format “short” in which only the call number and the menu ID are specified. An ICX command with the currently selected text ID and “cause 00” will be sent as answer. If the menu does not exist, an ICX command with “cause 04” will be sent as answer.

EN 81-28 button monitoring	Task	Type	Data (data format variable length)	Server SW
Start button monitoring for an individual subscriber (with acknowledgement)	60	AF	TTTT 4004 S XYZ	PRO 800 5.1
Start button monitoring for an individual subscriber	80	AF	TTTT TTTT 4004 0[1] XYZ	PRO 800 2.0
Start button monitoring for an individual subscriber	60	AF	TTTT 4004 0[1] XYZ	
Start button monitoring for a group of subscribers	80	AF	FFFF D007 4004 UU GG VV 0[1] XYZ	

TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
D	Fixed value
S	Time within which a successful acknowledgment (keystroke) has to be received from the respective button (in seconds; 1–9)
UU	Block number
VV	Interval (in seconds; 01–99)
X	Number of retries (0–9) on error (number of trials = N +1)
Y	Button (0–9)
Z	Relay number (1–2)
	Relay number (A, B) for EB2E2A outputs (min. PRO 800 3.0 required)
GG	Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

[1] with PRO 800 5.1 or higher, the fixed value "0" is replaced by the configurable parameter "S".

Output will be activated at start of the test via an ICX command

If a button will be activated within one second by the output, the test is successful (ICX command for "OK" will be sent). Afterwards, this button will be ignored and the output will be deactivated. If none button will be pressed within one second, the test fails (ICX command for "ERROR" will be sent) and the output will be deactivated. The test will be repeated four seconds after the output has been deactivated. This process will be repeated as often as configured.

Reset of line faults

If a line fault will be detected at the control desk, the test will restart. The line fault will only be acknowledged if the test is successful.

Note: A call request for a control desk and a line monitoring has to be configured for this test (the software of the Intercom terminal does not matter). If "start button monitoring for a group of subscribers" will be selected, the test will be performed in parallel for all subscribers in all Intercom Server block "BB" within the configured interval "VV" (in seconds).

Privacy, busy, re-call request

Re-call request	Task	Type	Parameter 1	Parameter 2	Server SW
Send re-call request	40	A5	Call number sender	Call number receiver	Pro 5.3
Delete re-call request	40	A6	Call number sender	Call number receiver	
Switch subscriber to busy	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Set subscriber to busy	40	87	Call number subscriber	XX00	Pro 06.1

XX	**Timer value** (01–FE for 01–254)
00	Off
FF	Busy

Follow me	Task	Type	Data (data format variable length)	Server SW
Activate Follow Me	80	98	TTTT TTTT NNNN NNNN	PRO 800 2.0
Deactivate Follow Me	80	98	TTTT TTTT FFFF FFFF	

TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
NNNN NNNN	8-digit destination call number (fill leading empty digits with "F")

Privacy	Task	Type	Data (data format variable length)	Server SW
Subscriber private	80	AF	TTTT TTTT 93 3X	PRO 800 2.1
Subscriber private	40	AF	TTTT 93 3X	
Group private	80	AF	FFFF EE GG 93 3X	

TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
X	**Privacy mode status**
1	Privacy on
0	Privacy off
A	Toggle
EE	Fixed value
GG	Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

Fix privacy for calling subscriber	Task	Type	Data (data format variable length)	Server SW
Activate/deactivate “fix privacy when calling subscriber”	80	AF	TTTT TTTT 9350 XX	PRO 800 2.0
Activate/deactivate “fix privacy when calling subscriber”	60	AF	TTTT 9350 XX	

TTTT 4-digit call number of the subscriber (fill leading empty digits with “F”)
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
XX **Privacy mode status**
01 Privacy on
00 Privacy off

Fix privacy for called subscriber	Task	Type	Data (data format variable length)	Server SW
Activate/deactivate “fix privacy when called subscriber”	80	AF	TTTT TTTT 934F XX	PRO 800 6.0 VirtuoSIS 11
Activate/deactivate “fix privacy when called subscriber”	60	AF	TTTT 934F XX	

TTTT 4-digit call number of the subscriber (fill leading empty digits with “F”)
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
XX **Privacy mode status**
01 Privacy on
00 Privacy off

Direct dialling, button disabling, hierarchy

Remote dialling	Task	Type	Parameter 1	Parameter 2	Server SW
Activate/deactivate remote dialling	40	8B	Call number subscriber	XXXX	Pro 05.4

XXXX Button (bit field-allocation: “NNNN XT98 7654 3210” (NNNN = Not used) if 1 is in the bit field for the button, remote dialling is activated, otherwise deactivated (e.g. all buttons activated, except for button 0 deactivated = FFFE, Bit field = 1111 1111 1111 1110))

Attention: This configuration will be reset at the next warm start of the respective Intercom Server!

Activate/deactivate remote dialling for function buttons	40	8B	Call number subscriber	EEXX	Pro 06.2

EE Fixed value
XX **Bit-mask for function keys** (1 = Remote dialling activated)
Bit 0 F1
Bit 1 F2
Bit 2 F3
Bit 3 Down
Bit 4 Up
Bit 5 Enter
Bit 6 F7 (Commend button at WS stations)
Bit 7 Not used

Priority call	Task	Type	Parameter 1	Parameter 2	Server SW
Single priority call	40	88	Call number calling subscriber	Call number called subscriber	Pro 05.6

Requirement: For the calling subscriber a C-card is required!

Changing hierarchy level	Task	Type	Data (data format variable length)	Server SW
Message for 8-digit subscribers	80	AF	TTTT TTTT 93 51 XY	PRO 800 1.3
Message for 4-digit subscribers	60	AF	TTTT 93 51 XY	

TTTT 4-digit call number of the subscriber (fill leading empty digits with “F”)
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
X WAN hierarchy (0–F for 0–15)
Y Hierarchy level (0–F for 0–15)

Direct dialling button

EE 880	Task	Type	Parameter 1	Parameter 2	Server SW
LED test EE 880	40	AF	Call number subscriber	93DX	Pro 05.7

X **Test mode**
1 X1 test
2 X2 test
B End test

LED control	40	XX	Call no. control desk	YYZZ	Pro 06.1

XX	**LED status**
6C	On
6B	Off
5C	LED toggle
YY	Module number (decimal)
ZZ	Button number (decimal)

Disabling of direct dialling button	Task	Type	Parameter 1	Parameter 2	Server SW
Disable direct dialling buttons	40	A8	Call number subscriber	XXXX	Pro 05.7

XXXX **Hexadecimal bit field for buttons** (1–15 starting with button 1 at the far right side)
1 Button barred (see table below)

button number	code binary (disabling multiple buttons)	XXXX (code in hex for individual buttons)
1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	0 0 0 1
2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0	0 0 0 2
3	0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0	0 0 0 4
4	0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0	0 0 0 8
5	0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0	0 0 1 0
6	0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0	0 0 2 0
7	0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0	0 0 4 0
8	0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0	0 0 8 0
9	0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0	0 1 0 0
10	0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	0 2 0 0
11	0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	0 4 0 0
12	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	0 8 0 0
13	0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0
14	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0
15	0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	disable all direct dialling buttons	F F F F

e.g. disabling buttons “3”, “6”, “8” and “11”

0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	4	A	4

Direct dialling LEDs of EE 380A	Task	Type	Data (data format variable length)	Server SW
Control of single LEDs	60	91	TTTT NNNN XY	Pro 06.0
Control of LEDs per group	60	91	EEGG NNNN XY [1]	PRO 800 2.1

TTTT 4-digit call number of EE 380A (fill leading empty digits with “F”)
NNNN 4-digit call number that has been advised to the desired button; call number of the subscriber/input/output
X **Blink mode**
0 Off
1 Constant
2 Blinking
3 Fast blinking
Y **Colour**
0 Colour in idle state
1 Red
2 Green
3 Blue
GG Group number (00–89, BCD encoded, see “Group call, All Call” on page 56).

[1] The device with the direct dialling button(s) must also be a member of group GG (configured via CCT 800), even if it is not directly addressed by this ICX-message.

Direct dialling button control	Task	Type	Data (data format variable length)	Server SW
Direct dialling button control by parameters	80	9E	TTTT TTTT NNNN NNNN XX [YZ]	PRO 800 2.1
Direct dialling button control by key number	80	9E	TTTT TTTT DDDD 0UUU XX [YZ]	
Direct dialling LED control by key number	80	99	TTTT TTTT DDDD 0UUU 00YZ [GG]	
Direct dialling LED control by LED group	80	99	TTTT TTTT EEEE 00GG 00YZ [GG]	

TTTT TTTT — Call number of the subscriber (fill leading empty digits with “F”)

NNNN NNNN — **Direct dialling parameter** (configured call number/function for direct dialling button via CCT 800)

Direct call/call/conversation	Call number (fill leading empty digits with “F”)
Single button	(fill leading empty digits with “F”)
Output simulation	Output call number (fill leading empty digits with “F”)
Input simulation	Input call number (fill leading empty digits with “F”)
Input message	Input call number (fill leading empty digits with “F”)
dB-range display	000000KK
KK	Conference channel
Toggle headset	00000000
Activate internal loudspeaker	00000000
Microphone lock	00000000
Privacy mode	00000000
Change level	00xxyyzz
xx	From level
yy	To level
zz	Number of levels

UUU — Direct dialling button number (001–104)

XX — **Function** (configurable function for direct dialling button via CCT 800)

00	No function
FF	Direct call/call/conversation
FB	Single button
FC	Output simulation
FD	Input simulation
FE	Input message
C2	dB-range display
C3	Toggle headset
C4	Activate loudspeaker
C5	Microphone mute
C7	Change level
C8	Privacy mode
DF	Remote control [1)]

YZ — **Mode**

Type 9E

00	Press and release button
01	Press button (default if not specified)
02	Release button

Type 99

Y — **Blink mode**

0	Off
1	On
2	Blinking
3	Fast blinking

Z — **Colour**

1	Red
2	Green
3	Blue

[GG] — **LED group number** (optional)

The LED group is set using the message “Control according to key number” (i.e. with the message 80/99 TTTT TTTT DDDD 0UUU 00YZ [GG], the button UUU is included in the group GG) and with the message “LED control by LED group” then controlled as desired.

