



Terminal

# IF-57xx Time Recording Terminal

00-57xx-04xx

A BRAND OF



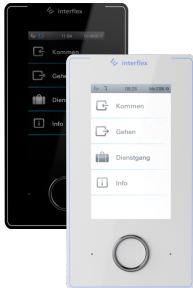
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# 1 General information


## 1.1 Short description



Terminals of the If-57x5 series include the following functions:

- Contactless identification and data recording
- Integration in 10/100 MB Ethernet networks
- Power supply via PoE (Power over Ethernet) or with 18 - 24 V low-voltage
- Intuitive operation and clear user feedback via touch display
- Connection of max. 3 terminals for access control
- Connection of an I/O controller board for the control and monitoring of doors (optional, additional hardware required).


 Technical details to the different versions can be found in the section Technical specifications [▶ 20].

 This document apply both to terminals connected to the IF-6040 system via WLAN and to terminals connected via Ethernet.

The two types are only distinguished, if necessary.


## 1.2 Scope of delivery

- Terminal with ordered reading technology and options
- PoE connector
- 14-pin flat conductor cable with suppression cores
- Metal back panel
- Accessory bag with mortise lock and fasteners
- 95-10430 product info

 Check the completeness and condition of the goods upon receipt and report any damage caused during transport immediately.

## 1.3 Target group

This document is solely intended for *experts* and *people trained in electrical engineering*.

 Only perform the actions described in this document if you belong to this target group. Interflex Datensysteme GmbH is not liable for any damages caused by improper installation or initial operation.

## 1.4 Intended use

Terminals of this series are designed for reading credentials, for transferring the recorded data to the access control system and for controlling the connected components, in accordance with the specifications in section *Technical specifications*

Any other use is not in accordance with the intended purpose and therefore not permitted. Modifications to the device are not permitted.

## 1.5 Safety

### ⚠ WARNING

#### **Danger to life due to electric shock**

People can be seriously hurt or killed through physical contact with live parts (e.g. 230 V~).

- ◆ Make sure that you cannot touch live lines during installation.
- ◆ Switch off the power supply of the devices.
- ◆ Please observe the applicable safety regulations and take all precautionary measures to ensure safe installation.

### NOTICE

#### **Property damage due to transient overvoltages**

Transient overvoltages (surges, bursts) in the energy supply network can lead to malfunctions and failures.

- ◆ Use suitable mains filters that are professionally installed and operated.

### NOTICE

#### **Damage due to electrostatic discharge (ESD)**

Electrical components and modules can be damaged by only slight, hardly noticeable electrostatic discharge (ESD) without this becoming immediately obvious. ESD damages result in malfunctions and even failure of the device.

- ◆ Make sure that effective protective measures against electrostatic discharge are in place when working on the open device.

## 1.6 Abbreviations

AC	Alternating Current
BLE	Bluetooth Low Energy
CIDR	Classless <i>Inter-Domain Routing</i>
DC	Direct Current
DIP switch	Switch in IC design, connections in two rows ( <i>Dual In-line Package</i> )

