# Manual INTUS


INTUS Local Setup

Manual

G5000-003.00

## WARNING AND INDICATING SYMBOLS

**This warning symbol indicates hazards to your health and life as well as hazards that may cause damage to the terminal or system. You should always read and follow the text next to the symbol.**

This symbol points to information that may facilitate your handling of the product and should be noted.

**INTUS Local Setup**
**Manual**
Revision 11/11

Order number: G5000-003.00

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## Important safety notes

- All voltages introduced into the device must conform to SELV requirements and come from a limited power source (EN 60950-1, Section 2.5).
- Always cut off the power supply before opening the device.
- Only trained technical personnel are authorized to install the device and to open the device for maintenance purposes. Unauthorized opening and inappropriate repair may cause considerable hazards for the user.
- The device is not equipped with a disconnecting device from mains (switch) accessible from the outside.
- If a non-detachable mains connection is used, an easily accessible disconnecting device (e.g. an automatic circuit-breaker with a maximum rating of 16A) must be installed.
- If the mains cable is used, the mains connector (power plug) must be used as a disconnecting device. The socket outlet must therefore be positioned in an easily accessible location.
- The fuse of the integrated power supply unit will only be destroyed if a severe failure occurs. Do not replace the fuse. Instead, send in the device for repairs.
- The data cable shielding is grounded at the device. If a peripheral device operated on a circuit different from that of the device is connected with the device, the shielding of the data cables at the peripheral/remote device (or computer) must be insulated from the protective conductor.
- Do not connect or disconnect data cables during a thunderstorm.
- In all cases of emergency (damage to mains cable or equipment, liquids or foreign matter leaking in, etc.): De-energize the device immediately by pulling the power plug or opening the disconnecting device. Contact the PCS Customer Service.
- **CAUTION!** Danger of explosion, if battery is incorrectly replaced. Only replace batteries with same or equivalent type recommended by PCS, see Maintenance Manual.
- Dispose of used batteries according to the manufacturer’s instructions.
- The I/O board is an electrostatic sensitive device. Do not handle the board except at an electrostatic-free workstation.
- Only qualified personnel from PCS is allowed modifying the hard- or software of the device.

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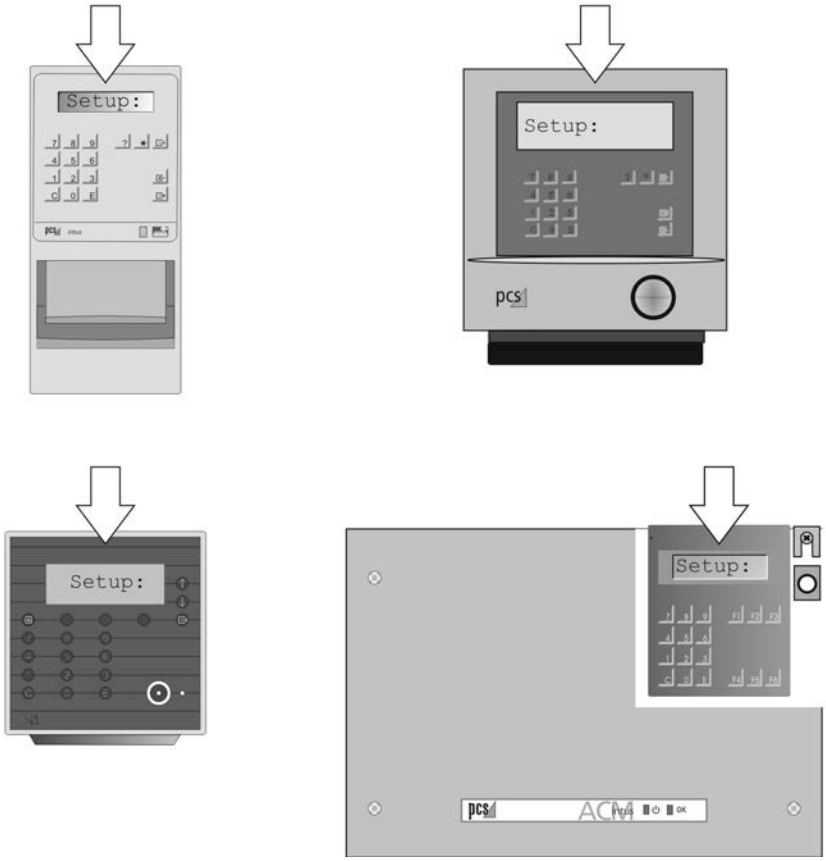
# 1 Introduction

This manual covers local setup for PCS devices and includes commissioning, definition and modification of the Local Setup profile, monitoring of operation, as well as error diagnosis directly on the display of the device. More complicated actions (e.g. changing of the password), and for devices without display, the software INTUS RemoteConf/RemoteSetup, or the TCL programming language is required.




This Operating Manual refers to the following device types:

INTUS 3100/3150/34x0/5300/5320/5500/ACM40/ACM40e/80e*

(*Firmware 1.6 and higher)

## Additional manuals

In addition to this Operating Manual, for each device

**an Installation and Maintenance Manual** for the respective device, providing the information the installer or electrician needs for mounting and installing, and servicing the device. It contains detailed information on the required connections, interfaces, and ambient conditions.

- **the INTUS TCL Programming Manual (order No. G3000-004)**,

  This manual describes the TCL programming language. TCL can be used for customized programming of the device.

- **the INTUS RemoteConf Manual (order No. G5000-001)** or the manual „**Configuration and Operation**“ (order No. D3000-011 – Part 2 RemoteSetup) for older devices.

are available.

# 2 Activate Local Setup

When the device is switched on for the first time, the operating parameters are set to default factory settings.

To operate the device, the operating parameters must be set appropriately for the connection to host and remote readers to work.

## 2.1 Access grades

For security reasons, there are three different grades accessible by passwords.

**Grade 1:** The house technician can configure the communication protocol and IP address for an Ethernet connection or set the operating parameters for a serial host connection.

**Grade 2:** The operator/partner can set or change more complex operating parameters.

**Grade 3:** In addition to the operating parameters of Grade 2, the system administrator can configure security-relevant settings as encryptions or maintenance groups.

## 2.2 Start Local Setup

Enable the device. After the initialization procedure, the display shows:

```
Waiting for host connection*
```

*Or the respective TCL program is displayed

Press the following keys successively within less than one second:

| Function keys | Symbol keys | Action |
|---|---|---|
| F3<br>subsequent<br>F1 F1 | ⊟→<br>subsequent<br>? ? | Press „*Down/Save*“ once,<br>subsequently<br>press „*Cancel*“ twice in rapid succession |

The display shows:

```
PWD:
```

If this prompt is not displayed, the keys were not pressed within the required time or setup is blocked. If so, please repeat this step.

**Local Setup will be aborted if the password is not entered within 20 seconds.**

### “PWD:“ Access grade 1

Access grade 1 is accessible with password 111111 (default setting).

1 1 1 1 1 1 Press „*1*“ six times.

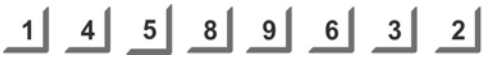
### “PWD:“ Access grade 2

Access grade 2 is accessible with password 14789632 (default setting).


Press „*1 4 7 8 9 6 3 2*“.

### “PWD:“ Access grade 3

Access grade 3 is accessible with password 14589632 (default setting).




Press „*1 4 5 8 9 6 3 2*“.

## 2.3 Changing the password

This change is made via INTUS RemoteConf/RemoteSetupt or via the TCL commands ***“IK, ‘pwd’, subfield:”***.

The subfield depends on the access grade:

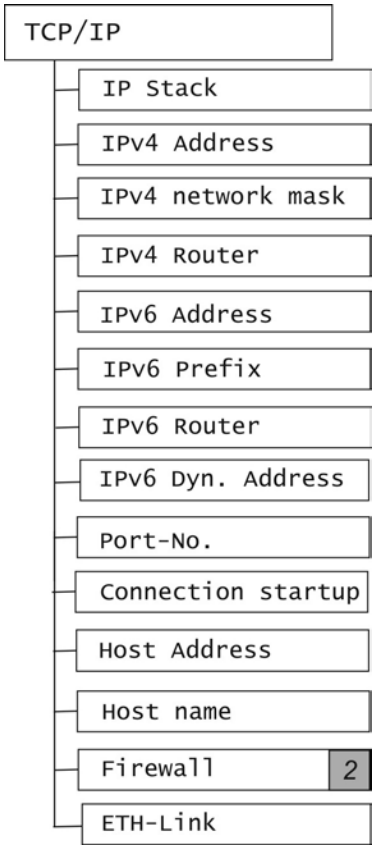
| Access grade | Subfield | Local Setup password (default setting) |
|---|---|---|
| Access grade 1 | CV+70,6 | 111111 |
| Access grade 2 | CV+116,8 | 14789632 |
| Access grade 3 | CV+124,8 | 14589632 |

For details, please see the INTUS TCL Programming Manual (order No. G3000-004).

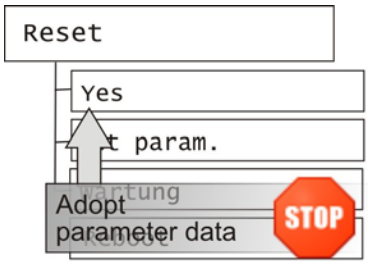
**Please make a note of any password change. See chapter 13.**

# 3 Structure of Local Setup

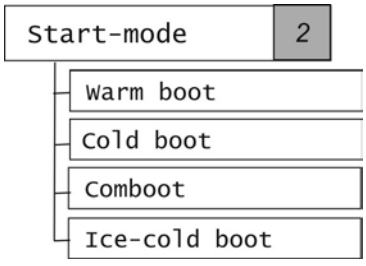
Please note: Depending on the device you purchased, some items may be hidden.