Note: This function is only valid for subscribers with LED direct dialling buttons (e.g. EE 380A, Conductor, Intercom Client, ...).

Note: Take into account that restrictions may apply when using more than 48 direct dialling buttons.

[1)] Up to PRO 800 6.0, this function is only supported by Conductor. With PRO 800 6.1 or higher, this function will also be supported by EE 380A, Intercom Clients (ICCAA and ICCNA) and EE 980.

Example:

00 80 00 00 99 FFFF F101 DDDD 0001 00 11

LED “1” of the subscriber with call number “101” is configured with blink mode “constant” and colour “red”.

Input, output

Control of output	Task	Type	Parameter 1	Parameter 2	Server SW
Open	40	40	Call number output	0000	Pro 04.0
Close	40	40	Call number output	0100	
Invert	40	40	Call number output	0200	
Blink	40	40	Call number output	03XY	

X **Output on**

1 = 8 ms	2 = 16 ms	3 = 31 ms	4 = 62.5 ms	5 = 125 ms
6 = 250 ms	7 = 0.5 s	8 = 1 s	9 = 2 s	

Y **Output off**

1 = 8 ms	2 = 16 ms	3 = 31 ms	4 = 62.5 ms	5 = 125 ms
6 = 250 ms	7 = 0.5 s	8 = 1 s	9 = 2 s	

Control of subscriber output	Task	Type	Parameter 1	Parameter 2	Server SW
Simulate input state	40	94	Call number subscriber	XXYY	Pro 05.6

XX Output number (01–08; 81–88 for expansion interfaces)
YY **Output status**
00 Off
01 On
02 Toggle

Simulation of input (control of inputs)	Task	Type	Parameter 1	Parameter 2	Server SW
Simulate input state	40	A3	Call number input	000X	Pro 05.4

X **Input level**
0 Open
1 15k
2 5k6
3 1k5
4 Short

Output delayed on/off	Task	Type	Parameter 1	Parameter 2	Server SW
Switch output for defined time	40	44	Call number output	XXXX	Pro 05.5

XXXX Time (in seconds; 0000–9999 = 2 hours, 46 minutes, 39 seconds)

Delayed switching of single outputs	40	42	Call number output	XXYY	Pro 05.6

XX Delay "on" (a maximum of 15 minutes)
YY Delay "off" (a maximum of 15 minutes)

18 = 0.5 s	28 = 1 s	38 = 2 s	48 = 4 s	4A = 5 s
6F = 30 s	7F = 1 min	8F = 2 min	9F = 4 min	BF = 15 min

For other times a hex value must be calculated see "Input of times" on page 71.

Examples:
00 40 00 7777 4A00 42 = Output "7777" switched ON after 5 seconds
00 40 00 7777 004A 42 = Output "7777" switched OFF after 5 seconds
00 40 00 7777 484A 42 = Output "7777" switched ON after 4 seconds; pulse duration 5 seconds

Group call, All Call

Group call receiver	Task	Type	Parameter 1	Parameter 2	Server SW
Change group call receivers	40	8C	Call number subscriber	XXGG	Pro 05.4

XX **Receiver status**
01 Switch on
02 Switch off
GG Group number (00–89)

Note: Group numbers (GG) are BCD encoded, so 00–89 refer to Group 0–89. For two-digit group numbers these need to be activated first. Configuration CCT 800: Go to ***Intercom Server - Block XX > General >*** *tab* ***Common***. Activate the checkbox **2-digit (00-89)**.

Group call with pre-recorded audio	Task	Type	Data (data format variable length)	Server SW
Start group call with pre-recorded audio	80	AC	TTTT TTTT GG0X	PRO 800 2.1

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
GG Group number (00–89, BCD encoded, see above).
X Number of repetitions

Note: Only the announcement without gong is looped.

radio conference, conference					
Conference	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Define conference	40	8D	Call number conference receiver	XYZZ	Pro 05.4

X **Mode**
- 0 Temporary switch on/off
- 1 Permanent switch on/off
- 2 Only programming, no switch on/off

Y **Conference status**
- 0 Switch off
- 1 Switch on
- 2 Switch on high priority

ZZ Conference number (F1, F2 – F9, 10, 11)

Change volume of conference	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Change volume of conference	40	B3	Call number subscriber	XXYY	PRO 800 1.2

XX Conference number (F1, F2 – F9, 10, 11)
- 00 All conferences

YY **Volume** (00–0C for 00–12)
- FE Decrease volume
- FF Increase volume
- FD Query volume

Change text for conference	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Change text for conference	80	2C	TTTT TTTT XX Text	PRO 800 1.2

TTTT TTTT 8-digit call number of conference with feed-in (fill leading empty digits with “F”)
XX Mode (currently not used)
Text 14-digit text (ASCII coding)

OpenDuplex® conference	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Start an OpenDuplex® conference	80	A0	TTTT TTTT GG XX [YY] [ZZ]	PRO 800 3.1

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
XX **Mode**
- 10 Triggers the OpenDuplex® conference or page party (depends on block configuration)
- 30 Terminates the conference/disconnect subscriber

GG Group number
YY Block number (optional)
ZZ **Flags** (optional)
- 01 Deactivates button “X” for call termination
- 02 Deactivates simplex switching
- 03 Deactivates switch over with button “X” for call termination and simplex switching

[...] optional configuration parameter

Talk into all selected radio conference	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Simultaneous talk into several radio channels	80	9C	TTTT TTTT XXYY [XXYY....]	PRO 800 1.3

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
XX **Mode**
- 00 Off
- 01 On
- 08 Start speak into
- 09 End speak into

YY **Radio channel**
- F1–F9 Digit channel number
- 01–48 Double-digit channel number
- 00 All switched-on channels (activation of all channels is not possible)

[...] optional configuration parameter to select additional radio channels

Switching to radio channels	Task	Type	Data (data format variable length)	Server SW
Switching to one or more radio channels	60	9D	TTTT XX YY [YY....]	PRO 800 1.1
Disconnection from all active radio channels	60	9D	TTTT	
Switching to one or more radio channels	80	9D	TTTT TTTT XX YY [YY....]	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX **Flags**
- 00 Disconnection from all active radio channels
- 80 No disconnection

YY **Radio channel**
- F1–F9 Digit channel number
- 01–48 Double-digit channel number
- 00 All channels (activation of all channels is not possible)

[...] optional configuration parameter to select additional channels

PA

PA announcement	Task	Type	Data (data format variable length)	Server SW
Selection of PA zones	80	AD	TTTT TTTT GG UU... GG UU	PRO 800 1.3
Start PA announcements	80	AD	TTTT TTTT GG 04 XX YY ZZ [KK]	
Combination of ICX messages	80	AD	TTTT TTTT GG UU... GG UU 00 04 XX YY ZZ [KK]	
Cancel PA announcements	80	AD	TTTT TTTT GG 05	PRO 800 6.0

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
GG **PA zone number** (01–30; group 60–89)
- 00 All PA zones/all selected PA zones

UU **Mode**
- 00 Deselection
- 01 Select group
- 02 Toggle selection

XX Priority level (01–99)
YY **Pre-recorded audio ID for gong** (in hex)
- 00 Default gong

ZZ Pre-recorded audio ID for announcement (in hex)
KK Block number (optional; in hex; min. PRO 800 1.4)

[...] optional configuration parameter

70 V/100 V line monitoring	Task	Type	Data (data format variable length)	Server SW
Control of 70V/100V line monitoring for individual subscriber	80	AF	TTTT TTTT 9305	PRO 800 2.0
Control of 70V/100V line monitoring for individual subscriber	60	AF	TTTT 9305	
Control of 70V/100V line monitoring for individual subscriber	40	AF	TTTT 9305	
Control of 70V/100V line monitoring for group of subscribers	80	AF	FFFF EEGG 9305	
Control of 70V/100V line monitoring for group of subscribers	60	AF	EEGG 9305	

TTTT 4-digit call number of AF series amplifier (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of AF series amplifier (fill leading empty digits with "F")
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

Configuration CCT 800

1. Go to: ***Subscriber > Station properties > AF series >*** *tab* ***Linemonitoring***
2. In the drop-down list **Linemonitoring**, select the entry "ICX" for the respective subscriber. For further information about the configuration of the AF series, see the manual "**Intercom Server Configuration**".