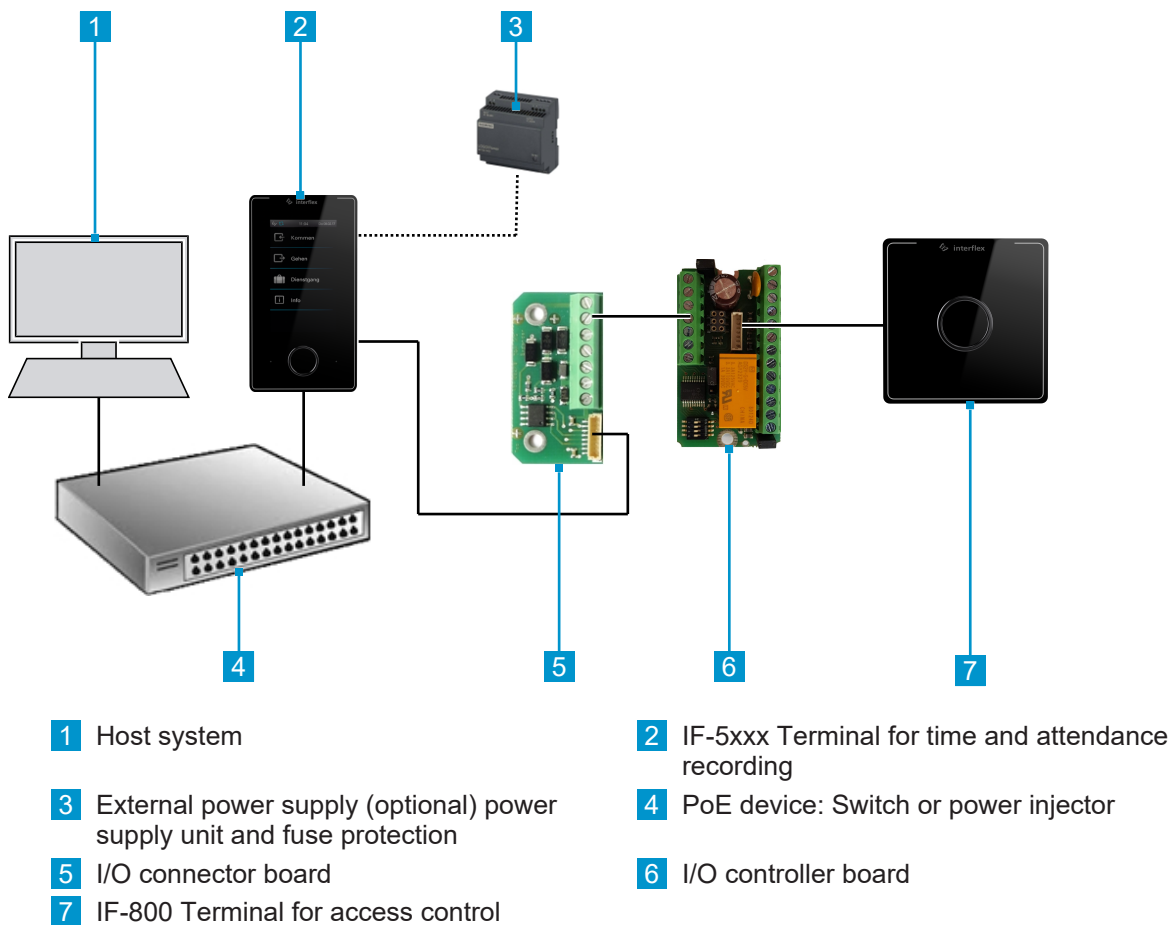
EMC	<i>Electromagnetic Compatibility</i>
ESD	<i>Electrostatic discharge</i>
GND	<i>Ground</i>
IEEE	<i>Institute of Electrical and Electronics Engineers</i>
NC contact	<i>Normally closed contact</i>
NO contact	<i>Normally open contact</i>
PoE	<i>Power over Ethernet</i>
RFID	<i>Radio-Frequency Identification</i>
SH	<i>Shield</i>
SSH	<i>Secure shell</i>

## 1.7 Cable lengths and cable types

<b>Cable function</b>	<b>Max. length</b>	<b>Recommended cable type</b>
230 V AC power supply to power supply unit (if not pre-installed)		NYM 3 x 1.5 mm <sup>2</sup>
Network cable: RJ45 patch cable, preferably shield braiding	100 m	From category 5
Control cable (floating sensors)	100 m	J-Y(St) Y 2 x 2 x 0.6 mm <sup>2</sup> J-Y(St) Y 2 x 2 x 0.8 mm <sup>2</sup>
RS-485 bus cable to end devices	1200 m	J-Y(St) Y 2 x 2 x 0.6 mm <sup>2</sup> J-Y(St) Y 2 x 2 x 0.8 mm <sup>2</sup>
Connecting cable between I/O controller board and terminal	100 m	J-Y(St) Y 4 x 2 x 0.6 mm <sup>2</sup> J-Y(St) Y 4 x 2 x 0.8 mm <sup>2</sup>

In long cables, voltage losses can impair the functionality of the connected device. Therefore, do not use cables longer than specified in the table. Wire the +5 V and GND lines with two cores each for a cable length > 50 m.

## 2 System overview



### 2.1 Modes of operation

#### Online mode

In this operating mode, data is continuously exchanged between the device and the parent host system (e.g. the IF-6040 system). The host system causes the status of the device to be cyclically queried. The device acknowledges the query either by sending a “sign of life” or status messages or booking data from the terminals.

The IF-6040 host system evaluates the data received and reacts accordingly, e.g. by sending back a positive or negative response to bookings, for example. Depending on the response, access is either permitted or denied.