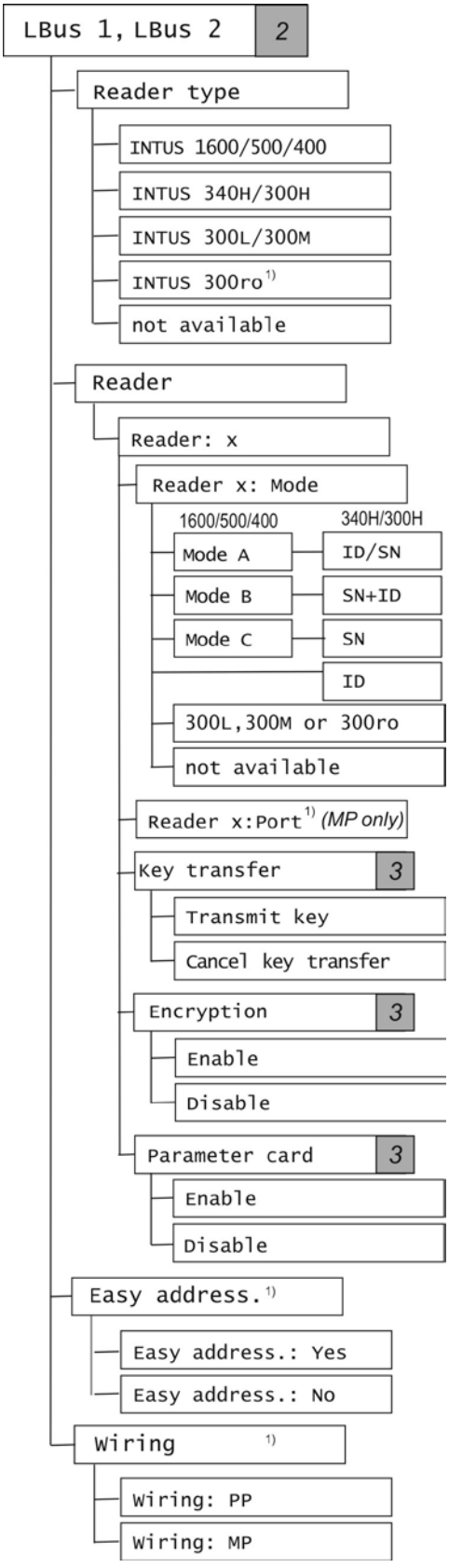

*Chapter 5*




*Chapter 10.1*

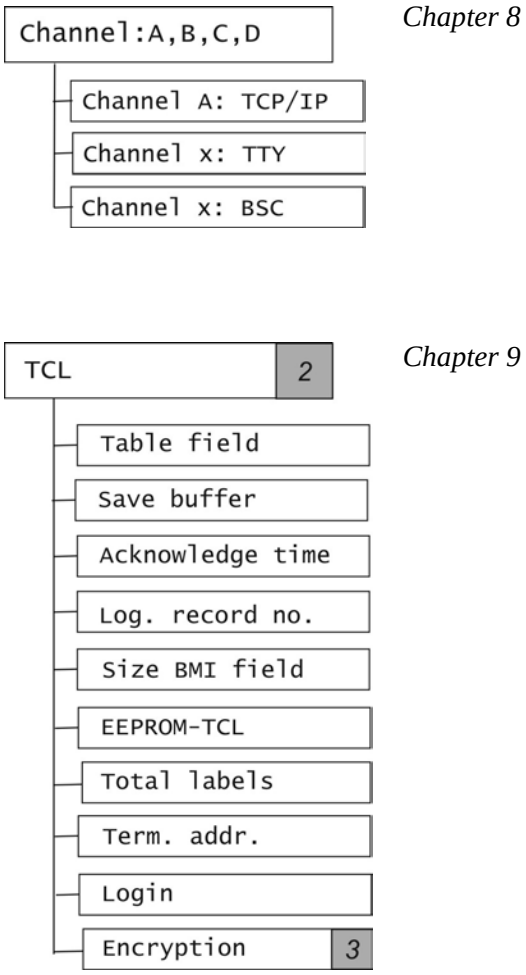



*Chapter 10.2*




*Chapter 6*

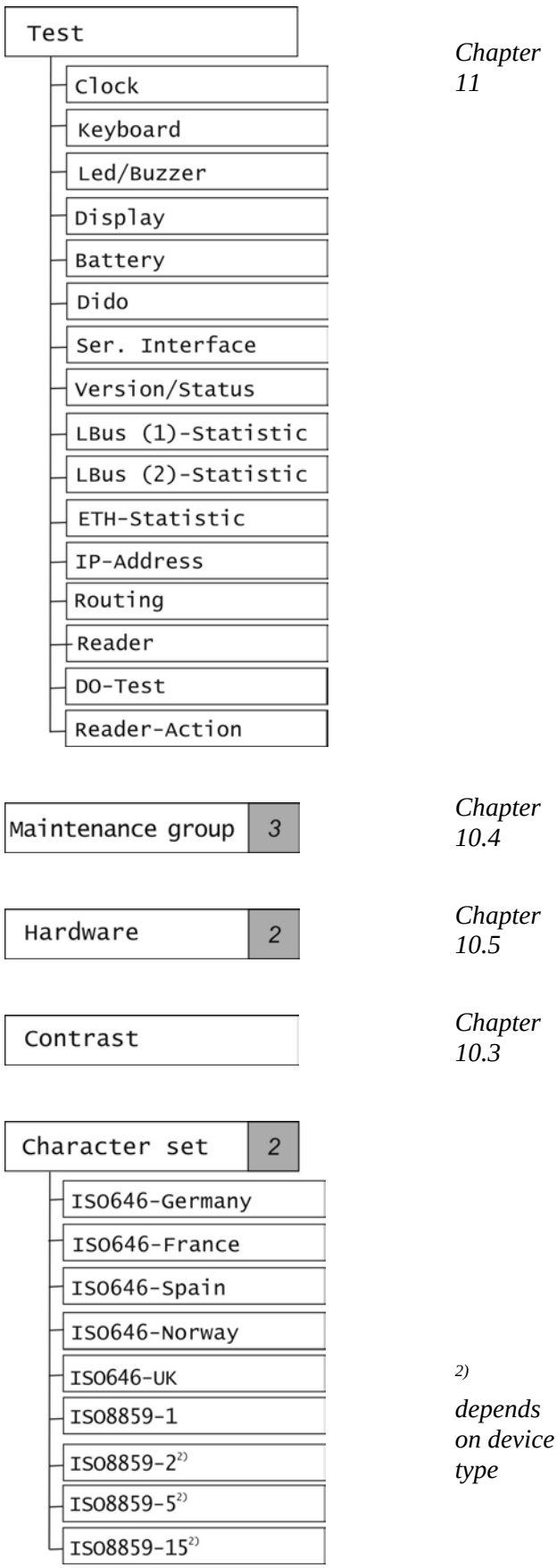
[1] INTUS ACM only




*Chapter 8*

*Chapter 9*

*Chapter 7*




*Chapter 11*

*Chapter 10.4*

*Chapter 10.5*

*Chapter 10.3*

*2) depends on device type*

# 4 Local Setup functionality

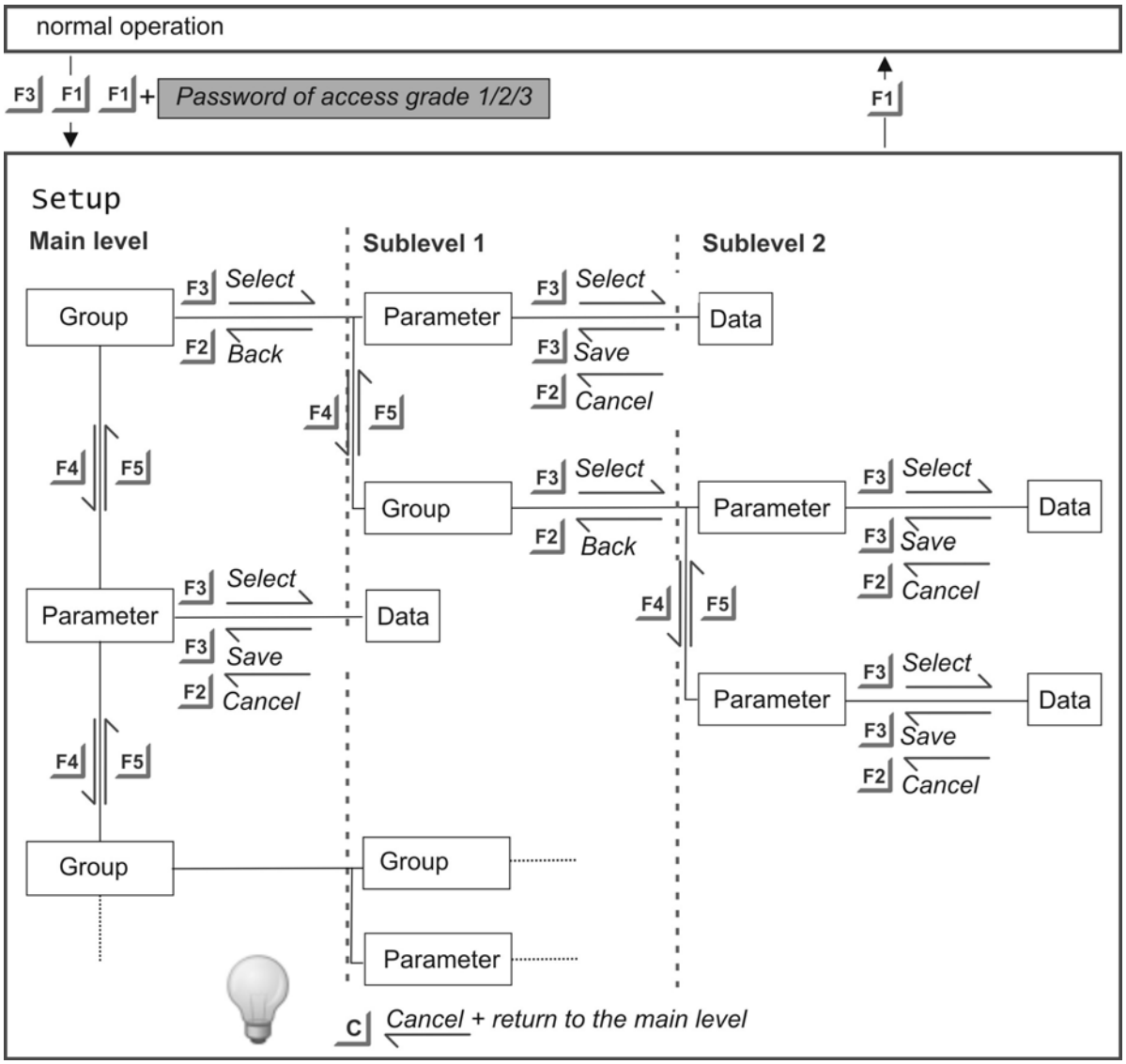
## 4.1 Keyboard layout of Local Setup

The keyboard layouts of the device types may differ.

**Never use pointed or sharp objects to operate the keyboard.**

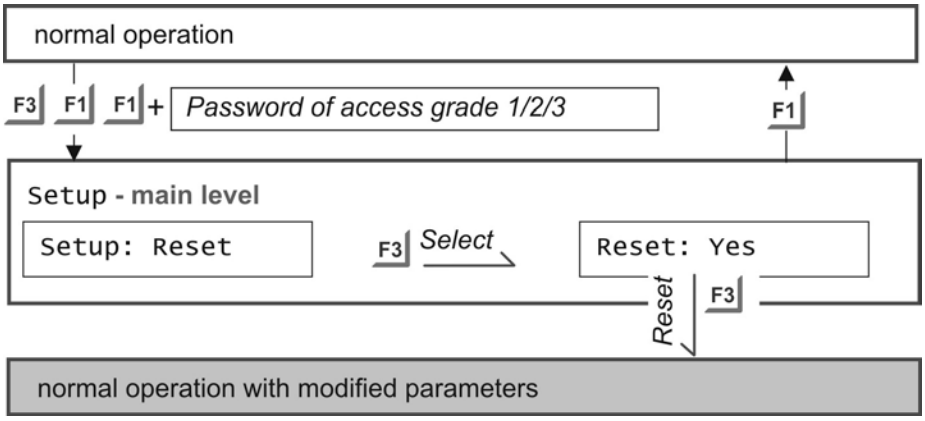
| Symbol keys | Function keys | Meaning | |
|---|---|---|---|
| ? | F1 F1 | *Cancel* | Terminates Local Setup and restores the original values; any modifications of settings are discarded. |
| * | F2 F2 | *Up* | Selects a higher, previous level of Local Setup. |
| | F3 F3 | *Down / Save* | Selects the next lower level of the Local Setup menu.<br>If this key is used on the lowest level after a parameter was modified, the parameter is saved, and the key returns you to the next higher level. However, the modification will only become effective if you leave Local Setup via the **Reset** menu option. |
| | F4 | *Continue/+* | ***Continue***/+ cycles you forward to a particular level. |
| | F5 | *Back /-* | ***Back***/- cycles you backward to a particular level. |
| C C | C C | *Main level* | This key returns you to the main level of Local Setup. |

## 4.2 Proceeding at Local Setup – function keys

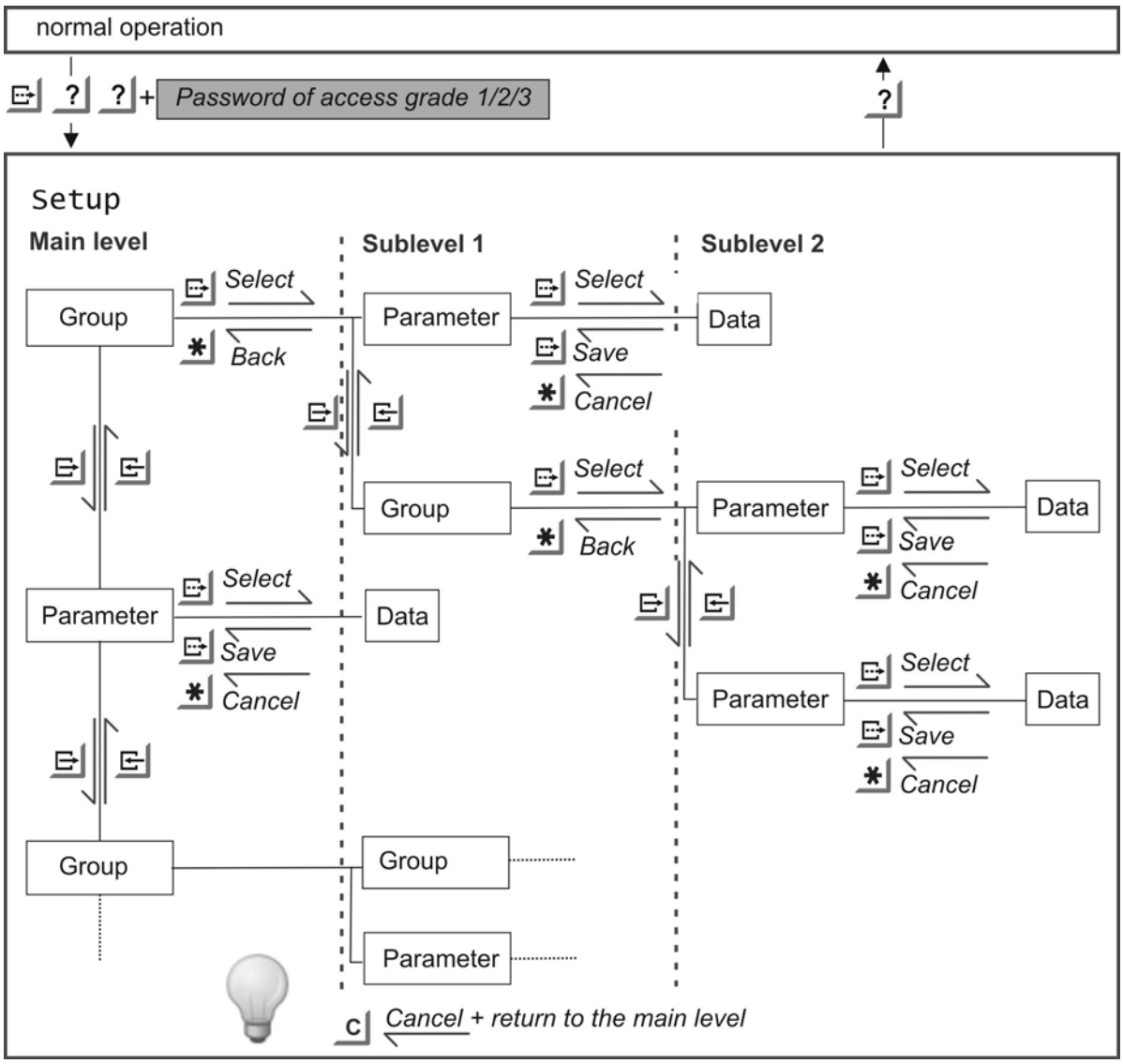



### 4.2.1 Adopt parameter settings - function keys

Modified parameter values will not be immediately effective but only become so after a concluding Reset “Yes”.

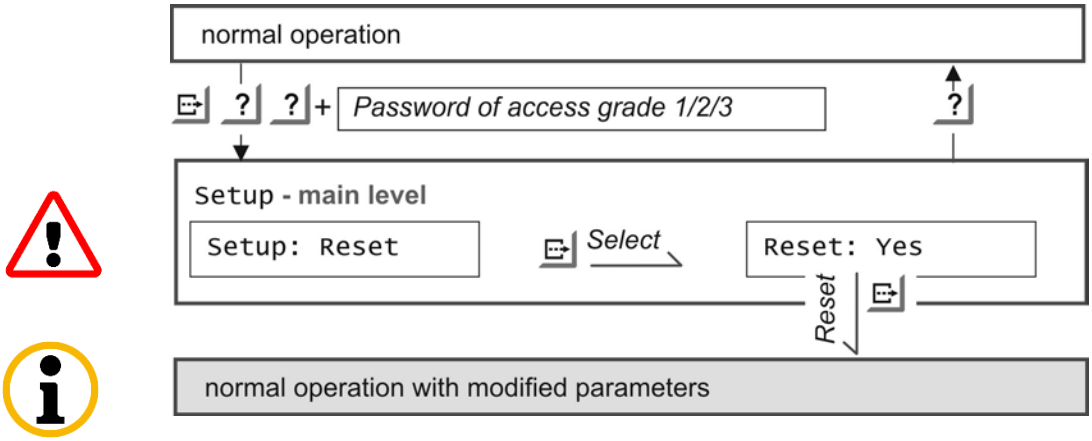


## 4.3 Proceeding at Local Setup – symbol keys




### 4.3.1 Adopt parameter settings – symbol keys

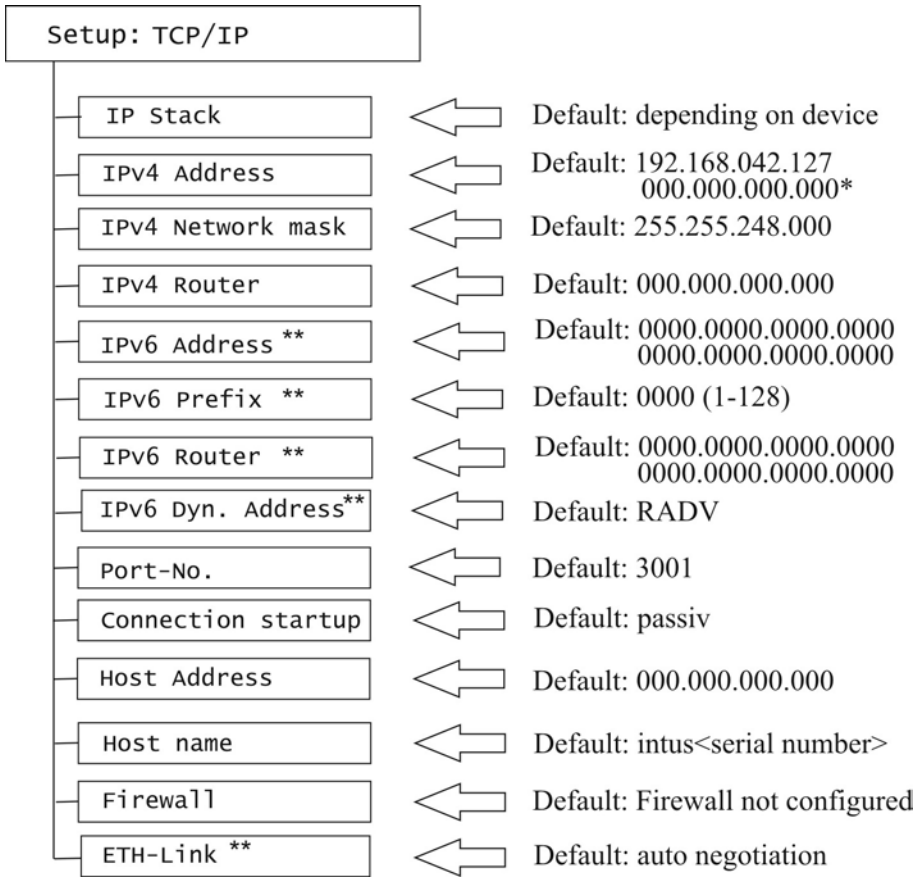
Modified parameter values will not be immediately effective but only become so after a concluding Reset “Yes”.



# 5 TCP/IP – Configuring the network connection

Configure the networking via „Local Setup: TCP/IP“.

If a serial protocol is set via Channel A, it is not possible to establish a TCP/IP connection to the configured port number. The parameters set here are then used for maintenance.