Requirement

The following firmware versions are supported:
- AF-I min. 5.1
- AF-D min. 1.3

Door function					
Switch on error tone	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
For door opening with after dialling	40	AF	Call number subscriber	9C00	Pro 05.6
For access control	40	AF	Call number subscriber	9D00	

C Fixed value
D Fixed value

Door access-code change	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Add code (per output)	60	B1	TTTT XXXX YYYY	PRO 800 1.0
Delete code (per output)	60	B0	TTTT XXXX ZZZZ	
Add code	40	B1	TTTT XXXX	Pro 05.5
Delete code	40	B0	TTTT YYYY	

TTTT 4-digit call number that is programmed as door opener (fill leading empty digits with "F")
XXXX Call number output
YYYY Code to be added
YYYY Code to be deleted

Control desk function				
Call request	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Delete all call requests of a group	60	AF	EEGG CB0X	Pro 06.0
Parking a call request of a group	80	AF	FFFF EEGG CB0X RRRR	PRO 800 1.0
Acknowledge call request/input message	40	F4	RRRR TTTT	Pro 04.7
Selectively delete call requests/input messages	40	F5	TTTT FFFF	Pro 05.4
Selectively delete call requests of a certain type	40	AF	TTTT CB0X	Pro 06.0

TTTT TTTT 8-digit call number of the subscriber that triggers the call request (fill leading empty digits with "F")
TTTTT 4-digit call number of the subscriber that triggers the call request (fill leading empty digits with "F")
RRRR 4-digit call number of the control desk that parks the call request (fill leading empty digits with "F")
EE Fixed value
CB Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
X **Call type**
- 0 All call types
- 1 Normal call
- 2 Emergency call
- 3 Parked calls



Call request	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Trigger call request with call	80	AF	TTTT TTTT CB04 0X00	PRO 800 4.0
Trigger call request with button [1]	80	AF	TTTT TTTT CB04 000Y	PRO 800 4.0

TTTT TTTT 8-digit call number of the subscriber that triggers the call request (fill leading empty digits with "F")
CB04 Fixed value
X **Call type**
- 1 Normal call
- 2 Emergency call

Y **Button** (which triggers the call request)

[1] **Note**: With activated remote dialling or disabled button, this function is available for the respective button.

Good to know: As of CCT 800 7.1, call requests can be triggered only by ICX commands. In this case, the ICX command "Trigger call request with call" has to be sent with the respective simulated call type. For further information see manual "**Intercom Server Configuration**".

Control desk switching	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Additional call transfer	60	94	TTTT XX YYYY	Pro 05.6
Activates new call transfer (cancels previous call transfers)	60	95	TTTT XX YYYY	

TTTT 4-digit call number of control desk (fill leading empty digits with "F")
XX Function code/group number (same as dialling "94FG")
YYYY Parameter [1] (fill leading empty digits with "F"; e.g. call number or button)

[1] **Attention**: At activation via direct dialling, the parameter "A" has to be entered instead of "T"!

Dynamic call distribution	Task	Type	Data (data format variable length)	Server SW
Delete a control desk from the distribution chain [1] [2]	80	XX	TTTT TTTT 00YY RRRR RRRR	PRO 800 5.0
Delete a control desk from the distribution chain and add a new control desk	80	XX	TTTT TTTT 00YY RRRR NNNN NNNN	
Delete the distribution chain	80	XX	TTTT TTTT 00YY EEEE EEEE	
Add a control desk to the distribution chain without deleting any existing control desk	80	XX	TTTT TTTT 00YY FFFF FFFF NNNN NNNN	

TTTT TTTT 8-digit call number of the basic control desk (fill leading empty digits with "F")
RRRR RRRR 8-digit call number of the control desk that will be deleted (fill leading empty digits with "F")
NNNN NNNN 8-digit call number of the control desk that will be added (fill leading empty digits with "F")
EEEE EEEE Fixed value
FFFF FFFF Fixed value
XX **Mode**
62 Day
63 Night
YY Timeout (in seconds)

[1] Only one control desk can be deleted from the distribution chain per ICX command. If several identical call numbers are existing, all control desks with the same call number will be deleted.
[2] Up to 30 control desks can be added per distribution chain.

Attention: The configuration of the "dynamic call distribution" via ICX commands will be reset after a warm start of the respective Intercom Server!

DSP function

Audio monitoring	Task	Type	Parameter 1	Parameter 2	Server SW
Activate (values in CCT 800 file will not be overwritten)	40	8F	Call number subscriber	XXYY	Pro 05.3

XX **Trigger dB-value**

Hex	00	01	02	03	04	05	06	07	0A	0D	
dBA	off	60	63	67	70	73	77	80	83	87	standard values
dBA	off	50	56	62	68	74	80	90	100	110	extended values
+10 = Off after start of Intercom Server							+20 = Multifunction-LED permanently on				
+40 = Multifunction-LED permanently off							+80 = Permanent				

YY **Integration**

Hex	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
s	0	0.5	0.7	1	1.4	2	2.8	4	5.6	8	10	11	12	13	14	15
+20 = Extended values for parameter "trigger dB-value"																
+40 = Audio monitoring with speech recording									+80 = Short integration							

Examples:
00 40 00 TTTT 0A04 8F
0A = Noise level 83 dB (85 dB = Standard value)
04 = 1.4 seconds (integration)
00 40 00 TTTT 0A24 8F
0A = Noise value 100 dB (100 dB = Extended value, because "20" is added to the integration (long integration)
24 = 1.4 seconds (integration)

Audio monitoring off	40	8F	Call number subscriber	F000	Pro 05.5
Audio monitoring on	40	8F	Call number subscriber	F001	
Noise level -1	40	8F	Call number subscriber	F002	
Noise level +1	40	8F	Call number subscriber	F003	
Integration time -1	40	8F	Call number subscriber	F004	
Integration time +1	40	8F	Call number subscriber	F005	
Status request	40	8F	Call number subscriber	F006	
Changing the audio monitoring status via EE880 button	40	91	Call number control desk	Call number subscriber with audio monitoring	Pro 05.6

Loudspeaker/microphone monitoring	Task	Type	Parameter 1	Parameter 2	Server SW
Activation	40	8E	Call number subscriber	XYZZ	Pro 05.3

TTTT Calling number of subscriber
X **Cycle time**
- 0 15 min [1)]
- 1 30 min [1)]
- 2 45 min [1)]
- 3 60 min [1)]
- 8 Check only once [2)]
- 9 Switch off

Y Volume white noise (1–F for 1–15)
ZZ Retry time (in seconds; 00–FF for 0–255)

[1)] Updates the cycle time if ALM is active. In case ALM is inactive or it was stopped with 9, a new measurement is triggered with the specified cycle time.
[2)] Triggers a one-time measurement and terminates all cyclic measurements.

dB-level changing	Task	Type	Parameter 1	Parameter 2	Server SW
Deactivate function	40	96	Call number subscriber	0000	PRO 800 1.3
Activate function (values have to be configured via CCT 800)	40	96	Call number subscriber	0001	
Activate function with value "XY"	40	96	Call number subscriber	XY02	
Synchronisation	40	96	Call number subscriber	0003	

X Min. dB-level
Y Max. dB-level

Switching microphone/loudspeaker	Task	Type	Data (data format variable length)	Server SW
Headset monitor function (subscriber)	80	96	TTTT TTTT YY0Z	PRO 800 2.1
Headset monitor function (group)	80	96	FFFF EEGG YY0Z	
Switching microphone/loudspeaker (subscriber)	80	92	TTTT TTTT XX0Z	Pro 05.6
Switching microphone/loudspeaker (group)	60	92	EEGG XX0Z	
Switching microphone/loudspeaker (subscriber)	40	92	TTTT XX0Z	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
EE Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
XX **Microphone/loudspeaker function**
- 01 Lock headset/internal loudspeaker active (min. Pro 05.6)
- 02 Switch to loud volume (min. Pro 06.0)
- 03 Lock gooseneck microphone (min. Pro 06.2)
- 04 Microphone lock (min. PRO 800 2.1)
- 05 Switching handset/headset (only possible with Conductor or Series WS with min. PRO 800 2.1)
- 09 Internal loudspeaker active when subscriber is in privacy mode via tilting (min. Pro 05.7B)

YY **Monitor function**
- 01 Monitor function (microphone is always activated; min. PRO 800 2.1)

Z **Function control**
- 0 Deactivation
- 1 Activation
- 2 Toggle

Requirement: DSP software with firmware version min. 3.0 is required.

Switching “AMP1”/“AMP2” (only EE 7000 and EX 7000)	Task	Type	Data (data format variable length)	Server SW
Switching “AMP1”/“AMP2” (subscriber)	80	AF	TTTT TTTT 93 53 XX YY [XX YY...]	PRO 800 6.0
Switching “AMP1”/“AMP2” (group)	80	AF	FFFF EEGG 93 53 XX YY [XX YY...]	
Reset to default settings	80	AF	TTTT TTTT 93 53 FF FF	

Attention:

- This function is only available for the Intercom station series EE 7000 and EX 7000!
- Without the licence “C-L-EX-AF-OUT”, audio will only be put out via the amplifier “AMP1”!

Note: For further information on the amplifiers, see data sheets “**EE 7000D**“ and “**EX 7000D 1**“ or “**EX 7000D 2**“.