The IF-6040 system can also actuate relays or trigger an alarm if certain events occur. All booking data and events of the connected terminals are stored in the memory of the device.

## Offline mode

If there is no transfer of data between the device and the parent host system (e.g. the IF-6040 system), the device will automatically switch to offline mode. There, it records all bookings and events and autonomously makes decisions based on configured conditions.

In the event of a positive decision, a response and/or a signal for activating an output relay, for example, are transmitted to the booking location. If the decision is negative, the reason for the rejection is transmitted.

All bookings and status changes recorded in offline mode are stored in the device, together with a special remark. The device transmits this data to the parent host system once an online connection has been established again.

## 2.2 Encrypted data transfer

### Transmission, credential <-> terminal

Data transmission between a credential and a terminal are subject to constantly changing requirements. Interflex always supports the current credential and reader technologies.

### Transmission, terminal <-> controller

The transmission of data between terminal and controller takes place using an RS-485 two-wire line, which is routed within the secured area.

With controllers of the IF-4xxx Security series, terminals of the IF-57x5 series and terminals of the IF-8xx series, data transmission is encrypted.

The following software versions are required:

- Security controller and terminals of the IF-57x5 series: IT 2020.2.0
- Terminals: Version 7.ba or higher



IF-5835 terminals use the protocol *Transport Layer Security (TLS)* for the encryption of data transfer to the controller.

### Transmission, controller <-> host system

You can activate and deactivate the encryption for this data link in the host system. You will find details in the documentation of the host system.



## 3 Mounting the terminal

### 3.1 Installation site

#### NOTICE

##### Damage due to the manipulation of the terminal

Manipulation of the terminal can lead to data loss.

- a) Install the I/O controller board in a secured area
- b) Secure the installation location of the I/O controller board additionally with a anti-tamper switch

#### Installation site

Please observe the following recommendations:

- Permitted ambient conditions for the device
- Minimum distance of 10 cm between the connecting cables and the nearest power cable
- Installation height 1200 mm

#### Minimum distances between RFID and BLE devices

If several RFID devices are mounted too close together, mutual interference may occur. Thus, the following minimum distances must be maintained:

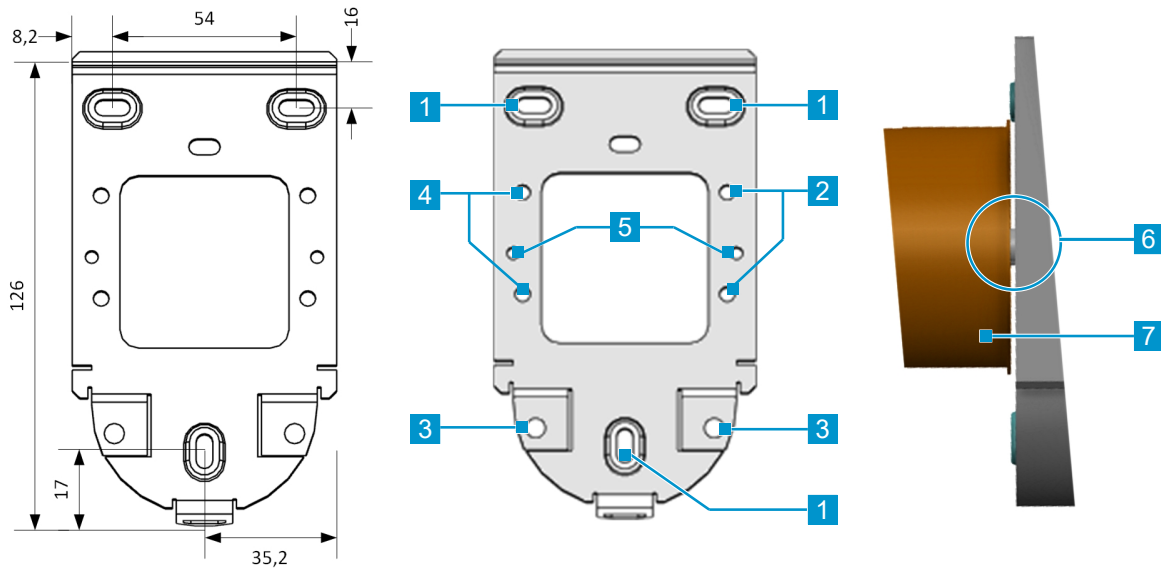


The minimum distance for back-to-back installation depends on the nature of the wall in between.