* Default setting at devices with DHCP (option)

** Not available at each device.

## 5.1 Set TCP/IP parameter

### TCP/IP: IPv4 / IPv6 Address

If the option “DHCP“ is available at the device and the IP address 0. 0. 0. 0 is set; the terminal receives the IPv4 address from “DHCP”.

If IPv6 address 0000:0000:0000:0000:0000:0000:0000:0000 is set, the terminal receives the IPv6 address dynamically. This procedure is selected with „IPv6 Dynamic address“.

The IP address must always be individually adjusted for the local network on which the terminal is installed. Ask your network administrator for the correct IP address.

For entering the IP address, please see the section below.

### TCP/IP: IPv4 Network mask

Subnet mask of the local network on which the device is installed. The default value is `255.255.255.000`. It can be used for most networks. Ask your network administrator for the subnet mask that is to be set. This is not necessary if the IPv4 address is received dynamically.

### TCP/IP: IPv4 / IPv6 Router

IP address of the router; always set this address when host and device are in different logical sub networks. Ask your network administrator for the IP address to be set. This is not necessary if the IP address is received dynamically.

### TCP/IP: IPv6 Prefix

Prefix length (network share of the IPv6 address 1-128Bit) of a subnet mask for the local area network. Normally, 64 bits is set. This is not necessary if the address is obtained dynamically.

### TCP/IP: IPv6 Dynamic Addresses

Set the addresses:

- „RADV“ (Default: Router advertisement); if so, an IPv6 address is generated automatically by the terminal itself according to the specifications of the local router.
- „DHCPv6“ the IPv6 address is obtained by the stateful DHCPv6.

### TCP/IP: Port No.

The port number for the terminal connection to the host. The port number is represented by decimal values. By default, the port number is set to 3001. Normally, the port number should not be changed.

### TCP/IP: Connection start-up

Defines the type of connection start-up (client/server):

`passive` Default setting, the terminal (server) opens a TCP port with the defined port number and waits for connection requests from the host (client).

If a connection has been set up and no data transfer has taken place for 1 minute, the terminal sends a “Keep Alive” package to find out whether the connection still exists. This way, an irregular connection breakdown is quickly detected, and rapid switchover from online mode to offline mode is possible.

`passive/RAS` This setting is suitable for TCP/IP connections via ISDN dial-up lines which will automatically be released when there is no data traffic while the logical TCP/IP connection is maintained. As the `passive` setting above, the `passive/RAS` value sets the terminal into passive server mode. However, the interval between “Keep Alive” packages is increased from one minute to two hours, in order to reduce communication costs.

`active` If the terminal is operated in `active` connection start-up mode, the host (server) must open a TCP port with the defined port number and wait for connection requests from the terminal (client). The terminal periodically repeats its connection requests until a connection can be set up. This method is more secure because the connection can only be set up to a host. “Keep Alive” packages are sent the same way as in the case of the `passive` setting.

**“Keep Alive on Demand”:** If a connection request for the TCL port arrives at a terminal operated in passive server mode although a connection still exists, the request will be rejected.

Subsequently, the terminal attempts to find out via a “Keep Alive” package whether there is in fact a connection or whether an irregular connection breakdown occurred.

If there no longer is a connection, the TCP/IP protocol stack of the host will respond to these “Keep Alive” packages with a TCP reset package and immediately release the connection this way.

If there is no such response from the host, it will take a maximum of 6 minutes before the terminal detects the connection as broken down and allows another connection.

In case of an irregular connection breakdown, the host will in any case receive a rejection (ECONNREFUSED or ECONNABORT) in response to at least one connection request (connect), before the connection can be set up. The implementation on the host must consider this fact and allow a number of connection setup attempts.

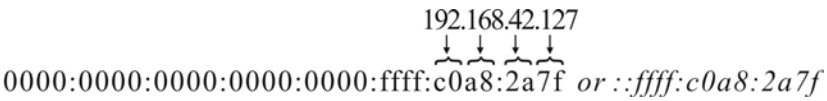
### TCP/IP: Host Address

The address of the host is only required if **TCP/IP: Connection start-up** is set to `active`. Otherwise, the default value should not be changed.

Default

- IPv4: 000.000.000.000 or
- IPv6: 0000:0000:0000:0000:0000:0000:0000:0000

An IPv4 address can be displayed in IPv6 format, for example




### TCP/IP: Host name

When the DHCP server is configuring the terminal IP, the terminal transmits the DHCP option „Host name“ to the DHCP server. The host name may consist of up to 18 alphanumeric characters or hyphens.

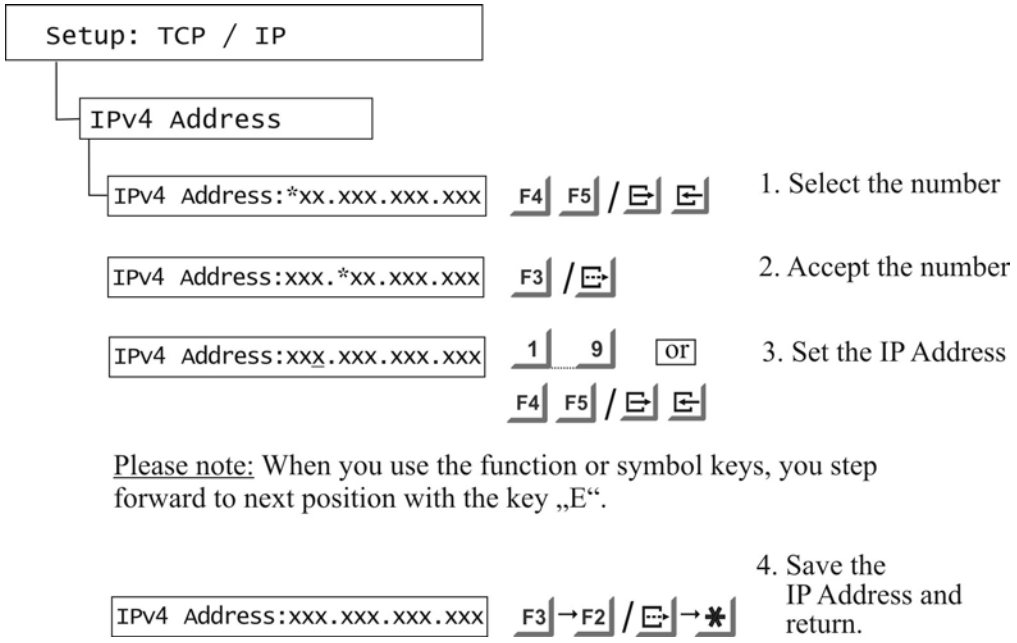
Please note, the host name has to start with an alphabetic character and may not finish with a hyphen. By default, the host name is “intus-<serial number>”.

### TCP/IP: ETH Link – not available at each device

This parameter configures the transfer rate of the Ethernet link. Auto negotiation or a fix transfer rate 10BaseT or 100BaseTX each with half duplex or full duplex are available. Auto negotiation is set by default.

The setting must be identical on the opposite side, otherwise, communication problems may occur!

## 5.2 Entering the IP address




### IPv6 address

F4 F5 / E E To set the character a, b, c, d, e, f , you have to use the function or symbol keys.

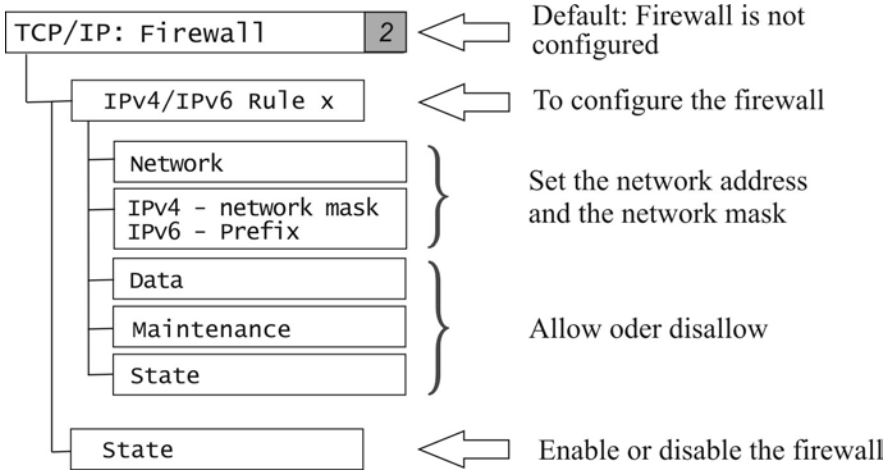
Please note that when the configuration is completed, you have to apply the settings, see section 5.2.1.

## 5.3 Configuring the firewall (access grade 2 / 3)

Enable the firewall to prevent network access to the device. To permit the operation, you have to set (exception) rules.

These rules allow network access to different services, such as „data“, „maintenance“ and „state“, from the respective sub sectors of the network.

The network address in conjunction with the network mask / prefix defines which and how many network users are granted access authorizations for the respective services. Five rules in the setup are available.



The number of network users is defined by the network mask / prefix and calculated using binary code. The maximum value 255.255.255.255 (IPv4) or 128 (IPv6) means that only a single network user has the configured access authorizations.

For more information on the network address and mask, please contact your network administrator.

**Default setting:** Firewall is not configured. The default value for the network address and the network mask (IPv4) or prefix (IPv6) is “0”.

Set the network address and the network mask or prefix as well as the IP address; see section 6.2.

Now for each rule you can allow:

- Access to the data port (modifications in data/program);
- Access to the maintenance port for maintenance tasks like updating the firmware or setting the operating parameters;
- Access to port 80 (HTTP) for fetching the status page

### Example (IPv4)

One network user (network address 192.168.008.040) is allowed to access the data port, perform maintenance tasks and fetch the status page.

A number of network users (IP address 192.168.008.000 - 192.168.008.255) are only allowed to fetch the status page.

In this case, the firewall is configured as follows:

| Rule | Network | Network mask |
|---|---|---|
| Rule 1 | 192.168.008.040 | 255.255.255.255 |
| Rule 2 | 192.168.008.000 | 255.255.255.000 |

| Rule | Data | Maintenance | State |
|---|---|---|---|
| Rule 1 | Yes | Yes | Yes |
| Rule 2 | No | No | Yes |

Please make a note of the firewall data in the table in section 13.

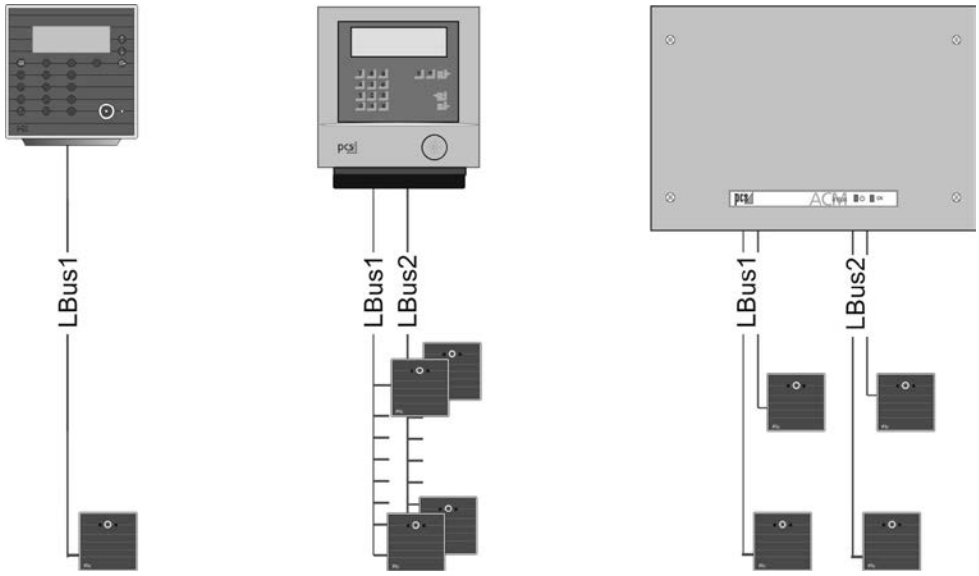
# 6 Configuring the LBus (access grade 2 / 3)

Please note: This chapter is valid only for devices to which you can connect external readers via LBus. Otherwise, the entry is hidden.

To facilitate readability, the term “reader” is used subsequently, as there is no difference between readers and subterminals from a software point of view.

The LBus is an interface to connect external readers.

On Local Setup access grade 3, you can change security settings, see section 7.5.



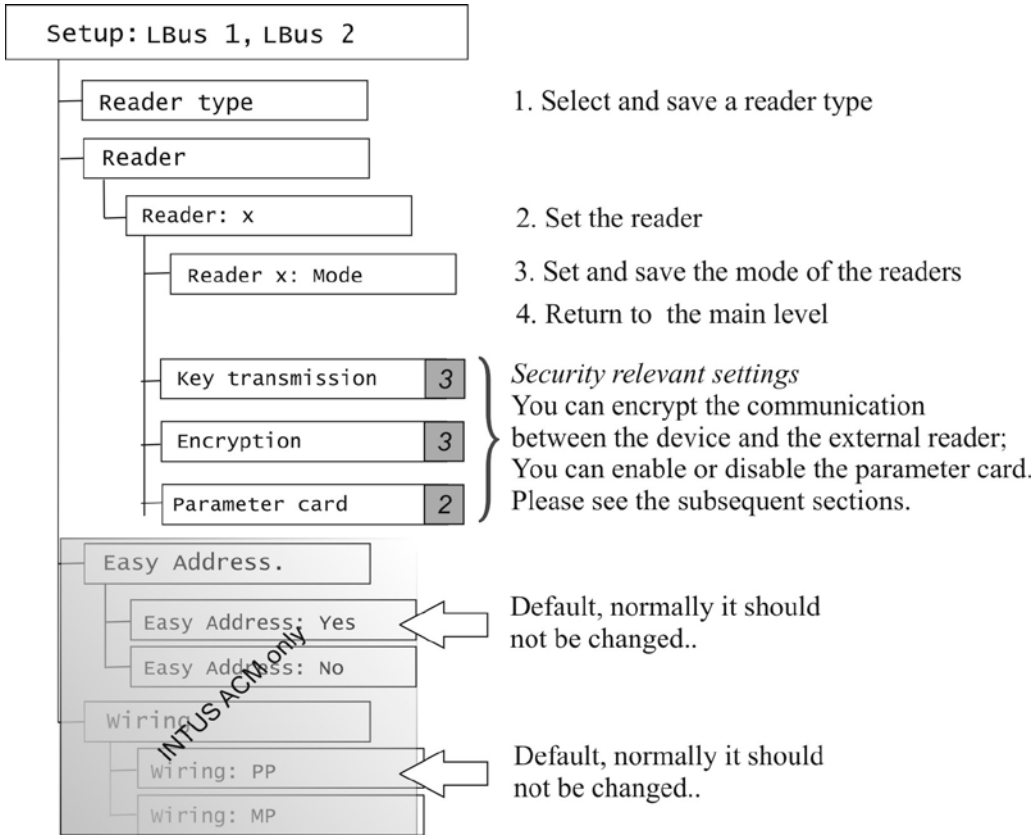

### LBus connection

Further details and examples to the LBus reader connection at INTUS 3450/3460/3660 and INTUS ACM4/40, please see the respective manuals.

## 6.1 Number of readers at the LBus

| | **Number of readers** | | |
|---|---|---|---|
| **Main terminal** | LBus 1 | LBus 2 | Note |
| INTUS 3200 | ---- | 1 | LBus1 or LBus2 are options, depending on device type and available interfaces |
| INTUS 3300 | 8 | 8 | |
| INTUS 3400/3450/3460 | 8 | 8 | |
| INTUS 3500/3600/3660 | 8 | 8 | |
| INTUS 5300 | 1 | ---- | |
| INTUS ACM80e Rack | 8 | 8 | Standard 8 readers<br>Optional 16 readers |
| INTUS ACM80e Wall | 8 | 8 | Standard 4 readers<br>Optional 8 or 16 readers |
| INTUS ACM40e | 2 | 2 | Standard 2 readers<br>Optional 4 readers |

## 6.2 Configuring the external reader




Please note that when configuration is completed, you have to apply the settings, see section 5.2.1 / 5.3.1.