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)

XX **State ID**: Select the desired state, which shall be put out via the selected amplifier. In the following table, you will find the default state configuration of the amplifiers “AMP1” and “AMP2”:

State	Audio output via “AMP1”	Audio output via “AMP2”	State ID
Privacy	✓	☒	02
Music	☒	✓	06
Simplex listen	✓	☒	07
Duplex	✓	☒	08
OpenDuplex®	✓	☒	09
Busy	✓	☒	0A
Alarm	✓	✓	0B
All Call	✓	✓	0C
Radio conference	✓	☒	0D
Conference	✓	☒	0E
Duplex conference	✓	☒	0F
Normal call	✓	☒	11
Emergency call	✓	☒	12
Error	✓	☒	13

YY **Amplifier(s), via which audio shall be put out**

- 00 No audio output
- 01 Audio output via amplifier “AMP1”
- 02 Audio output via amplifier “AMP2”
- 03 Audio output via amplifiers “AMP1” and “AMP2”

GG Group number (00–89, BCD encoded, see “Group call, All Call” on page 56).

[...] optional configuration parameter to select additional states

Playback of tone	Task	Type	Data (data format variable length)	Server SW
Playback of tones for a subscriber	60	90	TTTT XXY9 T1T2 ZZ	Pro 05.6
Playback of tones for groups	60	90	EEGG XXY9 T1T2 ZZ	
Quit playback of tones	60	90	TTTT XXY9 0000 00	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")

EE Fixed value

XX **Priority**

00	Quit playback of tones
02	Always audible except at: All Calls, alarms, control desk with calls, conversation, reception radio conference
03	Always audible except at: All Calls, alarms, control desk with calls, conversation
04	Always audible except at: control desk with calls
06	Always audible

Y **Level** (1–9) ICX commands can be grouped in several levels.

Level 1 Lowest level

Level 9 Topmost level

GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

T1 Code for standard tones (when subscriber does not have DSP features)

T2 **Code for DSP tones**

01–1F (in hex; the tone configured via CCT 800 will be used)

> 0x80 Fixed DSP tones (e.g. ring tone or Big Ben)

ZZ **Time**

18 = 0.5 s	28 = 1 s	38 = 2 s	48 = 4 s	6F = 30 s	7F = 1 min	BF = 15 min

For other times a hex value must be calculated see "Input of times" on page 71.

Codes for tones

T2-DSP tone if not configured or subscriber does not have DSP features, then T1 is used:

Pre-defined DSP tones			
0000	no tone	060D	waiting tone microphone mute
5601	info indication with blinking red lamp	260E	waiting tone further connection with blinking red lamp
0601	info indication	060E	waiting tone further connection
0102	dialling tone	260F	waiting tone at busy with red lamp
0203	error tone	060F	waiting tone at busy
0404	busy	2910	initiation ringing with red lamp
0805	busy tieline	0910	initiation ringing
0706	acknowledgement	2911	reception ringing with red lamp
0107	acknowledgement off	0911	reception ringing
0408	access control	0112	dialling tone G-TEL
0609	privacy	3E13	alarm with low priority, 4 KHz and red lamp
030A	ring tone access control	0E13	reception alarm with low priority
010B	ring tone	3F14	alarm with high priority, 4 KHz and red lamp
040C	minute tone	0F14	reception alarm with high priority
260D	waiting tone microphone mute with red lamp	0915	initiator call request + G-TEL during password
Fixed DSP tones			
xx81	500 Hz	xx87	ringtone 2 (500/595 Hz)
xx82	666 Hz	xx88	ringtone 3 (500/600 Hz, alternating)
xx83	1000 Hz	xx8A	2-tone-gong
xx84	2000 Hz	xx8B	3-tone-gong
xx85	4000 Hz	xx8C	4-tone-gong
xx86	ringtone 1 (500/444 Hz)	xx8D	Big Ben
xx = Tone sequence			
00	tone off	04	250 ms/250 ms
01	permanent tone	05	500 ms/500 ms
02	63 ms/63 ms	06	1 s/1 s
03	125 ms/125 ms	07	acknowledgment
G8-TEL4 tones			
0290	error telephone	0492	telephone busy
0691	ringing at remote subscriber		

Video					
Message for camera text	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Camera text	40	6D	XXXX	YYYY	Pro 05.6

XXXX **Camera number** (decimal)
0000 All cameras
YYYY **Call number of a single interface**
FFFF All interfaces

Note: Start message after start of Intercom Server "00 5E 00 0000 0000 00".

Camera control during conversation	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Press button	5E	FX	Camera number	0000	Pro 05.6
Release button	5E	EX	Camera number	0000	

X Button (0–9)

Switching of camera	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Switch on of camera	47	XX	Call number subscriber with monitor	YYYY	Pro 05.6
Switch on of cameras	46	XX	Call number subscriber with monitor	ZZZZ	

XX **Function code**
01–99 Monitor number for direct switching (switch off via camera 0000)
F0–F9 After dialling codes for press button
E0–E9 After dialling codes for release button
A0–A9 Pre-defined settings
YYYY **Camera number** (decimal)
FFFF Camera in the main monitor is controlled
ZZZZ Call number of the subscriber/input of the controlled camera

Camera snapshot	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Snapshot	40	C4	XXXX YY ZZ	PRO 800 1.3

XXXX Camera number
YY **Command**
00 Delete snapshot
01 Create snapshot
ZZ **ID number**
00 Next available ID. Existing ID's overwrite snapshots (message "00" and ID "00" = delete all snapshots)

Camera controlling	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Switch off	60	C0	TTTT XXXX YYYY [.... YYYY]	Pro 06.0
Switch on	60	C1	TTTT XXXX YYYY [.... YYYY]	
Scanning control	60	C2	TTTT XXXX ZZ	

TTTT 4-digit call number of control desk (fill leading empty digits with "F")
XXXX Monitor number (0001–0099)
YYYY List of camera numbers (decimal 4-digits each)
ZZ **Code for scan function**
00 Stop scanning
01 Start/resume scanning
02 Scanning -1 (previous camera)
03 Scanning +1 (next camera)
09 Scan position is last camera
0A Toggle start/stop scanning

Example: Type "C1"
XXXX 0000 Switch off all cameras
XXXX YYYY Switch on an additionally camera
XXXX 0000 YYY1 YYY2 Switch on several cameras (switch off all previous if required)

Example: Type "C0"
XXXX 0000 YYY1 YYY2 Selective switch off of several cameras

Attention: This function is only available for the first assigned monitor of an Intercom station with video interface!

Control of camera LEDs	Task	Type	Data (data format variable length)	Server SW
Control of camera LEDs	80	AF	TTTT TTTT 9303 XX XX XX YY	PRO 800 1.2
Control of camera LEDs	60	AF	TTTT 9303 XX XX XX YY	

TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
XX XX XX	**Time** (format: "hours-minutes-seconds")
FFFFFF	Permanent activation of camera LEDs
000000	Permanent deactivation of camera LEDs
YY	Intensity (0–0F for 01–15; all higher values are the same as "0F")

Configuration CCT 800

- ***Station Properties > Cameras >*** *tab* ***Camera***
- **Lighting**: In this drop-down list, the lighting mode to define the functionality of the ICX commands can be selected. The following modes are available:
  - **Off**: The lighting can be controlled via ICX commands.
  - **On**: The lighting is permanently activated. Controlling with ICX commands is not possible.
  - **Auto, fast control**: Automatic switch on/off of lighting within seconds. Controlling via ICX commands is possible.
  - **Auto, medium control**: Automatic switch on/off of lighting within minutes. Controlling via ICX commands is possible.
  - **Auto, slow control**: Automatic switch on/off of lighting in time periods (> 10 min). Controlling via ICX commands is possible.

Note: This ICX command should only be used in the lighting mode "Off".

Overlap video during video conversation	Task	Type	Data (data format variable length)	Server SW
Overlap video during video conversation	80	C3	TTTT TTTT XXXX	PRO 800 1.2
Overlap video during video conversation	40	C3	TTTT XXXX	

TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
XXXX	**Logical camera number** (fill leading empty digits with "0" if less than 4-digits)
0000	Switch back to the standard camera

Note: This feature is only possible during a video conversation.

Speech recording

Audio Recording	Task	Type	Data (data format variable length)	Server SW
Temporary deactivation of audio recording (subscriber) [1)]	80	96	TTTT TTTT 020X	PRO 800 2.1
Temporary deactivation of audio recording (group)	80	96	FFFF EEGG 020X	
Deactivation audio recording for a group	60	92	EEGG 060X	Pro 05.6
Synchronisation for one recorder	40	6E	RRRR FFFF	
Synchronisation for all subscribers	40	6E	FFFF FFFF	
Deactivate audio recording for one call	40	92	TTTT 060X	

RRRR	4-digit call number of the recorder (fill leading empty digits with "F")
TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
GG	Group number
X	**Function control**
0	On
1	Off
2	Toggle

[1)] **Attention**: This configuration will be reset at the next start of the respective Intercom Server!