Please note that all BLE devices within range are recognized and that the respective doors open too (according to the permission) when the "auto-booking" function is enabled.

### 3.2 Fastening the back panel of the housing

The following figure shows the back panel of the housing and its side view with appliance case and mounted terminal as an example.



- 1** 3 bore holes for wall mounting
- 2** Threaded bushing for fastening an optional 24 V interface (75-5735-0004)
- 3** Threaded bolt for securing the PoE connector
- 4** Threaded bushing for fastening an optional I/O controller board (75-700-0141)
- 5** Bore holes for mounting via appliance case
- 6** Plain washer
- 7** Flush box

### Fastening the back panel of the housing directly to the wall

Fasten the back panel of the housing only to an even surface.  
If the cables are surface-mounted, a spacer (75-5735-00xx) is required.

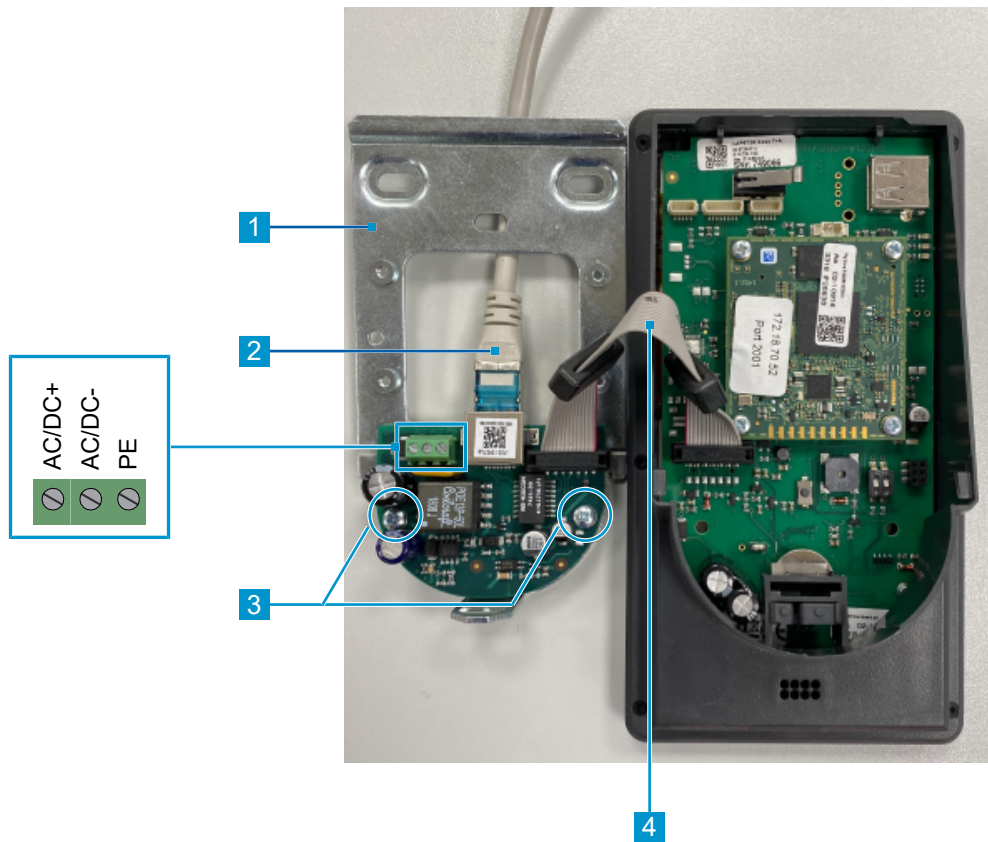
- ◆ Screw the back panel of the housing to the wall through the holes **2** using the three screws provided.

### Fastening the back panel of the housing via an appliance case

If you are using an appliance case, you will need the two washers (shown in the figure) to prevent the back panel of the housing from being bent.

- ◆ Screw the back panel of the housing to the wall through the holes **6** and the washers **7** using the two screws provided.