### 6.2.1 Reader type

By setting the reader type, the reader is not yet configured, only the mode options are defined.

"Reader type: not available" is used if there is no reader connected via LBus.

| | Local Setup-Parameter „LBus: Reader Type" | | | |
|---|---|---|---|---|
| **Reader** | INTUS 1600/ 500/400 | INTUS 300H/340H | INTUS 300L/300M | INTUS 300ro[2)] |
| INTUS 1500/1600 /-II | OK | - | - | - |
| INTUS 600/800FP | OK | - | - | - |
| INTUS 350H/640H | OK[1)] | OK[1)] | - | - |
| INTUS 400/-S/410/420 | OK | - | - | - |
| INTUS 500 /-S/-IP | OK | - | - | - |
| INTUS 600/620 | OK | - | - | - |
| INTUS700/slim | OK | - | - | - |
| INTUS 300H | - | OK | - | - |
| INTUS 340H | - | OK | - | - |
| INTUS 300L/M | - | - | OK | - |
| INTUS 300ro[2)] | - | - | - | OK |

[1] INTUS 350H and INTUS 640H: The setting of the reader type depends on if LBus protocol or 340H protocol is configured. Set „reader type: INTUS 1600/500/400“ at LBus protocol; set „reader type: 300H/340H“ at 340H protocol, also see INTUS 350H or INTUS 640H Installation Guide.

[2] Only valid for INTUS ACM devices.

### 6.2.2 Reader x: Mode

When configuring an external reader, the **mode must be specified**. For all PCS readers except for the ones mentioned in the table below, **Mode B** has to be configured.

Mode “not available” is used when a position in the LBus is not occupied.

| Reader | Mode A<br>2 x 16 character display | Mode B<br>2 x 20 character display | Mode C<br>2 x 20 character display + extended keyboard functionality |
|---|---|---|---|
| INTUS 1600 | OK | OK | - |
| INTUS 1600-II | OK | OK | OK |
| INTUS 1500 | OK | - | - |

If your reader doesn’t exist in the table above, you will find this information in the manual delivered with the reader.

#### *INTUS 300H, INTUS 340H, INTUS 350H/ INTUS 640H (with 340H protocol)*

- **Mode ID/SN:** The ID number is read with priority. This is equivalent to the „old“ configuration of the reader.
- **Mode SN+ID**: The reader reads the serial number as well as the ID number. If no ID number is available, only the serial number is read.
- **Mode SN**: The reader reads the serial number only. If no serial number is available, no read operation will occur.
- **Mode ID**: The reader reads the ID number only. If no ID number is available, no read operation will occur.

#### *INTUS 300L/M, INTUS 300ro*

If an INTUS 300L/M or an INTUS 300ro reader is set, the reader type is displayed in submenu “mode”.

### 6.2.3 Easy addressing – only valid for the INTUS ACM

**Easy addressing: Yes – set by default**

If "`Local Setup: Easy address: Yes`" is valid, no conflict can occur between the reader address (1) and the reader identification or the TCL address at INTUS ACM; only point-to-point cabling is possible.

Please make sure that **all the readers** must be set to **address 1**.

You cannot set an address at **INTUS 300ro**. This means you have to set **"Easy addressing: Yes"** for this reader to be connected.

**Easy addressing: No**

As an alternative to "Easy addressing: Yes", you can directly assign readers to preset logical program addresses of INTUS ACM by means of fixed addresses. This is required for Multi-Point cabling.

## 6.3 Overview of LBus Local Setup settings

**Main terminals**

| LBus | LBus reader + Reader address | TCL address | LBus | LBus reader + Reader address | TCL address |
|---|---|---|---|---|---|
| **Local Setup: LBus 1** | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 | **Local Setup: LBus 2** | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 | 9<br>10<br>11<br>12<br>13<br>14<br>15<br>16 |

**INTUS ACM4/40/40e - Wiring „Point-to-Point"**

Set by default at Local Setup is „PP" (Point-to-Point) wiring.

| | LBus | Wiring | LBus reader | Reader addresses Easy address. | | TCL address |
|---|---|---|---|---|---|---|
| | | | | Yes | No | |
| ***Default*** | Local Setup: LBus1 | PP | 1 → Door 1<br>2 → Door 2 | 1<br>1 | 1<br>2 | 1<br>2 |
| | Local Setup: LBus2 | PP | 1 → Door 3<br>2 → Door 4 | 1<br>1 | 1<br>2 | 9<br>10 |
| **Alter-native** | Local Setup: LBus1 | PP | 1 → Door 1<br>2 → Door 2 | 1<br>1 | 1<br>2 | 1<br>2 |
| | | | 5 → Door 3<br>6 → Door 4 | 1<br>1 | 5<br>6 | 5<br>6 |
| | Local Setup: LBus2 | MP | ---------- | ---------- | | ---------- |

### INTUS ACM4/40/40e - Wiring „Multi-Point”

In exceptional cases, you can wire Multi-Point (MP). Each reader is then assigned to a „Port“ (interface).

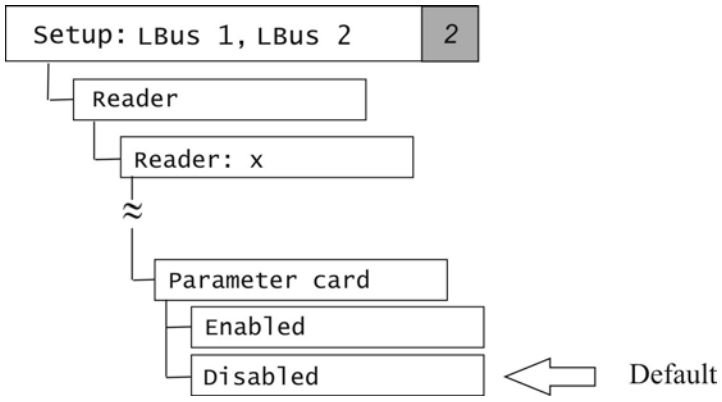
| LBus | Wiring | LBus reader + Reader address | Port (interface) | TCL address |
|---|---|---|---|---|
| Local Setup: LBus1 | MP | 1 → Door 1<br>2 → Door 2<br>3 → Door 3<br>4 → Door 4 | 1 (B)<br>2 (C) | 1<br>2<br>3<br>4 |
| Local Setup: LBus2 | MP | 1 → Door 1<br>2 → Door 2<br>3 → Door 3<br>4 → Door 4 | 3 (P)<br>4 (Q) | 9<br>10<br>11<br>12 |

## 6.4 Enabling or disabling the parameter card

A new configuration can be transmitted to an external reader using a parameter card.

You can enable or disable the application of the parameter card. The status is saved at the reader, but it isn’t displayed here.

You can change the configuration of the reader concerning the parameter card at this setup point!




## 6.5 Encrypting reader communication

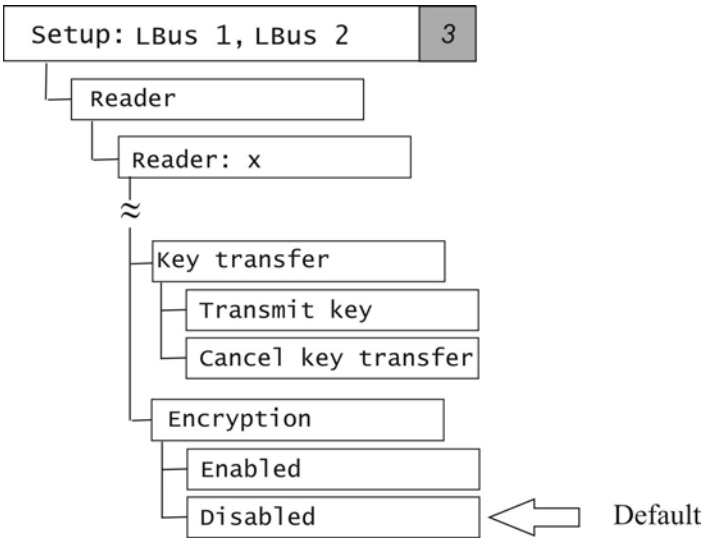
In Access grade 3 you can encrypt communications between an external reader and the device.

Currently, the encryption is supported by

- INTUS 700/600/620 and INTUS 640H
- INTUS 400/420, INTUS 500/520 firmware version 1.08 and higher
- INTUS 350H firmware version 1.01 and higher
- INTUS 1600-II

You can enter any passphrase (encryption text) with up to 512 characters in INTUS RemoteSetup.

Encrypted communication is only possible, when the device and the reader are encrypted with the same passphrase (key).




### Reader x: Key transfer

First you have to transmit the key to the reader, using the submenu "`Reader x: Key transfer`".

At the moment of key transfer the reader has to be online.

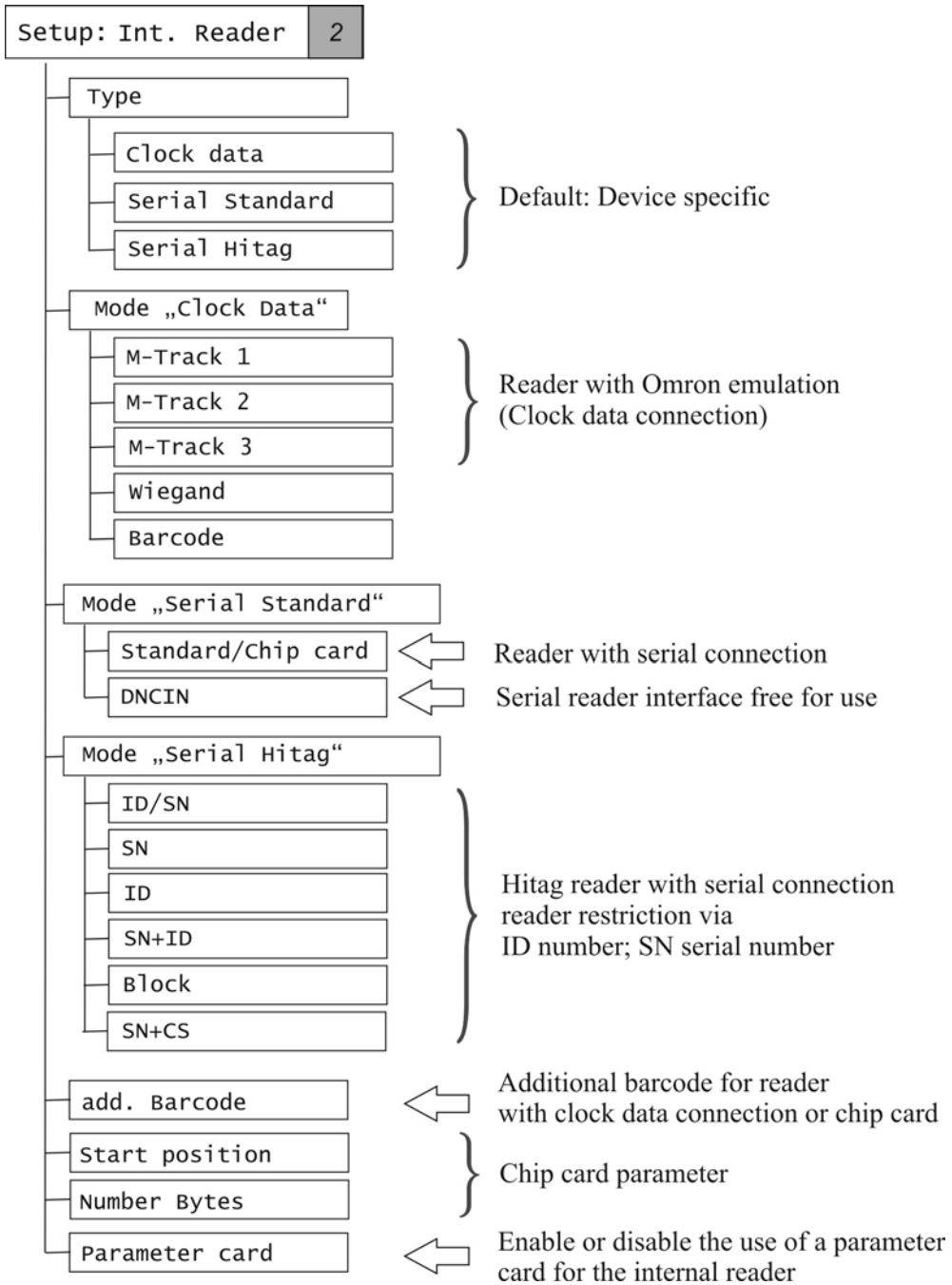
### Reader x: Encryption

When the key is transmitted, it is necessary to enable the encryption for each reader.

# 7 Configuring the internal reader

Please note: This chapter doesn't apply to INTUS ACM.

The reader type must be set correctly to ensure a correct entry of the reader type in the B, M, and I fields of the TCL interpreter.



## 7.1 Internal reader: Type „Clock data“ mode

Clock data connection (Omron emulation, Wiegand, barcode) is mainly selected for swipe readers, e.g. magnetic card reader, Wiegand or barcode reader.

Clock data readers are not connected to a serial interface.

| Reader mode / additional barcode | Comment |
|---|---|
| Mag. Track1<br><br>Mag. Track1 + additional barcode | Reader with Omron emulation; TCL identifying code “X”<br>with additional barcode reader |
| Mag. Track2<br><br>Mag. Track2 + additional barcode | Reader with Omron emulation; TCL identifying code “Y”<br>with additional barcode reader |
| Mag. Track3<br>Mag. Track3 + additional barcode | Reader with Omron emulation; TCL identifying code “Z”<br>with additional barcode reader |
| Wiegand | Wiegand reader<br>(only with interface B3100-006) |
| Barcode<br>Barcode + additional barcode | Barcode reader, single<br>barcode reader, “dual barcode module” |

## 7.2 Internal reader: Type „Serial standard“ mode

Select „Serial standard“ for the proximity reader Legic®, Mifare® and the memory chip card reader with serial connection.

| Reader mode / additional barcode | Comment |
|---|---|
| Standard/Chipcard | Readers with serial connection such as proximity readers or memory chip card readers |
| DNCIN | Free serial reader interface |
| Chipcard<br><br>+ additional barcode | Readers with serial connection such as proximity readers or memory chip card readers<br>with additional barcode reader |

## 7.3 Internal reader: Type „Serial Hitag“ mode

Hitag® reader with serial connection

| Reader mode | Comment |
|---|---|
| ID/SN | The ID number is read with priority. This is equivalent to the „old“ configuration of the reader. |
| SN | The reader reads the serial number only. If no serial number is available, no read operation will occur. |
| ID | The reader reads the ID number only. If no ID number is available, no read operation will occur. |
| SN+ID | The reader reads the serial number as well as the ID number. If no ID number is available, only the serial number is read. |
| Block | Reading of the data block |
| SN+CS | The reader reads the serial number as well as the checksum. |

## 7.4 Internal reader: Start position / number bytes

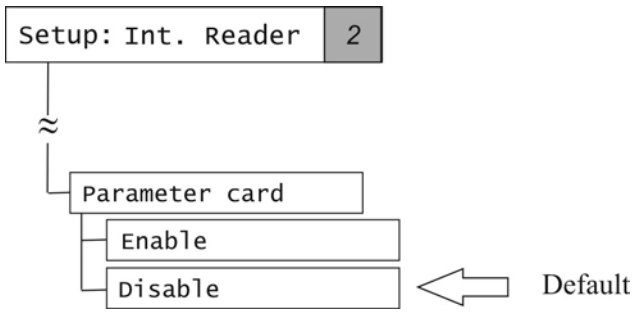
The parameter „Start position“ (0 - 2048 Bytes) and „Number bytes“ (1-53 Bytes) must be set for some chipcard reader. Default setting: Start position - 40 bytes; number bytes - 20 bytes

## 7.5 Internal reader: Parameter card

A new configuration can be transmitted to an internal reader using a parameter card. You can enable or disable the use of the parameter card.