Change RTP mode	Task	Type	Data (data format variable length)	Server SW
Change RTP mode	80	AF	TTTT TTTT 9306 XX	PRO 800 2.0
Change RTP mode	60	AF	TTTT 9306 XX	

TTTT	4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
XX	**RTP mode**
00	Off
01	24/7
02	Only audio
03	Audio and tones
04	RTP server
FF	Request (synchronise)

Note: In order to use this RTP ICX messages, "RTP" has to be licenced via CCT 800. For further information about RTP, see the manual "**Intercom Server Configuration**".

Change VOX mode	Task	Type	Data (data format variable length)	Server SW
Change VOX mode	80	AF	TTTT TTTT 9306 XX	PRO 800 5.1

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX **VOX mode**
- 00 Off
- 01 On (stop mode)
- 02 On (pause mode)
- 03 On (during pause mode, no ICX message will be put out)

Note: In order to use this VOC ICX messages, "RTP" has to be licensed via CCT 800. For further information about RTP, see the manual "**Intercom Server Configuration**".

Pre-recorded audio

Pre-recorded audio with priority	Task	Type	Data (data format variable length)	Server SW
Playback pre-recorded with priority	80	90	TTTT TTTT XX 0B ZZZZ...	PRO 800 1.3
Playback pre-recorded with priority	60	90	TTTT XX 0B ZZZZ...	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX **Priority**

00	Quit playback of tones
02	Always audible except at: All Calls, alarms, control desk with calls, conversation, reception radio conference
03	Always audible except at: All Calls, alarms, control desk with calls, conversation
04	Always audible except at: control desk with calls
06	Always audible

0B Fixed value
ZZZZ **Parameter** (max 14 bytes)
- 00–BF Audio file ID number (in hex)
- D0–DB Dialling simulation buttons 0–9 (D0-D9), T (DA), X (DB)
- E1–EF Pause N*250 msec (0.25–3.75 seconds)
- F0 Permanent playback
- F1–FF Repeat N times (1–15)
- E0 Repeat as of this position (only possible in combination with repeat)

Control of pre-recorded audio	Task	Type	Data (data format variable length)	Server SW
Control of pre-recorded audio	60	XX	TTTT YY...	PRO 800 1.0 [1]

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F"; e.g. F101)
EExx Playback at group "XX" (only meaningful at Type "9A" during group calls; EE = Fixed value)
XX **Playback mode** (**Note**: The microphone remains active)
9A Playback via the loudspeaker of the subscriber
9B Playback in direction of the Intercom Server/conversation partner [2]
YY **Parameter** (up to 14 of the parameters below can be strung together)
00–BF Audio file ID number (in hex)
D0–DB Dialling simulation buttons 0–9 (D0–D9), T (DA), X (DB)
E1–EF Pause N*250 msec (0.25–3.75 seconds)
F0 Permanent playback
F1–FF Repeat N times (1–15)
E0 Repeat as of this position (only possible in combination with repeat)

Examples:

00 60 00 9A F205 03 04 05 F0	Permanent playback of audio files with the IDs "3", "4" and "5" at the loudspeaker of subscriber "205"
00 60 00 9B 8150 32 48 51 F3	Playback of audio files with the IDs "50", "72" and "81" in direction of the Intercom Server at subscriber "8150"
3 repeats	
00 60 00 9A F103	End playback at the loudspeaker of subscriber "103"
00 60 00 9B F103	End playback in direction of the Intercom Server "103"
00 60 00 9A F411 D4 D2 D0 01 F2 DB	- Build-up of conversation between subscribers "411" and "420" - Playback of audio file with the ID "1" (2 repeats) - Quit conversation with dialling simulation of [X]
00 60 00 9B 01F2 E0 02F3	- 01 = ID of the first pre-recorded audio, F2 = 2 repetitions - E0 = Separates the repetitions - 02 = ID of the second pre-recorded audio, F3 = 3 repetitions

[1] **Requirements**: min. PRO 800 1.1 is required to control pre-recorded audio files at Gx-GET cards.

[2] This ICX command can only be executed when no P2P conversation is active on the IP subscriber card, on which the conversation partners are located.

Note: The ICX command can contain a dialling simulation (e.g. to automatically cancel a conversation or group call).

Assembly of sentences

It is possible to assemble multiple audio files to form sentences with one ICX command:

- Saving of words or word groups as individual audio files.
- Pauses can be inserted between the audio files.
- Repeat can be set for the entire ICX command or parts of it.

Pre-recorded audio in idle state	Task	Type	Data (data format variable length)	Server SW
Playback pre-recorded audio in idle state	80	9A	TTTT TTTT XX	PRO 800 1.2
Playback pre-recorded audio in idle state	60	9A	TTTT XX	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX Pre-recorded audio ID (in hex)

Playback is stopped when...

- a conversation will be built-up,
- a group call will be initiated, or
- the subscriber with playback starts dialling or the X button will be pressed.

Recording of pre-recorded audio	Task	Type	Data (data format variable length)	Server SW
Start recording of pre-recorded audio	80	C5	TTTT TTTT NNNN NNNN WWWW 1XYZ	PRO 800 3.1
Stop recording of pre-recorded audio	80	C5	TTTT TTTT	

TTTT TTTT 8-digit call number of the recording subscriber (fill leading empty digits with “F”)
NNNN NNNN 8-digit call number of the subscriber, on which the recorded audio will be saved (fill leading empty digits with “F”)
WWWW Pre-recorded audio ID (0000–0199)
XYZ **Mode**

X
- 0 Record immediately
- 1 Playback of existing pre-recorded message prior to recording (otherwise recording is triggered immediately)

Y
- 0 No playback of message
- 1 Playback of message after recording (for checking purposes)

Z
- 0 Manual storage
- 1 Storage for the called subscriber only
- 2 Storage for all subscribers of the respective card of the called subscriber

Requirements: This function is only available for Intercom subscribers, which are connected to one of the following Intercom Server or Intercom cards:

- 2 MB storage:
  - Gx-GED (Rev. min. AB)
  - Gx-GET (Rev. min. AB)
  - SIS-IP
- 8 MB storage:
  - Gx-AUD (Rev. min. AB)
  - Gx-IP (Rev. min. AC, min. 05.4)
  - IS 300
  - Gx-IP-32
- Gx-SUB (min. 04.0)

Note: Gx-IAX and Gx-TEL will not be supported for this function.

Time and date

Set time and date	Task	Type	Data (data format variable length)	Server SW
Set time and date	71	F1	YY MM DD HH XX SS	PRO 800 1.1

YY Year (e.g. “09” for 2009)
MM Month
DD Day
HH Hour
XX Minute
SS Seconds

If no time server is available, the time and date in the Intercom Server can also be set manually via an ICX command (e.g. for demos or trade fair systems).

Note: Time and date, which is configured via an ICX command, is always standard time (winter).

Attention: Licence “C-L-ICX” is required for configuration of time!

Delayed ICX command	Task	Type	Data (data format variable length)	Server SW
Delayed ICX commands	6F	XX	TTTT YY ZZ NNNN...	Pro 05.6
Cancelling of an ICX commands	6F	00	TTTT YY ZZ NNNN...	

TTTT 4-digit key (e.g. call number of the subscriber; fill leading empty digits with "F"))

XX **Time delay**

18 = 0,5 s	28 = 1 s	38 = 2 s	48 = 4 s	4A = 5 s
6F = 30 s	7F = 1 min	8F = 2 min	9F = 4 min	BF = 15 min
CF = 30 min	DF = 1 h	EF = 2 h	FF = 4 h	00 = Cancel message

For other times a hex value must be calculated see "Input of times" on page 71.

YY Task of the ICX command (e.g. "40" for 00 40 00...)

ZZ Type of the ICX command (e.g. "80" for conversation; 00 40 00 F101 F102 80)

NNNN Data part (e.g. parameter 1 + parameter 2 of ICX command with data format "short", e.g. F101 F102)

Examples:

Cancelling of a conversation in 1 minute:

00 6F 00 7F 6789 40 80 F101 FFFF

Switch on an output with 8-digit call number:

00 6F 00 18 1111 80 40 55555555 0100

Note: With entering the time "00" and the key/task/type of the original ICX command, this ICX command can be cancelled before the time has expired. The data "NNNN" has not to be entered.

Time controlled ICX events	Task	Type	Data (data format variable length)	Server SW
Activate ICX event	71	Cmd	NNNN UUXX TTTT YYYY ZZZZ	PRO 800 1.1
Deactivate ICX event	71	00	NNNN UU	

Cmd ICX command repetitions (in hex; 1 = Bit selected, 0 = Bit not selected)

BIT0	**Monday**	BIT4	**Friday**
BIT1	**Tuesday**	BIT5	**Saturday**
BIT2	**Wednesday**	BIT6	**Sunday**
BIT3	**Thursday**	BIT7	**Fix selected**

80 **Execute only once**

Example: hex 80 (bin 1000 0000) = Only once, hex 81 (bin 1000 0001) = Every Monday, hex 9E (bin 1001 1110) = Repeat on Tuesday – Friday

NNNN 4-digit identification number (0001–9999)

UU Position for saving and deactivation (decimal 01–32)

00 Use an empty slot

XX **Flags** (in hex; 1 = Bit selected, 0 = Bit not selected)

BIT0 **ICX command at execution**: The status information will be sent when the respective time-controlled ICX command is executed.

BIT1 **Input/output state inverse**

TTTT 4-digit call number of the allocated input/output (fill leading empty digits with "F")

0000 No input/output

FFFF No input/output

YYYY Time in the following format "YY-MM-DD-STD-MIN-SEC" (year-month-day-hour-min-sec)
(e.g. 09 11 30 05 30 00 = 2009-11-30 05:30:00)

ZZZZ **ICX command** (format "Task-Type-SR-SS-Data")

SR System number of receiver

SS System number of sender

Time controlled ICX events can be configured via ICX commands with the data format "long" instead CCT 800:

- A total of 32 entries (CCT 800 and dynamic via ICX messages).
- Time controlled ICX event can be performed once, daily or weekly.
- Execution can be linked to the status of an input or output:
  - ICX message will only be sent if the input/output is activated.
- The time must be either:
  - synchronized via NTP with the Intercom Server (for further information see the manual "**Intercom Server Configuration**") or
  - configured via an ICX command (see "Set time and date" on page 68).

WAN function				
WAN control of output	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Output on	70	40	40 XXXX YYYY 0100	Pro 06.0
Output off	70	40	40 XXXX YYYY 0000	
Output toggle	70	40	40 XXXX YYYY 0200	

XXXX Prefix of the Intercom Server in which the output is located
YYYY 4-digit call number of the output (fill leading empty digits with "F")

Example:
Synchronisation request for output "3333":
00 40 00 3333 FFFF 51
This ICX commando in remote region via WAN with pre-dialling code "200":
00 70 00 40 51 F200 3333 FFFF

WAN conversation	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
One subscriber in the own region, one subscriber in the remote region:				
Build-up conversation	60	80	TTTT NNNN NNNN	Pro 06.0
Cancel conversation	60	80	TTTT FFFF	

TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
NNNN NNNN 8-digit dialled call number of the subscriber in the remote region (fill leading empty digits with "F"; including prefix)

Both subscribers in the remote region:				
Build-up conversation	70	60	80 XXXX TTTT NNNN	Pro 06.0
Cancel conversation	70	60	80 XXXX TTTT FFFF	

XXXX Pre-dialling code
TTTT 4-digit call number of the subscriber (fill leading empty digits with "F")
NNNN 4-digit call number of 2nd subscriber in remote region (fill leading empty digits with "F")

Note: The ICX commands for WAN conversations are the same within a region. For supra-regional WAN conversations the format above is valid.

User management				
User management	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
User log in/off	80	B2	TTTT TTTT GG USER XY ZZ PIN	PRO 800 1.3

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
GG **Group number** (01–08; groups configured via CCT 800)
- 00 Log off
- FF Error (switches-on error tone)

USER Username (14 digits; hex, fill leading empty digits with 0x20 (= blanks); e.g. Commend = "436F6D6D656E6420202020202020")
XY **Logoff time**
- X Logoff time total (0–F for 0–15)
- Y Logoff time idle (0–E for 0–14)
- FF Logoff time according to configuration via CCT 800

ZZ **Additional flags**
- 00 Standard
- 01 Indication of the username at called station

PIN 8-digit password (optional) [1)]

[1)] **Note**: If a PIN has been entered for login, this PIN is also required for log out. The PIN must be entered in the ICX command in the endianness "little-endian" (e.g. the PIN "1234" has to be entered in the ICX command as "3412 FFFF", the PIN "12345678" as "78563412").



Logic module				
Logic module	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Control of the trigger item	72	XX	GG ZZ	PRO 800 4.1
XX **Type** A0 Deactivate all trigger items with the same group ID A1 Activate all trigger items with the same group ID AA Execute all true actions of all trigger items with the same group ID AB Execute all false actions of all trigger items with the same group ID GG **Group ID** 00 All trigger items independent from the group ID will be executed (index number must be "00") 01–99 All trigger items with the group ID will be executed ZZ **Index number of the trigger item** 01–08 Trigger item with the index number will be executed (group ID will be ignored)				
Set a variable to a defined value	72	A4	GG YY ZZ Data	PRO 800 4.1
GG Group ID (01–99) YY Index number of the trigger item (01 – 16) ZZ Index number of the variable (40 – 4F; VAR01 = 40, VAR02 = 41, VAR03 = 42, ... , VAR15 = 4E, VAR16 = 4F) Data 8-digit value of the variable (fill leading empty digits with "0") **Note**: The group ID and the index number of the trigger item will be ignored.				
Execute an ICX message for evaluation	72	AC	GG YY NNNN...	PRO 800 4.1
GG Group ID (01–99) YY Index number of the trigger item NNNN Outgoing ICX message (data format "long") **Note**: The group ID and the index number of the trigger item will be ignored.				

Miscellaneous			
Input of times			
In order to reach a high accuracy, for Z a value between 8 and F shall be selected. (e.g.: 2 seconds = 61, 52, 44 and 38 are possible => 38 shall be used).			
	0Z	Z x 31 msec (to 465 msec)	e.g.: 0A = 10 x 0.031 = 0.310 msec
	1Z	Z x 62 msec	
	2Z	Z x 125 msec	
	3Z	Z x 250 msec	e.g.: 38 = 8 x 0,25 = 2 seconds
	4Z	Z x 500 msec	
	5Z	Z x 1 second	
	6Z	Z x 2 seconds	
	7Z	Z x 4 seconds	
	8Z	Z x 8 seconds	
	9Z	Z x 16 seconds	
	AZ	Z x 32 seconds	
	BZ	Z x 1 minute	e.g.: B8 = 8 x 1 = 8 minutes
Not possible with: - Output delayed ON/OFF - Playback of tones	CZ	Z x 2 minutes	e.g.: CF = 15 x 2 = 30 minutes
	DZ	Z x 4 minutes	
	EZ	Z x 8 minutes	
	FZ	Z x 16 minutes	

ICX messages for synchronization

System synchronization can be used to ensure that a synchronous system is used.

Synchronization is recommended under the following circumstances:

- Start of the control system
- Start an Intercom server
- Rebuilding of the communication

The following properties should be synchronized:

- Call status Intercom station (recommended)
- Input status (recommended)
- Output status (recommended)
- Call status control desk (recommended)
- Control desk switchover (optional)
- Call status Intercom station (optional)

In general, the synchronization method should be chosen so that the Intercom system is influenced as little as possible. That is why as few synchronization requests as possible should be sent.t

GOOD TO KNOW: Send ICX messages with delay
Minimal delay between synchronization messages: 200 ms

Feature	See pages	Feature	see page
General Intercom function	72	DSP function	78
Input, output	76	Video	78
Conference	77	Speech recording	79
Control desk function	77	Time and date	80

General Intercom function					
Intercom subscriber	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	52	Call no. subscriber	FFFF	Pro 05.4
Response: no line fault	42	15	Call no. subscriber	0000	
Response: line fault	42	15	Call no. subscriber	0001	
Response: privacy mode when calling subscriber (fixed)	42	15	Call no. subscriber	0100	Pro 06.4 VirtuoSIS 11
Response: privacy mode when called subscriber (fixed)	42	17	Call no. subscriber	0100	Pro 04.6
Response: privacy mode via position switch	42	15	Call no. subscriber	0200	Pro 05.4
Note: This type of synchronization does not depend on a control desk. It is not required to configure a call request for the respective subscriber.					
Intercom Server	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	01	XX00	0000	Pro 06.0
Response: Server offline	42	00	XX00	YYYY [1)]	
Response: Server online	42	01	XX00	YYYY	
Response: Server starting (issued for compatibility reasons, can safely be ignored)	42	1E	[internal data]	[internal data]	
XX Intercom Server ID. to be polled (in hex) YYYY Software version (e.g. “0600” for Intercom Server software Pro 06.0) **Note:** If you receive one of these responses, it is assumed that synchronization is required. It is recommended to wait a time window of approx. 30 s after receiving the message, as it is likely that several status changes will be displayed in a short time. Only after completion of that process should the synchronization take place. After a restart, the synchronization should only be begun when the system has finished starting up and no longer exchanges ICX messages. 1) From Pro 06.3/SIS 10.0 on the parameter value is 0000.					
Request	40	93	Call no. subscriber	0W 0X	PRO 800 1.1

PRO 800 LICENCE PRO6U

VirtuoSIS LICENCE L-SIS-11

Response: volume	42	93	Call no. subscriber	0Y ZX	PRO 800 1.3

W **Mode**
- 0 Query current volume
- 1 Query volume limit

X **Volume class**

1 = Tones	2 = Gong	3 = Music	4 = All Call	5 = Duplex	6 = Simplex
7 = Full Duplex	8 = Handset	9 = Buzzer	A = 6T feedback	B = Conference	C = Headset

Y Volume level (in hex)

Z **State**
- 1 Maximum
- 2 Minimum value
- 3 Fixed value

Text parameters	Task	Type	Data (data format variable length)	Server SW
Request	80	2A	TTTT TTTT ID Object	PRO 800 1.2
Response	82	2A	TTTT TTTT ID Value	

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with “F”)
ID 2-digit ID number (freely selectable)
Object Object name that shall be received (in hex)
Value Max. 14-digit parameter value (ASCII coding)

Privacy	Task	Type	Parameter 1	Parameter 2	Server SW
Request	80	52	TTTT TTTT	FFFF	Pro 05.4
Response: privacy mode when calling subscriber (fixed)	42	15	Call no. subscriber	0100	Pro 06.4 VirtuoSIS 11
Response: privacy mode when called subscriber (fixed)	42	17	Call no. subscriber	0100	Pro 04.6
Response: privacy mode via position switch	42	15	Call no. subscriber	0200	Pro 05.4