The status is saved at the reader, but it isn’t displayed here.

You can change the configuration of the reader concerning the parameter card at this setup point!




The parameter card can be operated at types with serial connection and the following reading technologies:

- Legic® advant and
- Mifare® DESfire EV1/EV2

# 8 Configuring serial interfaces (option)

The device can be equipped with an optional serial interface (RS485 or V.24). The serial interface can be used

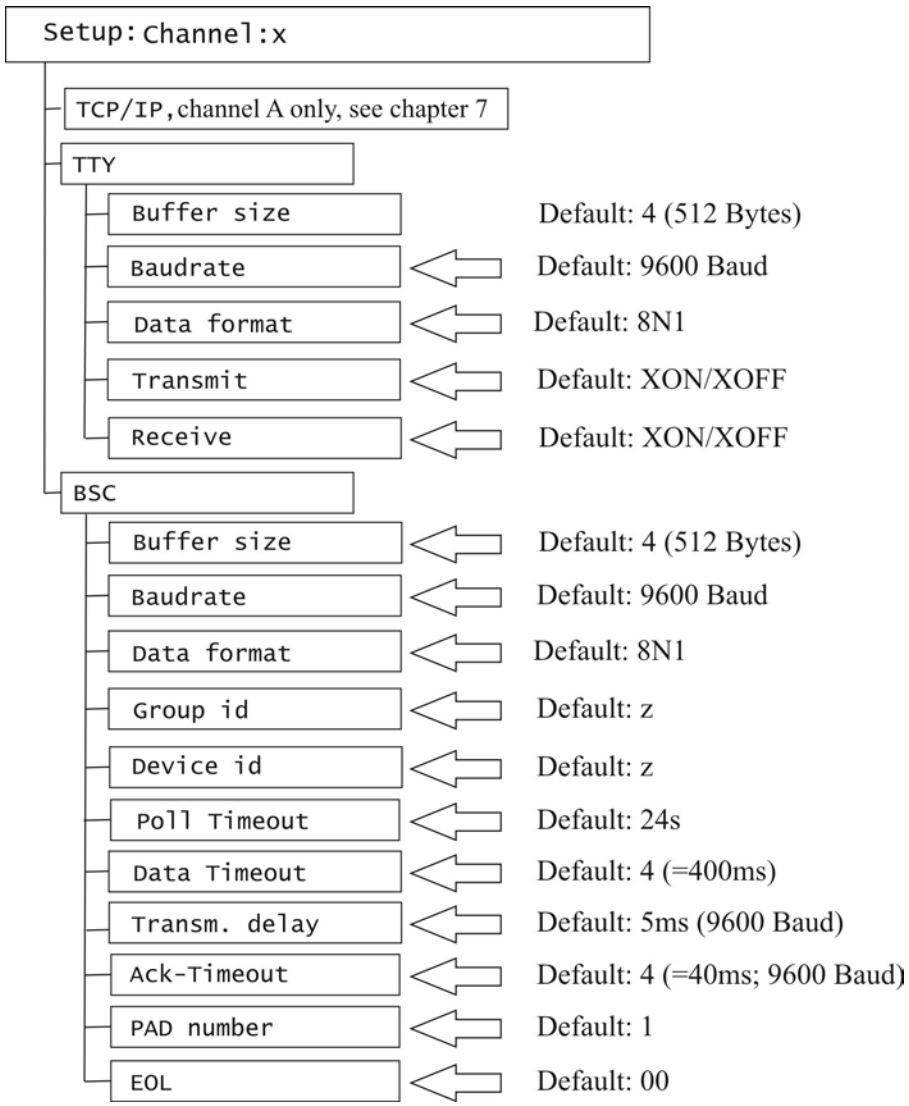
- to connect the terminal to a host,
- to connect another device such as scales

Please note that when the host connection is configured via "`Local Setup: Channel A`":

When the protocol for the connection of the terminal to the host is selected and configured on "Channel A", then three protocols are available.

- TCP/IP (Ethernet connection), see chapter 6
- TTY (serial connection), see below,
- BSC (serial connection), see below

## 8.1 Overview – serial connection RS485 or V.24



## 8.2 TTY protocol

TTY is a character stream mode with configurable flow control. The TTY character stream mode includes the following sublevels:

### TTY: Buffer size

`Buffer size: receive` Sets the size of the input buffer to a value in the range of 1 up to 100 (x 128 bytes). The default setting is 4 (512 bytes).

`Buffer size: Transmit` Sets the size of the output buffer to a value in the range of 1 up to 100 (x 128 bytes). The default setting is 2 (256 bytes).

### TTY: Baud rate

Channel baud rate

| | | | |
|---|---|---|---|
| `Res.` | `50` | `75` | `110` |
| `134` | `150` | `200` | `300` |
| `600` | `1200` | `1800` | `2400` |
| `4800` | `9600` | `19200` | `38400` |

The default setting is currently `9600` bauds.

Please note: Depending on the device type, not any baud rate can be set.

### TTY: Data format

Channel data format

| | | | |
|---|---|---|---|
| 8N1 | 8N2 | 8E1 | 8E2 |
| 801 | 802 | 7N1 | 7N2 |
| 7E1 | 7E2 | 701 | 702 |

The first digit represents the number of bits per character, while the last digit indicates the number of stop bits for serial transmission. The central letter provides information about the parity bit: N = no parity bit, E = even parity, O = odd parity. The default setting is 8N1.

Please note: Depending on the device type, not any data format can be set.

### TTY: Transmit

Contains the following parameters for defining the behaviour during the transmission of a character or during the handshakes:

`XON/XOFF` Select `Yes` or `No` to define whether or not the terminal is to conform to the XON/XOFF protocol during transmission. The XON/XOFF protocol is not used if the **RTS/CTS** option handshaking is specified (see below).

`Processing` Select `Yes` or `No` to define whether or not the characters to be transmitted will be processed. Selecting `Yes` activates the subsequent menu options **CR→EOL** and **EOL**.

`CR→EOL` Select `Yes` or `No` to define whether or not the end-of-line character CR (“0D”) is to be translated into other characters. This menu option is only active if the **Processing** menu option above is set to `Yes`.

`EOL` After selecting this menu option, you can choose two end-of-line characters which have to be set separately using hexadecimal values. If you set `00` for the second character, CR is translated into one end-of-line character only. This menu option is only active if the **Processing** and **CR→EOL** menu options above are both been set to `yes`. The **Channel X**: **TTY**: **Receive** menu option provides the corresponding settings for the reception of characters.

`RTS/CTS` Select `Yes` or `No` to define whether or not full-duplex flow control is to be enabled over the RS232 RTS and CTS lines. A logically positive level on the RTS output signal means "remote station (host) is allowed to transmit", while a logically positive level on the CTS input signal means "terminal is allowed to transmit".

The default setting prevents processing of characters that are to be transmitted and sets flow control to XON/XOFF on the transmit side.

## TTY: Receive

Contains the following parameters for defining the behaviour during reception of a character or during the handshakes:

`XON/XOFF` Select `Yes` or `No` to define whether or not the terminal is to enable the XON/XOFF protocol for reception. The XON/XOFF protocol will not be used if the **RTS/CTS** option is activated in the **Channel X**: **TTY**: **Transmit** menu (see above).

`Processing` Select `Yes` or `No` to define whether or not the received characters are to be processed. Selecting `Yes` activates the following menu options **Ignore EOL, EOL→CR, EOL 1, EOL 2**.

`Ignore EOL` If this option is activated by selecting `Yes`, the end-of-line character will not be stored in the input buffer. This only makes sense if the host uses a different end-of-line character which will be translated by **EOL→CR** and is preceded by a TCL end-of-record character CR ("0D").

`EOL→CR` Select `Yes` or `No` to define whether or not the end-of-line character used by the host is to be translated into CR ("0D"), the end-of-record character used in TCL. The EOL character used by the host can be configured under **EOL 1** and **EOL 2**. This menu option is only active if the **Processing** menu option above is set to `Yes`. A corresponding translation option for the transmission of characters is provided under **Channel X: TTY: Transmit**.

`EOL 1 / Timer` After selecting this menu option you can choose the first of two possible end-of-line characters to be used by the host. The EOL character is represented by a hexadecimal value. This menu option is only active if the **Processing** and **EOL→CR** options above are both set to `Yes`.

Note: If **Channel X: TTY: Processing** is set to `No`, the `EOL 1` value contains a delay before passing on received characters that are used until a specific number of characters defined under **EOF/Counter** is received. We recommend setting both the values to `01` (100 ms, 1 character) in this case.

`EOL 2` Allows you to set a second end-of-line character in hexadecimal format. If you set this value to `00`, only one end-of-line character is expected and translated into CR.

`EOF / Counter` If **Channel X: TTY: Processing** is set to `No`, this menu option allows you to set a hexadecimal character value specifying the number of characters which will be waited for during the delay set under **EOL 1** before being passed on.

`Char. suppress` If **Channel X**: **TTY**: **Processing** is set to `Yes`, this submenu can be set to `Yes` or `No`. It enables you to suppress certain characters which interfere with TCL (e.g. because of EOL characters or character sets used by the host). The character to be suppressed is set in the next menu option.

`Ignore char.` If **Channel X**: **TTY**: **Processing** and **Channel X**: **TTY**: **Char. suppress** are both set to `Yes`, you can select this menu option to set the character to be suppressed in hexadecimal format.

`Del.-Char.` If **Channel X**: **TTY**: **Processing** is set to `Yes`, you can use this menu option to specify a character (in hexadecimal format) that will be used to delete a preceding character. This only makes sense during interactive operation of the terminal. For all other purposes, the value should be set to `FF`.

The default setting prevents the processing of received characters, sets the **EOF/Counter** to `50` (hexadecimal) and **EOL 1** to `01` (100 ms), and enables receive-side data flow control via the XON/XOFF protocol.

## 8.3 BSC protocol

BSC is a package-oriented protocol that supports protected data transfer. If you select the BSC protocol for a serial interface, the BSC driver is enabled in its slave form.

Some operating parameters for the BSC protocol correspond to the TTY protocol:

**Baudrate**

**Data format**

**Buffer size: Receive**

**Buffer size: Transmit**

Further parameter for the BSC protocol:

### BSC: Group ID

Group address for the terminal between `@` and `Z` (‘@’ and all upper case letters of the alphabet). We recommend using the group address `@` unless a comprehensive party-line system is installed. The default setting is `Z`.

### BSC: Device ID

Terminal address within a group, likewise between `@` and `Z`. The default setting is `Z`.

### BSC: Poll Timeout

Period of time (seconds in decimal format) which may elapse between two poll activities on the party-line before the BSC protocol reports an offline state to the TCL system (which subsequently sets the PO flag).

This period of time must elapse after a party-line failure before the offline state is detected.

The default setting is `24` seconds.

### BSC: Data Timeout

Period of time that may elapse from the reception of the first character of a data block to the reception of the last character of the same block (in 100 ms units).

The default setting for 9600 bauds is `4` (= 400 ms); for 19200, a value of `3` (= 300 ms) is recommended.

### BSC: Transm. delay

Allows you to set a transmission pause (in milliseconds) during which the party-line is to be idle after a protocol telegram was received. This idle period is required to perform the transmit-receive switchover on a two-wire party-line and to suppress any PAD characters (see below). The default setting for 9600 bauds is `5` milliseconds; for 19200 bauds, a value of `3` is recommended.

### BSC: Ack-Timeout

Allows you to set a period of time (in units of 10 milliseconds) during which a response is expected from the remote station after a protocol telegram was transmitted. The default setting for 9600 bauds is `4` (= 40 ms); for 19200 bauds, a value of `3` (= 30 ms) is recommended.

### BSC: PAD number

Allows you to set the number of PAD characters appended to a protocol telegram to a value between `0` and `9`.

At least one PAD character is required for a two-wire party-line because of the necessary receive-transmit switchover. Additional appended PAD characters may be required for a complex party-line structure involving intermediate stations (bridges and routers).

The default setting is `1` PAD character.

It should not be taken for granted that the receive station will actually receive the PAD characters or that no additional PADs will be appended for driver or line reasons.

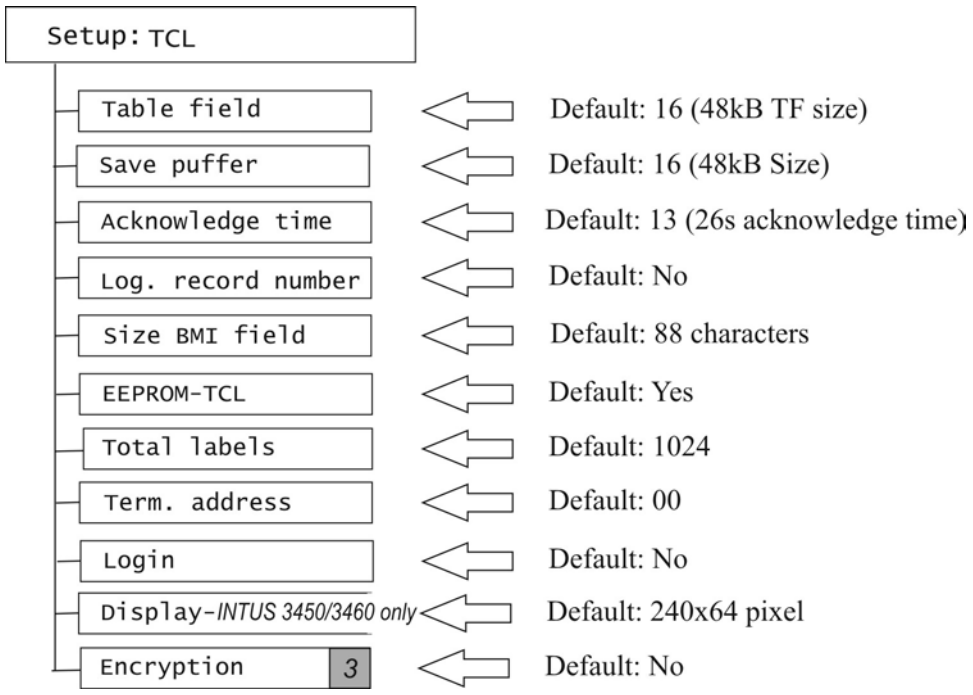
Also, the receive station should be able to equally process PAD characters with `7F` and with `FF` hexadecimal coding. The transmit delay (see above) should always be set in such a way that an additional PAD character can be tolerated beside the set PAD characters.

If the BSC driver detects that settings fails to make sense, the settings are automatically corrected. To check if a setting was accepted as specified after a reset, you should perform a second reset via the **Reset: Yes** menu option and then check the setting in Local Setup.

### BSC: EOL

Select the sentence ending mark. The default setting is 00.

# 9 Setting TCL parameters (access grade 2/3)




### TCL: Table field

Allows you to set the size of the table field (TF) to a value between 3 kB and the model-dependent upper memory limit in 3 kB increments. The indicated value must be multiplied by 3 kB. The default setting `16` thus is equivalent to a TF size of 48 kB.

### TCL: Save buffer

Allows you to set the size of the "save buffer" (= offline buffer) to a value between 3 kB and the model-dependent upper memory limit in 3 kB increments. The indicated value must be multiplied by 3 kB. Again, the default setting is `16`, resulting in an offline buffer size of 48 kB.