Subscriber parameter	Task	Type	Data (data format variable length)	Server SW
Request	80	AF	TTTT TTTT 80 82	PRO 800 2.1
Response	84	01	TTTT TTTT UU XX YY ZZ	

TTTT TTTT	8-digit call number of the subscriber (fill leading empty digits with "F")
UU	**Client address** (in hex; high-byte = Intercom Server ID, low-byte = slot/client
XX	**Tag of client**
70	ICX client
69	IAX client
60	Intercom subscriber
56	Input
55	Output
YY	**Tag of driver**
31	EE8xx
3B	EE9xx, ...
ZZ	14-digit name of the client

Subscriber index	Task	Type	Data (data format variable length)	Server SW
Request	80	DC	UU XY 00 ZZ	PRO 800 2.0

UU	Transaction ID
X	**Hierarchy level** (1–F for 1–15)
00	All
Y	**Flags**
+01	Accelerated query (200 subscriber per second, else 50)
+02	Query single message (one message per subscriber)
ZZ	**Intercom Server block** (other values according to the configuration in CCT 800)
DF	Configuration block
EF	"Own" Intercom Server
00	GEV block

Examples (UU = 99, XY = 00):

Query of the connected Intercom Server:	**00** 80 00 DC 99 00 00 **EF**
Query of the Intercom Server "23" (0x17):	**17** 80 00 DC 99 00 00 **EF**
Query of all Intercom Servers in the NET network:	00 80 00 DC 99 00 00 00
Query of all Intercom Servers in block "86":	00 80 00 DC 99 00 00 **86**

Response	82	DC/DD	XX YY 0000 ZZUU TTTT TTTT Text	PRO 800 2.0

DC/DD	Message type (DD = last ICX message)
XX	Transaction ID
YY	Length of entry (in hex)
ZZUU	**Address of the subscriber** (in hex)
ZZ	Intercom Server ID
UU	Client address
TTTT TTTT	8-digit call number of the recorder (leading empty digits are filled with "F")
Text	Description of the respective subscriber in the subscriber index (following empty digits are filled with "0x20")

Note: The received parameter "text" can be configured in CCT 800 at ***Subscriber > Naming*** in the field **Display text EE 811A & camera** for the respective subscriber.

In order to allow an easy processing of the transmitted data, the length "YY" will be indicated in the ICX message. This enables to skip unused data (which can be ignored) and to fill up of too short data with default values. For all requested Intercom Server the data will be sent in a queue depending on the network. The data package of each Intercom Server is marked with Type "DD/DB" (instead "DC/DA"). If the absolute end without timeout shall be indicated, a flag has to set to the receiver of the ICX message with Type "DB". This flag has to be deleted if Type "DD" will be sent. If all flags has been deleted, it is equal to an end without timeout.

Intercom Server information	Task	Type	Data (data format variable length)	Server SW
Request: Loaded PRO 800 or VirtuoSIS version and license	40	AF	D007 DD03	PRO 800 2.1
Response	82	03	NN T1 T2 T3 WW XX	
Response	82	03	NN T1 T2 T3 YY ZZ	VirtuoSIS 11.1

D Fixed value
DD Fixed value
NN System number of the checked Intercom Server
T1 T2 T3 **Loaded PRO 800 or VirtuoSIS version** (in hex)
- T1 Main version
- T2 Sub version
- T3 **Build/test version**:
  - 00 Series version
  - 81–9F Build 01–31; build number = ZZ–80 (81 = B01, 82 = B02, ...)
  - C1–FF Test 01–63; test number = ZZ–C0 (C1 = T01, C2 = T02, ...)
  - 02–7F SPCL 2–127; spcl. number = ZZ–01 (02 = Spcl02, 03 = Spcl03, ...)
  - Version XX YY ZZ (e.g. PRO 800 02.1B10: XX = 02 YY = 01 ZZ = 8A)

PRO 800 2.1
WW **Highest installed PRO 800 licence** (basic and upgrade licence considered)
- 01–06 PRO V1.x-PRO V6.x (basic) or PRO2U-PRO6U (upgrade)
- 09 TESTALL

XX **Actually used PRO 800 licence**
- 01–06 PRO V1.x-PRO V6.x (basic) or PRO2U-PRO6U (upgrade)

VirtuoSIS 11.1
YY **Highest installed VirtuoSIS licence** (basic and upgrade licence considered)
- 01-99 L-SIS-PROx/L-SIS-x/L-SIS32-PROx/L-SIS32-x (basic) or L-SIS-PROxU/L-SIS-xU/L-SIS32-PROxU/L-SIS32-xU/L-SIS32-UPG/L_USUB-xx/L-USUB32-xx (upgrade)

ZZ **Actually used VirtuoSIS licence**
- 01–99 L-SIS-PROx/L-SIS-x/L-SIS32-PROx/L-SIS32-x (basic) or L-SIS-PROxU/L-SIS-xU/L-SIS32-PROxU/L-SIS32-xU/L-SIS32-UPG/L_USUB-xx/L-USUB32-xx (upgrade)

Monitoring status for a key-subscriber	Task	Type	Data (data format variable length)	Server SW
Request	80	27	TTTT TTTT 00 9999	PRO 800 3.0
Request: group of subscribers	80	27	FFFF EEGG 00 9999	
Response	62	27	TTTT TTTT XX YYYY ZZZZ	

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
EE Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).
XX **State** (BIT from right to left; 0–7)
- BIT7-5 **Key-subscribers**
  - 1 Subscriber was activated as key-subscriber
- BIT7-4 **Online status**
  - 0 Offline
  - 1 Online
- BIT3-0 **Monitoring status**
  - 0 Monitoring off
  - 1 Error occurred at last monitoring
  - 2 Monitoring currently active
  - 3 Last monitoring "OK"

YYYY Current timer (in seconds; decimal)
ZZZZ **Interval** (in seconds; decimal)
- 9999 Non key-subscribers

Note: One response for each key-subscriber of the group.

Interface call number	Task	Type	Data (data format variable length)	Server SW
Request	80	AF	FFFF FFFF 8080	PRO 800 1.2
Request	40	AF	FFFF 8080 00	
Response	BA	60	00 FF TTTT XX YY ZZ ...	

TTTT 4-digit call number of the interface (leading empty digits are filled with "F")
XX Intercom Server ID (in hex)
YY Internal client address
ZZ Data (not relevant; for internal use)

Connection type of an IP subscriber	Task	Type	Data (data format variable length)	Server SW
Request	80	AF	TTTT TTTT 93 09 0000	PRO 800 1.2
Request: group of subscribers	80	AF	FFFF EEGG 93 09 0000	
Response	62	A8	TTTT TTTT 0000 UXYZ	

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
EE Fixed value
GG Group number (00–89, BCD encoded, see "Group call, All Call" on page 56).

U **Queried connection**
- 0 No connection queried
- 1 Standard connection
- 2 Fallback 1
- 3 Fallback 2

X **Active connection**
- 0 No connection active
- 1 Standard connection
- 2 Fallback 1
- 3 Fallback 2

Y **Error**
- 0 No error existing
- 1 Standard connection
- 2 Fallback 1
- 3 Fallback 2
- 4 Standard connection and fallback 1
- 5 Standard connection and fallback 2
- 6 Fallback 1 and fallback 2
- 7 All

Z **Mode**
- 0 Automatic
- 1 Standard connection fixed
- 2 Fallback 1 fixed
- 3 Fallback 2 fixed

Input, output

Input	Task	Type	Parameter 1	Parameter 2	Server SW
Request	40	50	Call number input	Call no. control desk	Pro 04.7
Response: input in idle mode	5B	30	Call no. control desk	Call number input	
Response: input message	5B	2X	Call no. control desk	Call number input	
Response: input message acknowledged	5B	31	Call no. control desk	Call number input	

X Call type (see "Input message" on page 39)

Note: With a number of 5 control stations and 100 inputs, 500 synchronization requests are required.

Input state (independent of configuration)	Task	Type	Parameter 1	Parameter 2	Server SW
Request: input state	40	AF	Call number input	C200	Pro 06.1
Response	42	AF	Call number input	C20X	

C Fixed value
X **Input state**
- 0 Open
- 1 15k
- 2 5k6
- 3 1k5
- 4 Short

Output	Task	Type	Parameter 1	Parameter 2	Server SW
Request	40	51	Call number output	FFFF	Pro 04.7
Response: output inactive	5B	40	Call number output	FFFF	
Response: output active	5B	41	Call number output	FFFF	

Note: With a number of 100 outputs, 100 synchronization requests are required.

All outputs	Task	Type	Parameter 1	Parameter 2	Server SW
Request	40	51	FFFF	FFFF	Pro 06.1
Response: output inactive	5B	40	Call number output	FFFF	
Response: output active	5B	41	Call number output	FFFF	

Note: This message can be used to synchronize the status of the outputs in the configuration block. The message only outputs the active states of the outputs in the configuration block, which is why the data points to be synchronized in the system should be set to inactive before synchronization.