Note that the table field and the offline buffer size should not exceed the capacity of the available SRAM configuration. If the sum of the values exceeds the available SRAM, both the parameters will be reduced to their default value of 48 kB. Therefore, following a reset, you should check whether your settings have been accepted.

### TCL: Acknowledge time

The logical acknowledgement time defines the period of time within which a record from the offline buffer must be acknowledged by the host; it can be set to a value between 2 and 230 seconds. The displayed value must be multiplied by 2 seconds, i.e. the default value `13` is equivalent to an acknowledgement period of 26 seconds. In the TCL system, the acknowledgement period is used to control the MONOUT process via the P3 field.

### TCL: Log. rec. no.

If you select `Log. rec. no.: yes`, a logical record number will be added automatically to the records from the offline buffer. If you select `Log. rec. no.: no`, no logical record number will be prefixed. Further information on the structure of the data records from the offline buffer can be found in the `P20+22,1` and `P10` fields (see TCL Programmer's Manual).

### TCL: Size BMI field

Allows you to change the size of the B, M, and I fields from the default value of 88 characters to 115 characters, if the readers return records of more than 80 characters. The default size is 88 characters and should not be changed.

### TCL: EEPROM-TCL

With TCL: EEPROM-TCL: No you can prevent the default program from executing during a cold boot or ice-cold boot. In this case, the load request '77' will not be sent to the host either. The default setting is Yes and should not be changed.

### TCL: Total labels

Allows you to set the number of jump destinations (= labels) in a TCL program to a value between 512 and 4352. The default setting is 1024.

Please note that each jump destination occupies 4 bytes of SRAM storage. If you don't need a large number of jump destinations, you should not set an excessively large number for the labels here because the corresponding storage will not be available for the TF field, offline buffer, and TCL program memory (DL).

### TCL: Term. addr.

Allows you to set a terminal address between 00 and 99 for the internal identification of a terminal by a TCL program. The address is stored in the CV+68,2 field and can be read from there by the TCL program.

### TCL: Display mode – only valid for the INTUS 3450/3460

The 240x64 pixels semi-graphic display can emulate a 40 characters x 2 lines display.

## 9.1 Login on host interface

Via the software INTUS RemoteConf/RemoteSetup you can set a password for access to the TCL interpreter and routing bytes for messages of the TCL interpreter.

### TCL: Login

On Local Setup "TCL: Login" login restrictions to the host are enabled ("Yes") or disabled ("No").

## 9.2 Encryption on host interface

In Access grade 3 you can encrypt the data transfer between the host and TCL interpreter.

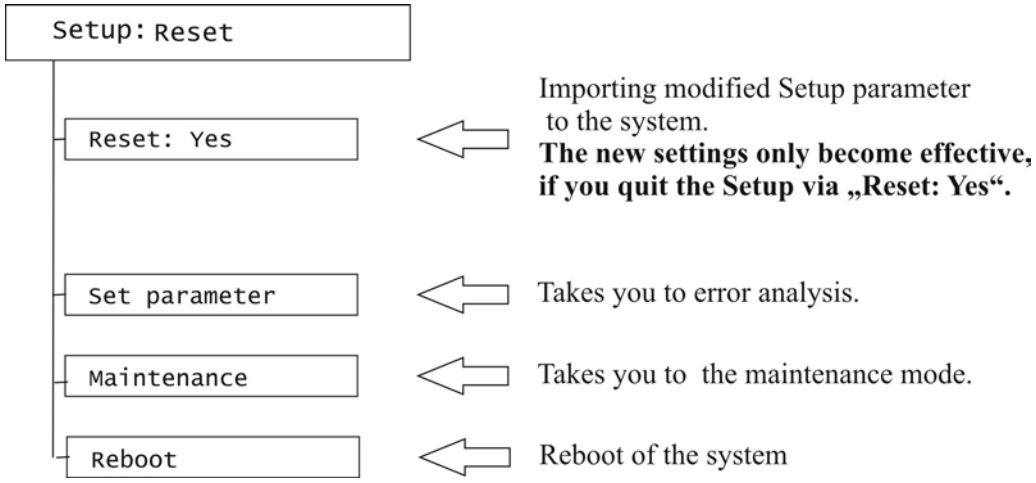
Via the software INTUS RemoteConf/RemoteSetup you can enter any encryption text with up to 512 characters. It will be used to generate a key for transmission.

### TCL: Encryption

On Local Setup "TCL: Encryption" the encryption to the host is enabled ("Yes") or disabled ("No").

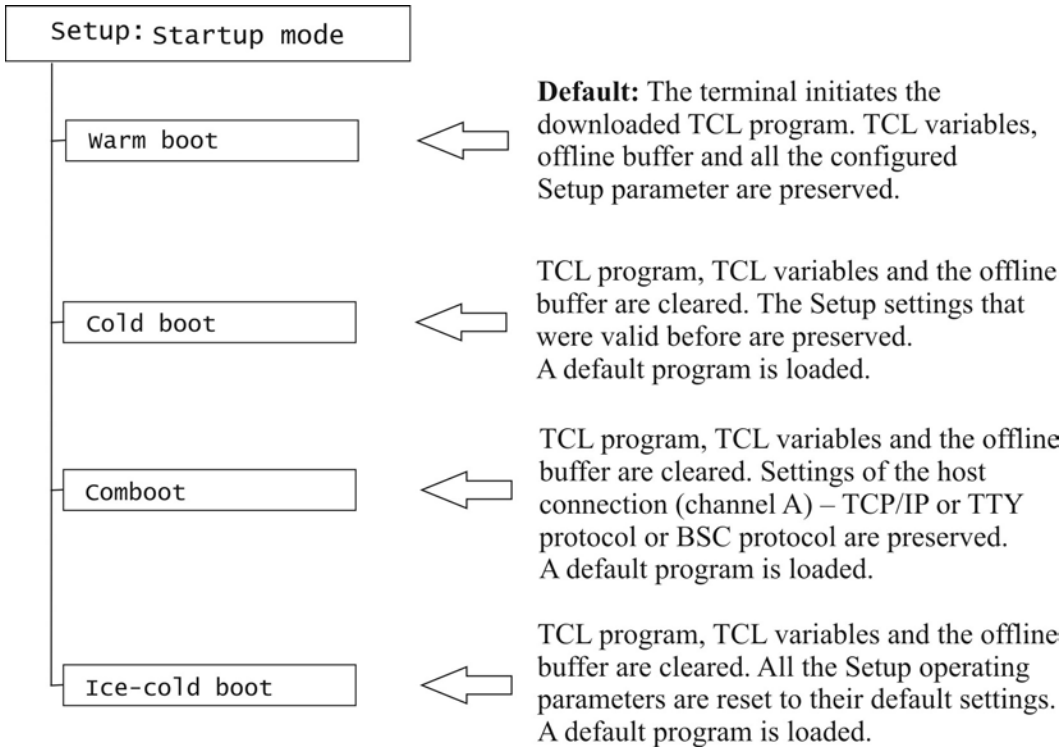
# 10 Other Local Setup parameters

## 10.1 Reset




## 10.2 Start-up mode (access grade 2 / 3)

The start-up mode defines the behaviour after a reset or after switching on device.




If a critical system parameter is changed, such as the size of the table field or offline buffer, a `Cold boot` is carried out automatically.

By means of an `Ice-cold boot` you can establish a defined state for the terminal if it does not function correctly.

## 10.3 Display contrast

Please note: This chapter doesn't apply to INTUS ACM.

The display contrast has been optimally adjusted by PCS. However, external influences may make it necessary to re-adjust the setting.

F4 F5 / To set the display contrast

## 10.4 Maintenance group (Access grade 3)

On access grade 3 you can define a maintenance group.

The value margin is 0 up to 65535; the default setting assigns the device to maintenance group 0.

Only if the maintenance group of the device corresponds to the maintenance group of the maintenance software (e.g. INTUS RemoteSetup) is it possible to modify the configuration or to perform a reset with the maintenance software.

As a result, it is possible to separate two installations in a network (e.g. time recording and access).

**Always make a note of the maintenance group.**

## 10.5 Hardware

Please note: Depending on the device you purchased, the item "Local Setup: Hardware" and the setting options are active or hidden.

DHCP can be enabled (default setting at INTUS ACM40; INTUS 3460 / 3660) or disabled.

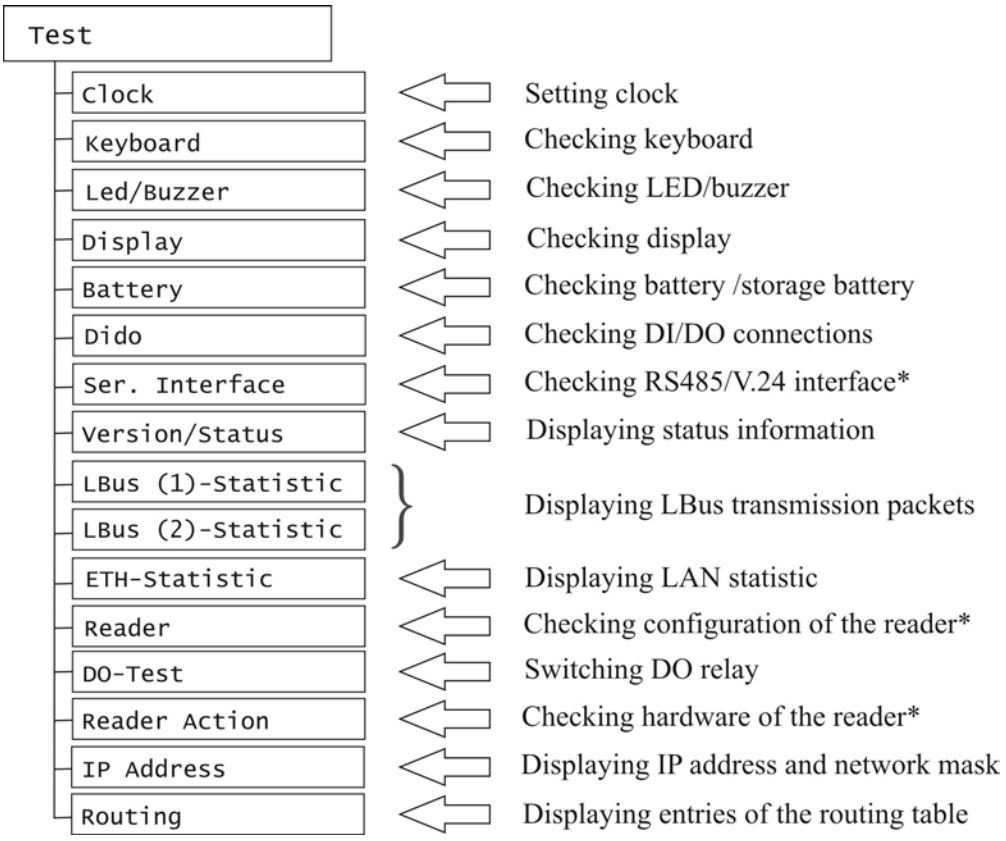
If the terminal is equipped with a serial interface (Option) RS485 or V.24, it has to be enabled. Only then you can configure a TTY/BSC protocol or an additional reader via LBus2 on channel C.

The serial interface will be configured ex works, if this option is ordered.

# 11 Tests

The device will assist you with error diagnosis. The device performs a self-test each time you switch it on.

Additional tests may be initiated via Local Setup:




***cold boot before test, reset after test**

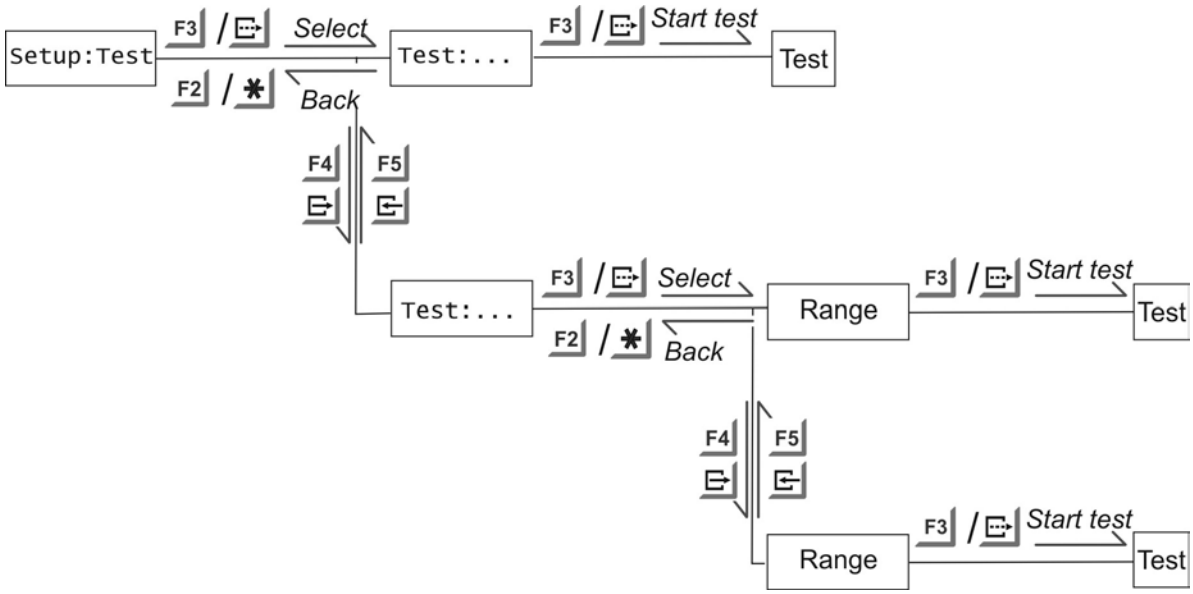
The tests marked by an asterisk '*' should be carried out after a cold boot or following the TCL command IR,S:, because a running TCL program may corrupt the results.

You will have to perform a reset after these tests because the tests do not initialize the hardware as required for normal operation.

Please note: The tests are not relevant for every terminal, and are thus without function with those devices.

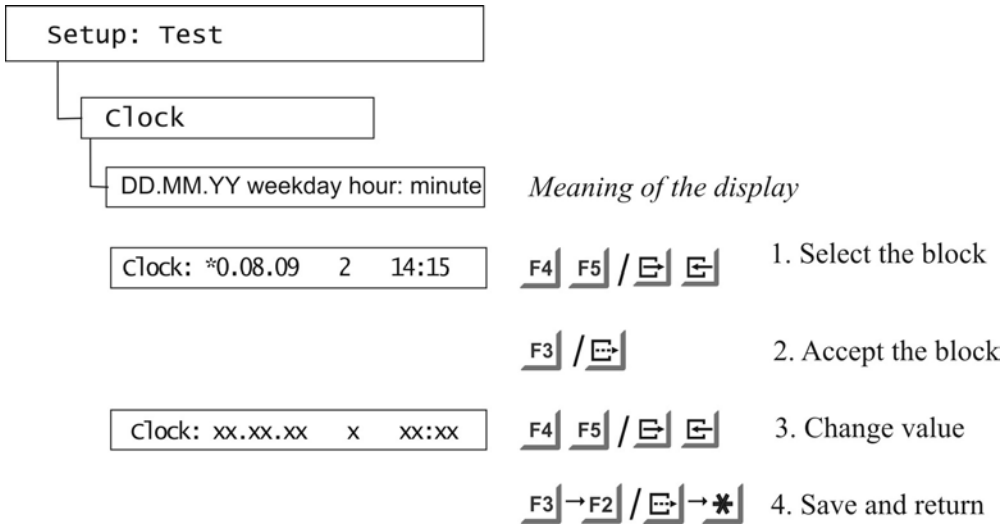
Moreover, there are LEDs on the main board that indicate specific operating functions, please see the "Installation and Maintenance Manual" of the respective device.

## 11.1 Test procedure




### Test: Clock

The date and time of day can be set, if required:




You should not change the day of the week. This setting will be updated automatically.

### Test: Keyboard

When this test is selected, each key you press is echoed on the display.

### Test: LED/Buzzer

This test successively switches on the LED and the buzzer for approx. 1 second.

## Test: Display

When you select this test, the display will be completely filled with inverse blank characters. This test checks the operability of each pixel in the display.

## Test: Battery / Accumulator

When you select this test, a transient load is applied to the battery and to the accumulator (INTUS ACM Akku only) to check its capacity.

One of the following texts is displayed, depending on the result

**Battery**

```
BATTERY OK
```

```
BATTERY Empty*
```

* To replace the battery, please see the “Installation and Maintenance Manual” of the respective device.

**Storage battery (INTUS ACM Akku only)**

```
ACCUMULATOR OK
```

```
ACCUMULATOR KO*
```

*The storage battery is not completely loaded. For further information, please see the “Installation and Maintenance Manual” of the terminal.

In the TCL program, you can also query the battery and accumulator status by reading out the `LS+37,2` field.

You should test the batteries **only once a day** at the most because otherwise its lifetime may be considerably reduced.

## Test: DIDO

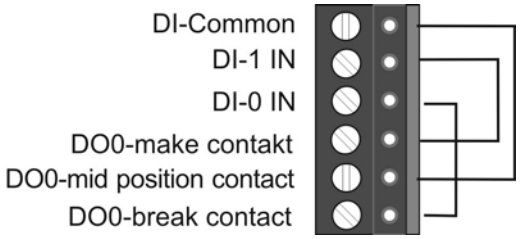
The DIDO test is primarily intended for production and repair purposes.

**Power must be supplied internally from the device. Otherwise, the test will fail.**

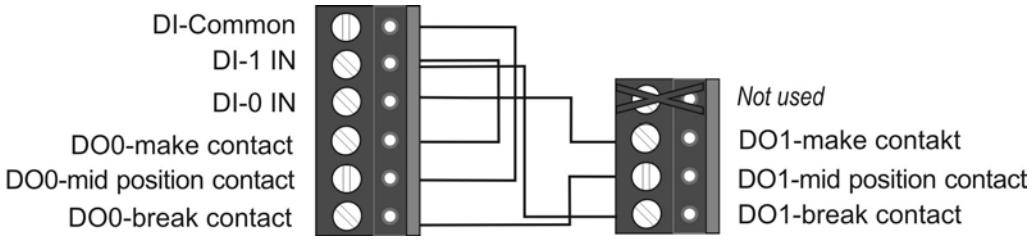
For information about internal power supply, please see the “Installation and Maintenance Manual” of the respective device.

This test requires a DIDO short-circuit plug:

**DIDO short-circuit plug**




**DIDO short-circuit plug for the INTUS 3450-plus / 3460-plus / 3600 / 3660**




The test runs automatically once it is selected. One of the following texts is displayed, depending on the result:

```
Dido Test OK
```

```
Dido Test KO (-X)
```

Whereby X designates a particular test step if a failure has occurred.

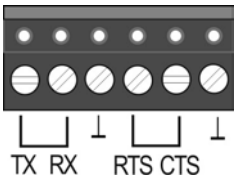
**To return to normal operation, you have to perform a reset.**

## Test: Ser. Interface

After having selected this test, you can select the serial interface you intend to test.

**Channel A/B/C/D**

- **V.24 module**, fit a short circuit plug for a 4-pin or a 6-pin terminal with the following pin assignment:




- **RS485 module**,

  Enable the BIAS resistors and the terminating resistor via the DIP switch. For further information, please see the “Installation and Maintenance Manual” of the respective device.

After having activated the test, several test steps are successively performed in short intervals and indicated on the display. The test terminates automatically after the last test step.

**To return to normal operation, you have to reset the device.**

## Test: Version / Status

By selecting this test, you query status information including information on the firmware and on the installed hardware.

| Status information | Meaning and values |
|---|---|
| RTK-Version: X.XX | Version of the real-time operating system |
| API/TCL-Version: X.XX/X.XX | API version, including version of the configuration file and of the TCL interpreter |
| HW-Layout-Version: X | CPU board revision status. |
| CPU-Ser.-Nr.: XXXXXXXXXXXX | Serial number of the CPU board (not of the device). |
| Auftr.-Nr.: XXXXXXX | Order/serial number of the device. |
| ETH-Adr.: XXXXXXXXXXX | Mac address of the Ethernet interface. |
| IO-Version: X | Device-specific |
| Display: X | A = 20x2 characters display (Latin-1)<br>B = without display<br>7 = 240x64 pixels display<br>8 = 320x240 pixels display<br>9 = 40x2 characters display |
| Keyboard variant: X | 0 = membrane keyboard<br>8 = matrix touch keyboard |
| COM-SS A/B/C/D: X | Channel A/B/C/D:<br>0 = V.24<br>2 = RS485 /LBus<br>7 = not installed |
| DST Control: X | 0 = programmed winter time setting<br>1 = programmed summer time setting<br>2 = automatic summer/winter time switchover |
| DST Begin:<br>XX.XX.XXXX XX:XX | Start of summer time with date and hour |
| DST End:<br>XX.XX.XXXX XX:XX | End of summer time with date and hour |
| UTC/GMT deviation: XYYYY | X: + = positive (western) difference<br>- = negative (eastern) difference<br>YYYY: absolute difference in minutes |
| Operating hours: XYYYY | hour count of the working device |
| DHCP | 1 option installed 0 not installed |
| Tx/TaX/T0X:<br>Clock monitoring | 1 option installed 0 not installed |
| TCL SRAM: | XXXX total size in kilobytes |
| Door strike voltage: x | Supply voltage of the door strike DI<br>(INTUS ACM4/40/40e/80e only) |
| Reader voltage: x | Supply voltage of the connected reader<br>(INTUS ACM4/40/40e/80e only) |

### Test: LBus (1)-Statistic

### Test: LBus (2)-Statistic

When you select this test, the quality of the LBus lines can be checked.

F4 F5 / ⊡ ⊡ Use the „*Continue/Back*“ key to successively query:

- the number of transmission packages transmitted without an error,
- the number of transmission packages dropped due to an offline state,
- the number of transmission packages that could not be transmitted correctly after several retries,
- the number of packages received without an error,
- the number of packages received with errors.

The displayed texts have the following format:

```
LB(X)-Stat.: Transm. Pkts (OK):        XXXXX
LB(X)-Stat.: Transm. Pkts (Drop):      XXXXX
LB(X)-Stat.: Transm. Errors:           XXXXX
LB(X)-Stat.: Recv. Pkts (OK):          XXXXX
LB(X)-Stat.: Recv. Errors:             XXXXX
LB(X)-Stat.: Reset
```

All statistics counters can be reset to zero, so that a new, defined starting point for a count is obtained.

To reset all statistics counters to zero:

F3 / ⊡ Press the „*Down/Save*“ key, when the last item `Reset` is shown.

### Test: ETH-Statistic

The quality of the LAN connection can be queried via LAN statistics similar to those for the LBus.

F4 F5 / ⊡ ⊡ Use the „*Continue/Back*“ key to successively query:

```
ETH-Stat: Transm. Pkts (OK):     XXXX
ETH-Stat: Transm. Errors:        XXXX
ETH-Stat: Recv. Pkts:            XXXX
ETH-Stat: Recv Errors (CRC):     XXXX
ETH-Stat: Recv not connect.:     XXXX
ETH-Stat: Reset
```

Basically, transmission errors may only occur if the connecting cable is defective or if the network is congested by collisions.

Packages sent by the host to a connection that is not (or no longer) existing are counted under `Recv not connect`. Only those CRC errors that can be detected in the IP layer are counted.

All the statistics counters can be reset to zero so that a new, defined starting point for a count is obtained.

To reset all statistics counters to zero:

F3 / ⊡ Press the „*Down/Save*“ key, when the last item `Reset` is shown.

## Test: Reader

After having selected this test, you have to set the number of the reader that you intend to test. 0 designates the internal reader.

External readers are numbered serially, please see Section 7.3.

If a reader is not configured or offline, one of the following messages will appear for one second:

```
Reader X          not available
Reader X          offline
```

Otherwise, the following message is displayed up to the next reading:

- For external readers configured as INTUS 1600/500//400/1500 in Local Setup, the first line indicates the device type or identifier, the reader type, the firmware version and the parameterization identifier.

  Thus the following message may be shown up to the first reading (example):

  ```
  Reader X:     500/600 D v3.06 (0001) ...
  ```

- For all other external readers, the version identifier is shown up to the first reading:

  ```
  Reader X:     xxxx
  ```

**Read operation**

Apply or swipe the card.

```
Reader X          OK
#016  000  Y  0
```

The first line indicates the reading status, and the second line indicates the reading itself.

A character string is displayed: The first element is the length of the reading, second is the error code (3 digits), followed by the code type (1 digit), and at last the reading direction (1 digit).

In the case of a reading error, a message such as the following will appear:

```
Reader X          KO
#016  002  Y  0
```

The KO status only applies to that reading.

To display the card number:

F4 / ⏎ Press the „*Continue*“ key.

```
Reader X          OK
„1500901112345600“
```

### Test: DO Test

By means of the DO test, the available DO relays can be switched separately.

When you select the test, the following initial line is displayed:

```
DO-Test LBUS Addr. =    X
```

Address `0` designates the device, while all other addresses refer to external readers.

Select the LBus address you intend to test and confirm it:

F3 / ⊡ Press the „*Down/Save*“ key.

Select the DO

```
DO-Test LBus Adr.=X     DO=Y
```

INTUS ACM40/40e **(x=0)** - the following DOs (O<Y>) are available:

| **INTUS ACM40 (LBus address = 0)** | **TCL field LBus „PP/PP“** | **TCL field LBus „PP/MP“** |
|---|---|---|
| System - DO0 relay | DO = 0 | DO = 0 |
| System - DO1 relay | DO = 1 | DO = 1 |
| System - DO2 bistable relay | DO = 2 | DO = 2 |
| Door 1 - DO relay | DO = 5 | DO = 5 |
| Door 2 - DO relay | DO = 7 | DO = 7 |
| Door 3 - DO relay | DO = 21 | DO = 13 |
| Door 4 - DO relay | DO = 23 | DO = 15 |

| **Terminal (LBus address = 0)** | **DO** | |
|---|---|---|
| **One DO** is available:<br>INTUS 3100, INTUS 3450,<br>INTUS 3450-timeplus, INTUS 3460-timeplus,<br>INTUS 5300, 5320 | DO = 0 | ---------- |
| **Two DO**s are available:<br>INTUS 3100, INTUS 3450,<br>INTUS 3450-timeplus, INTUS 3460-timeplus,<br>INTUS 3150<br>INTUS 5300, INTUS 5320 | DO = 0 | DO = 1 |

Most external readers (`Addr=x`) have one DO (`Y=0`). You may only specify DOs for the configured external readers that are actually present.

```
DO-Test LBUS Addr.= X   DO= Y
```

Confirm the selected DO. To toggle the DO - ON and OFF:

F4 F5 / Use the „*Continue/Back*“ key to successively query:

```
DO-Test LBus Addr.= X    DO= Y
OFF
```

## Test: Reader Action

The internal reader and all available external readers are activated.

Each reading is displayed:

- **Good reading**, the relays at the reader and the relays inside the terminal are activated for three seconds. The green LED and the buzzer are activated.
- **Bad reading**, the red LED and the buzzer are activated.

# 12 Error diagnosis

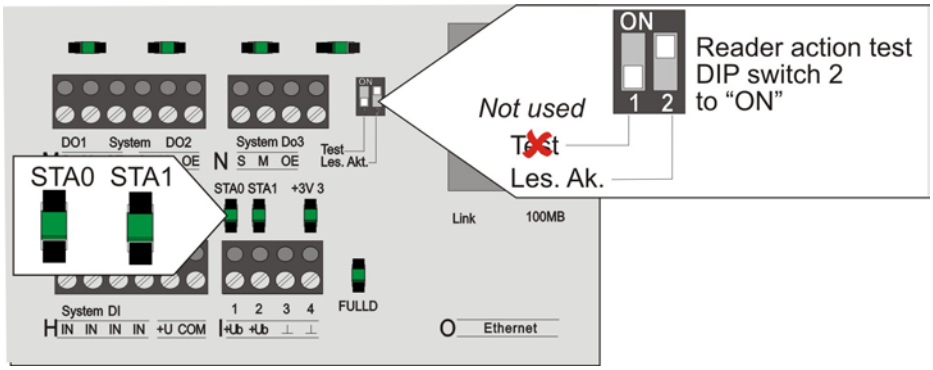
## 12.1 Reader action test at a device without keyboard/display

This test can be used to check the hardware of the device and the connected reader.

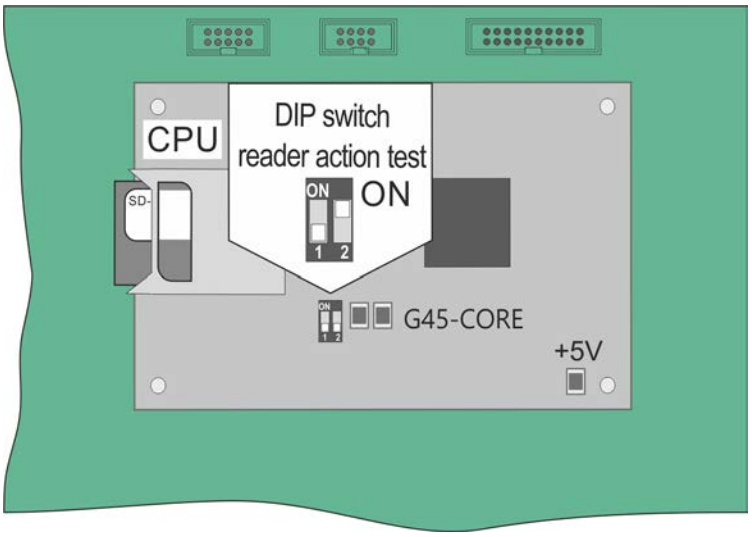
This chapter only applies to devices without display.

Perform the reader action test at the other devices via Local Setup “Test“.