Conference					
Status of simplex and radio conferences	**Task**	**Type**	**Data (data format variable length)**		**Server SW**
Request	80	AF	TTTT TTTT D200		PRO 800 6.3 VirtuoSIS 7.1
	60	AF	TTTT D200		
Response	82	0D	TTTT TTTT 0000 XXYY		
	42	0D	TTTT 0000 XXYY		
X Call type (see "Conference" on page 37)					
Control desk function					
Call trigger (Intercom subscriber or input)	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	50	Call no. subscriber	Call no. control desk	Pro 04.7
Response: conversation	42	12	Call no. control desk	Call no. subscriber	
Response: control desk call request	5B	2X	Call no. control desk	Call no. subscriber	
Response: control desk call request acknowledged (cancel on site)	5B	31	Call no. control desk	Call no. subscriber	
Response: subscriber idle	5B	30	Call no. control desk	Call no. subscriber	
X Call type (see "Input message" on page 39)					
Note: With a number of 5 control desks and 100 Intercom stations, 500 synchronization requests are required.					
Call status of control desk	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	50	Call no. subscriber	FFFF	Pro 04.7
Response: Call status	42	1X	Call no. control desk	Call no. subscriber	
X Call type (see "Conversation" on page 33)					
Note: This message can be used to synchronize the call status of the control desks. The message only outputs the active status, so the data point to be synchronized in the system should be set to inactive before synchronization.					
Control desk dialing list	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request: Control desk dialing list per control desk	40	6E	Call no. control desk	FFFF	Pro 05.6
Request: Control desk dialing list of all control desks	40	6E	FFFF	FFFF	
Response: Input message or line fault	5B	2X	Call no. control desk	Call no. input	
Response: Call request or line fault	5B	2X	Call no. control desk	Call no. caller	
Response: Call request/input message acknowledged	5B	31	Call no. control desk	Call no. caller	
Response: Call active	42	12	Subscriber 1	Subscriber 2	
X Call type (see "Input message" on page 39)					
Note: An effective method of synchronization is to query the message lists from all control desks. Here you can synchronize all pending calls and activities of all control desks by means of a message. Before doing this, the data points to be synchronized must be set to inactive in the system.					
Status call switching of control desk	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	58	Call no. subscriber	Call no. control desk	Pro 04.7
Response	see "Call transfer control desk" on page 38				
Control desk transfer	**Task**	**Type**	**Data (data format variable length)**		**Server SW**
Request	40	59	TTTT FFFF		PRO 800 6.1
Request	80	59	TTTT TTTT FFFF FFFF		PRO 800 2.1
Response: manual transfer	5B	see "Call transfer control desk" on page 38			
Response: automatic transfer	5B	61	see "Call transfer control desk" on page 38		
TTTT TTTT 8-digit call number of the subscriber desk (fill leading empty digits with "F") **Note**: An ICX connection must be configured for the control desk (see page 21). The data point to be synchronized in the system should be set to inactive before execution.					
Dynamic call distribution	**Task**	**Type**	**Data (data format variable length)**		**Server SW**
Request	80	XX	TTTT TTTT		PRO 800 5.0
Response	62	XX	TTTT TTTT 00YY NNNN NNNN ...		
TTTT TTTT 8-digit call number of the basic control desk (fill leading empty digits with "F") XX **Mode** 62 Day 63 Night YY Timeout (in seconds) NNNN NNNN 8-digit call number of the control desks in the distribution chain (fill leading empty digits with "F")					

DSP function				
Audio monitoring	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Request	80	2F	TTTT TTTT 80	PRO 800 4.0
Response: dB-value station microphone	82	2F	TTTT TTTT 80 XX	

TTTT TTTT 8-digit call number of the subscriber (fill leading empty digits with "F")
XX **Trigger dB-value**

XX	00	01	02	03	04	05	06	07	0A	0D	
dBA	off	60	63	67	70	73	77	80	83	87	standard values
dBA	off	50	56	62	68	74	80	90	100	110	extended values
+10 = Off after start of Intercom Server							+20 = Multifunction-LED permanently on				
+40 = Multifunction-LED permanently off							+80 = Permanent				

Note: The audio monitoring request only works when a device is connected and online.

Video					
Current video status	**Task**	**Type**	**Parameter 1**	**Parameter 2**	**Server SW**
Request	40	AF	Call no. control desk	CD6E	Pro 06.1
Response: current camera numbers per monitor of the assigned control desk (including idle state camera numbers)					

Camera parameter (only extended video)	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Request	40	B2	FFFF UUUU	PRO 800 2.0
Response: connection	9D	00	UUUU XX ... YYYY ZZ ...	
Response: text	9D	01	UUUU Text	

UUUU Camera number (decimal)
XX IP address camera
YYYY Port number (decimal)
ZZ Video link (ASCII coding; e.g. video.cgi)
Text Camera text (ASCII coding)

Camera directory	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Request	80	D8	XX 0200 YY	PRO 800 5.0

XX Transaction ID
YY **Intercom Server block** (other values according to the configuration)
EF "Own" Intercom Server
00 GEV block

Examples (XX = 99):
Query of the connected Intercom Server: **00** 80 00 D8 99 0200 **EF**
Query of the Intercom Server "23" (0x17): **17** 80 00 D8 99 0200 **EF**
Query of all Intercom Servers in the NET network: 00 80 00 D8 99 0200 00
Query of all Intercom Servers in block "86": 00 80 00 D8 99 0200 **86**

Response: data of the camera directory	82	D8/D9	XX YY 0000 TTTT Text RRRR NNNN URI	PRO 800 5.0

D8/D9 Message type (D9 = last ICX message)
XX Transaction ID
YY Length of an entry with several cameras per message, counted from TTTT on
TTTT 4-digit camera number (BCD coding)
Text 14-digit camera description (leading empty digits are filled with "F")
RRRR IP address
NNNN Port number (in hex)
URI Text with variable length (max. 120 signs, formatted the following way: "[username:password@]videolink"

Speech recording

RTP mode	Task	Type	Data (data format variable length)	Server SW
Request	80	DA	UU XY 00 ZZ	PRO 800 2.0

UU Transaction ID
X **Hierarchy level** (1–F for 1–15)
0 All
Y **Flags**
+01 Accelerated query (200 subscriber per second, else 50)
+02 Query single message (one message per subscriber)
ZZ **Intercom Server block** (other values according to the configuration in CCT 800)
DF Configuration block
EF "Own" Intercom Server
00 GEV block

Examples (UU = 99, XY = 00):
Query of the connected Intercom Server: **00** 80 00 DA 99 00 00 **EF**
Query of the Intercom Server "23" (0x17): **17** 80 00 DA 99 00 00 **EF**
Query of all Intercom Servers in the NET network: 00 80 00 DA 99 00 00 00
Query of all Intercom Servers in block "86": 00 80 00 DA 99 00 00 **86**

Response	82	DA/DB	XX YY 0000 ZZUU TTTT TTTT RTP data	PRO 800 2.0

DA/DB Message type (DB = last ICX message)
XX Transaction ID
YY Length of entry (in hex)
ZZUU **Address of the subscriber** (in hex)
ZZ Intercom Server ID
UU Client address
TTTT TTTT 8-digit call number of the recorder (leading empty digits are filled with "F")

RTP data (parameters will be indicated in the following order):

Mode
00 Off
01 Only conversation
10 Conversation + tones

Quality
01 3.5 kHz A-Law
04 7 kHz G722
05 3.5 kHz U-Law

Reduction
RTCP interval
RTP server IP
RTP port
VOX control (min. PRO 5.1 required)
00 Off
01 On (stop mode)
10 On (pause mode)
11 On (during pause mode, no ICX message will be put out)

Example
Received ICX message: 00 82 00 DB 00 11 00 00 01 10 FF FF F1 01 23 04 03 03 0A 0A 01 40 00 0A 01

Transaction ID: 00	Length of entry: 11	Intercom Server ID: 01	Client address: 10
Call number of the subscriber: 101	Mode: 23 (conversation + tones)	Quality: 04 (7 kHz G722)	Reduction: 03 (-3 dB)
RTCP interval: 03	RTP server IP: 0A 0A 01 40 (10.10.1.64)	RTP port: 00 0A (10)	VOX control: 01 (on)

Note: The received parameters of the RTP data can be configured for the respective subscriber in CCT 800 at ***Subscriber > RTP Configuration***,

Attention: In order to receive the RTP data, the respective subscriber card has to be licenced with the licence "C-L-IP-REC-1". For further information about RTP, see the manual "**Intercom Server Configuration**".

In order to allow an easy processing of the transmitted data, the length "YY" will be indicated in the ICX message. This enables to skip unused data (which can be ignored) and to fill up of too short data with default values. For all requested Intercom Server the data will be sent in a queue depending on the network. The data package of each Intercom Server is marked with Type "DB" (instead "DA"). If the absolute end without timeout shall be indicated, a flag has to set to the receiver of the ICX message with Type "DB". If all flags has been deleted, it is equal to an end without timeout.

Time and date				
Time and date	**Task**	**Type**	**Data (data format variable length)**	**Server SW**
Request	71	F2	1)	PRO 800 1.1
Response	71	F2	YY MM DD HH XX SS	

YY Year (e.g. “09” for 2009)
MM Month
DD Day
HH Hour
XX Minute
SS Second

1) No data input required

Attention: If the Intercom Server is not synchronised with a SNTP server, no answer message will be sent!

Technical Support

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