### INTUS ACM40

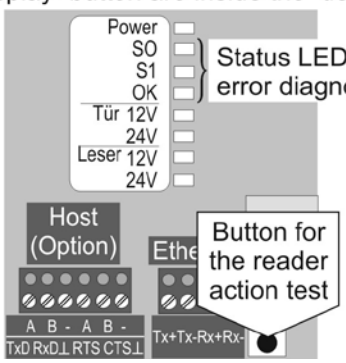



### INTUS ACM40

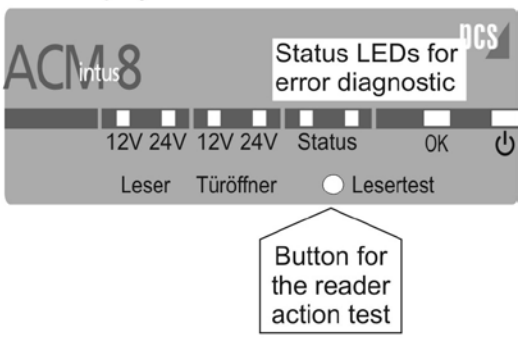



### INTUS ACM8e

INTUS ACM8e Wall
Display+button are inside the device

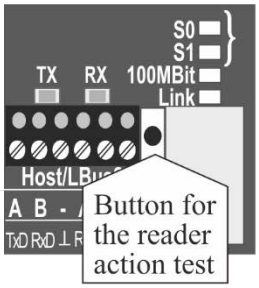



INTUS ACM8e Rack
Display + button are on front area

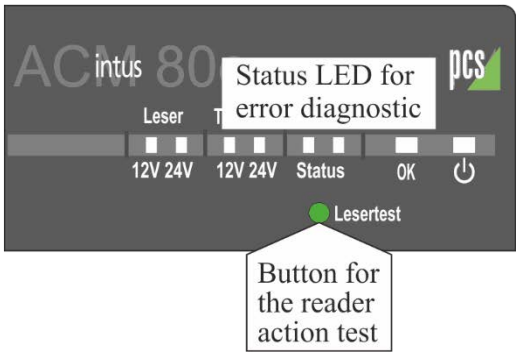


## INTUS ACM80e

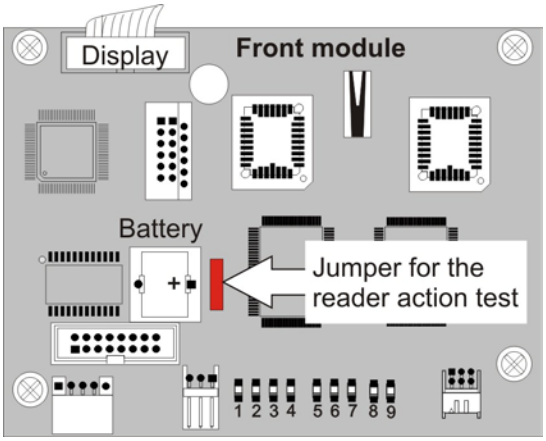
**INTUS ACM80e Wall**
**Button&LED are inside**




**INTUS ACM80e Rack**
**Button&LED are on the front area**




## INTUS 3100




Start the reader action test as follows:

***INTUS ACM40*** – Set DIP switch 2 to “ON“

To start the reader action test:


Switch the ACM40 on and off.

***INTUS ACM40e***
Disconnect the INTUS ACM40e from power supply. Set the right DIP switch (2) on the CPU to ON and switch on the ACM40e.

Wait till the device is ready to operate. The device is in reader action test mode.

***INTUS ACM8e*** - disconnect the device from power supply. Re-connect the device to power supply, and immediately press and hold down the “Reader test” button until there are two short beeps.

***INTUS ACM8e***
Disconnect the INTUS ACM80e from power supply.

Re-connect the INTUS ACM80e to power supply, and immediately press and hold down the “Reader test” button until there are two short beeps.

After a short while, the status LEDs begin to blink. The device is now in reader action test mode.

***INTUS 3100*** - disconnect the device from power supply. Remove the jumper for the reader action test. Re-connect the device to power supply and test the internal reader with a card.

After a short while, the status LEDs begin to blink.

The device is now in reader action test mode. Each reader is activated, each reading is displayed:

- **Good reading**, the relays at the reader and the relays inside the device are activated for three seconds. The green reader LED and the buzzer are activated.
- **Bad reading**, the red reader LED and the buzzer are activated.

To terminate reader action test:

***INTUS ACM***: Disconnect device from power supply, se the DIP switch to "OFF", if available, and re-connect the device to power supply.

***INTUS 3100*** - disconnect the device from the power supply and put the jumper. Afterwards re-connect it to the power supply.

## 12.2 Automatic self-tests

The device performs an automatic self-test and initialization procedure after the mains supply is switched on or after a reset.

During self-configuration or initialization, the system may notice a lack of system resources or a severe system error. This is announced as follows:

- The buzzer sounds at each terminal if the cover is connected to the basic unit.
- At INTUS ACM: Via the status LEDs and the buzzer

  S0 - status LED on, S1 - status LED flashes and the buzzer sounds at the same time. See figure above for the position of the status LEDs
- At terminals with display, the following message is displayed during initialization:

```
SYSTEM ERROR: X
```

| SYSTEM ERROR: | Status LED flashes, buzzer sounds | Cause and correction |
|---|---|---|
| G | 7x | Mismatch between TCL firmware and text file `INTUS.TXT` containing the language-dependent message and Local Setup texts.<br>Use INTUS RemoteSetup to update the firmware. |
| H | 8x | The host connection could not be opened.<br>**Correction:** Attempt an ice-cold boot. If this is unsuccessful, there is a hardware problem that must be repaired. |

| SYSTEM ERROR: | Status LED flashes, buzzer sounds | Cause and correction |
|---|---|---|
| I | 9x | The hardware configuration could not be loaded from the EEPROM.<br>**Correction:** Reproduce the INTUS ACM40 via the production and maintenance software. If unsuccessful, there possibly is a hardware defect. |
| J | 10x | The number of requested software timers exceeds the number of software timers that were created.<br>Internal software error which should not occur. |
| K | 11x | An internal memory request for creating a table in the DRAM failed. The cause may be that too large a buffer was specified for the serial channels.<br>**Correction:** Ice-cold boot and reconfiguration. If unsuccessful, there possibly is a hardware defect. |
| L | 12x | A software module was unable to register for de-initialization.<br>Internal software error which should not occur. |
| M | 13x | Insufficient memory while creating a real-time component.<br>Correction as under “11x”. |
| N | 14x | Insufficient memory while creating a ring buffer.<br>Correction as under “11x”. |
| O | 15x | Error in SRAM management.<br>Internal error which should not occur. |
| P | 16x | Error in SRAM management.<br>Internal error which should not occur. |
| Q | 17x | Insufficient memory while creating a real-time process.<br>Correction as under “11x”. |
| R | 18x | Configured offline buffer too large. This error should generally be avoided by an automatic reconfiguration reducing the offline buffer size to the default setting of 48kB.<br>**Correction:** Ice-cold start and reconfiguration; the offline buffer and the table field should be configured in such a way that at least 30kB remain for the DL download area. |

However, the Local Setup mode via INTUS RemoteConf/RemoteSetup can still be used for the terminal, while it is no longer accessible in the case of a system halt due to a hardware failure.

You can thus correct configuration errors by performing an ice-cold boot carried out under

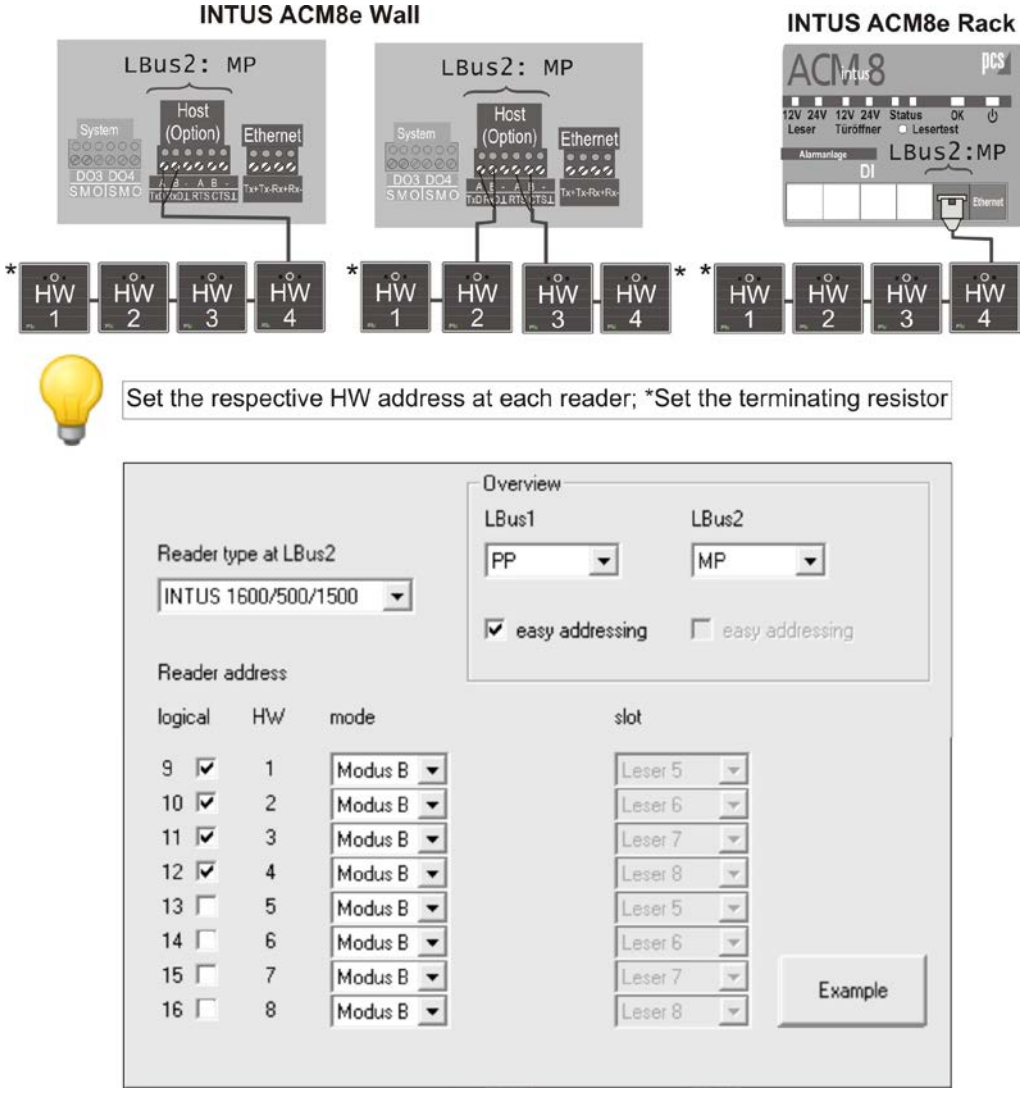
- "`Local Setup: Startup Mode`"at "configuration on terminal", see Section 11.2 or
- "Reset" at "configuration with INTUS RemoteConf/RemoteSetup", see manual.

## 12.3 Unsuccessful error diagnosis

Please contact PCS Customer Service Centre if you fail to locate and eliminate a failure. Make sure you have the following information ready:

- Precise description of the failure,
- Version number, displayed at Local Setup "Test: Version/Status" or on the Status page of INTUS RemoteSetup
- Configured Local Setup parameters.
- The configured Local Setup operating parameters should always be recorded in the tables provided in Chapter 14. They are also displayed on the Status page of INTUS RemoteSetup.

If the required terminal is not displayed in INTUS RemoteConf/RemoteSetup, use the Internet Explorer and the IP address as "address".



# 13 Tables for configured setup parameters

The following tables list all the configurable parameters including their default values. Please record the new values for all the settings that you have changed during installation, so that you can refer to these values when contacting our technical support.

## Communication protocol TCP/IP

| Operating parameter | Default setting | Changed to |
|---|---|---|
| IP Stack | Device specific | |
| IPv4 Address | 192.168.042.127<br>0. 0. 0. 0* | |
| IPv4 Network mask | 255.255.255.000 | |
| IPv4 Router | 0. 0. 0. 0 | |
| IPv6 Address** | 0000:0000:0000:0000:<br>0000:0000:0000:0000: | |
| IPv6 Prefix** | 0 | |
| IPv6 Router** | 0000:0000:0000:0000:<br>0000:0000:0000:0000: | |
| IPv6 Dyn. Address** | RADV | |
| Host name | Intus-<serial number> | |
| ETH-Link** | Auto negotiation | |
| Port-No. | 3001 | |
| Connection start-up | Passiv | |
| Host Address | 0 . 0 . 0 . 0 *or*<br>0000:0000:0000:0000:<br>0000:0000:0000:0000: | |

* DHCP is enabled at each device type with DHCP (Option).
** Not available at each device.

## Serial channels

### *TTY*

| Operating parameter | Default setting | Change | |
|---|---|---|---|
| | | Channel A | Channel D |
| Buffer size: receive | 512 (4x128) | | |
| Buffer size: transmit | 256 (2x128) | | |
| Baud rate | 9600 | | |
| Data format | 8 N 1 | | |
| Transmit: XON/XOFF | Yes | | |
| Transmit: Processing | No | | |
| Transmit: CR→EOL | No | | |

| | | | |
|---|---|---|---|
| Transmit: EOL | 0D 0A | | |
| Transmit: RTS/CTS | No | | |
| Receive: XON/XOFF | Yes | | |
| Receive: Processing | No | | |
| Receive: Ignore EOL | No | | |
| Receive: EOL→ CR | Yes | | |
| Receive: EOL1 | 01 | | |
| Receive: EOL2 | 00 | | |
| Receive: Char. suppress | No | | |
| Receive: Delete character | 7F | | |
| Receive: Delay time | 100 | | |
| Receive: EOF/Counter | 80 | | |

### *BSC*

| **Operating parameter** | **Default setting** | **Change** | |
|---|---|---|---|
| | | **Channel A** | **Channel D** |
| Buffer size: receive | 512 (4x128) | | |
| Buffer size: transmit | 256 (2x128) | | |
| Baud rate | 9600 | | |
| Data format | 8 N 1 | | |
| Group ID | Z | | |
| Device ID | Z | | |
| Poll timeout | 24 | | |
| Transmit delay | 5 | | |
| Quit timeout | 40 (4x10) | | |
| Data Timeout | 400 (4x100) | | |
| PAD number | 1 | | |
| EOL | 00 | | |

### TCL parameter

| **Operating parameter** | **Default setting** | **Changed to** |
|---|---|---|
| Table field | 48 (16x3) | |
| Save buffer | 48 (16x3) | |
| Acknowledge time | 26 (13x2) | |
| Logical record number | No | |
| Size BMI field | 88 | |

| | | |
|---|---|---|
| EEPROM-TCL | Yes | |
| Total labels | 1024 | |
| Terminal address | 00 | |

## Safety configuration tables

### *Password*

| Parameter | Default setting | Changed to |
|---|---|---|
| Maintenance group (Access grade 3) | 0 | |
| Password (access grade 1) | 111111 | |
| Password (access grade 2) | 14789632 | |
| Password (access grade 3) | 14589632 | |
| LBus1 : Key (access grade 3) | without | |
| LBus2: Key (access grade 3) | without | |

### *Firewall*

| Network address | Network mask | Data | Main-tenance | State |
|---|---|---|---|---|
| . . . | . . . | | | |
| . . . | . . . | | | |
| . . . | . . . | | | |
| . . . | . . . | | | |
| . . . | . . . | | | |

### *Host interface access*

| Parameter | Default setting | Changed to |
|---|---|---|
| TCL : Password for simple access (access grade 2/3) | without | |
| TCL : Password for administrative access (access grade 2/3) | without | |
| TCL : Routing bytes for login messages (access grade 2/3) | without | |
| TCL : Record number identifier for login messages (access grade 2/3) | without | |
| TCL: Encryption (access grade 3) | without | |

# INDEX

## Any question?

## Please call us.

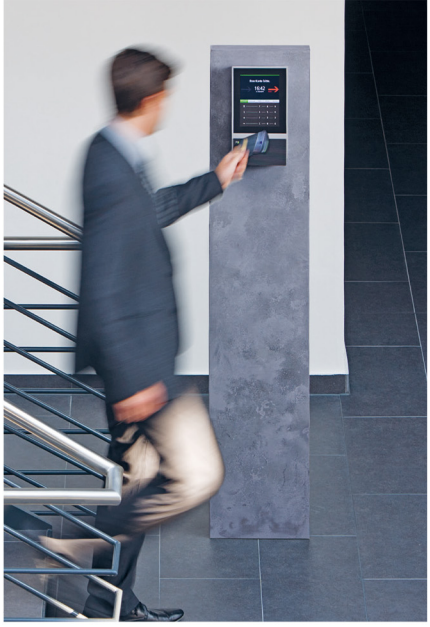
**PCS-Hotline: +49 (0) 89/68004-666**

**Email: support@pcs.com**

We try to make our manuals as useful as possible. Please don't hesitate to call us and tell us if there is anything we can improve. Thank you in advance for your effort.

Sincerely:

**PCS** Systemtechnik GmbH



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