### 3.3 Mounting and connecting the PoE connector



- |  |                               |
|--|-------------------------------|
| <b>1</b> Back panel of housing   | <b>2</b> Network cable        |
| <b>3</b> Screws for fastening the PoE connector to the back panel of the housing | <b>4</b> Flat conductor cable |


1. Screw the PoE connector to the threaded bolt on the back panel of the housing **1** using both screws provided .
2. Insert the network cable into the cutout of the metal back panel and plug the RJ45 plug **2** into the socket of the PoE connector.
3. Connect the PoE connector to the terminal via the flat cable with interference suppression cores **4** as shown in the figure.

#### Power supply and functional grounding

There are two ways to power the terminal:

- Via a network cable, the RJ45 connector of which also ensures the functional grounding
- Via an external power supply that is connected to the screw terminal. In this case, the functional grounding is ensured via connection to the PE terminal.

## 4 Initial operation

 From a technical point of view, the terminals have an integrated controller. That is why the term *Controller* will be used in this section.

With the appropriate accessories (see table), the following options are available for connecting the host computer to the controller:

- Via WLAN with the IF-ServiceApp 75-99-0013
- Via service interface or USB

	Service interface	USB
IF-4xxx controller	75-4070-0001 service cable 4xxx (connection in housing)	
IF-4070 controller	75-4070-0002 service cable 4xxx (connection via RJ45)	
IF-5xxx terminal		75-99-0006 Service cable 5xxx

### 4.1 Connecting the controller to the network

You can connect the controller to the network via a service cable and the serial service interface or via WLAN with the IF-ServiceApp.

#### IF-ServiceApp

##### Prerequisites

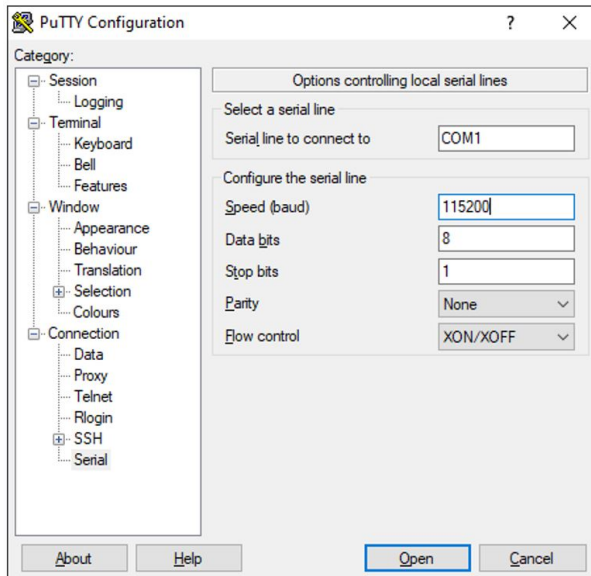
- ✓ Controller is connected to the IF-ServiceApp.

Detailed information on this subject can be found in the documentation of the IF-ServiceApp.

#### Service interface

Accessing the controller via SSH requires the freeware PuTTY version 0.73 or higher:

1. Switching on the power supply
2. Establish serial connection between host computer and controller
3. Open PuTTY
4. Check and adjust parameters



5. Start communication with **Open**
6. Login with username `fieldservice`
7. Define a password



Details on valid password requirements and how to change a password can be found under `Users` and `passwords`.

Only after entering a password are the network services started and the network connection can be established.

- ◆ Establish network connection

After the power supply has been switched on, the component executes the following actions:

- Boot the operating system
- Start applications
- Connect the components

The start-up procedure takes up to 30 seconds. When the RUN LED lights up, an SSH connection can be established.



Leave PuTTY open during the next steps as further entries are required during initial operation.

## 4.2 Checking and setting network parameters

The `netpar -?` command lists the call parameters of the `netpar` command:

```
</> fieldservice@IF-xxx:~ netpar -?
Display or change network parameters (legacy)
Please consider using nmtui or nmcli instead.
Usage: /opt/interflex/bin/netpar [OPTION]
  -i  show network settings
  -x  change IP addr., gateway, netmask and port no
  -d  use default network configuration
  -y  use DHCP network configuration
  -r  restart network interface
  -h  show DHCP configuration
  -m  change 'SNMPD' options parameters
  -w  Connecting Wifi profile netpar-wifi
  -?  print this help screen
```


### Input syntax for commands

Observe the following input syntax for commands:

- Commands are written in lowercase.
- Options are separated from the command by a blank and the minus sign.
- `-?` lists all possible command options.
- Press the **Enter** key to confirm command lines and data.
- To save new data, you must confirm the *Write to EEPROM (y/n)?* prompt by entering `y` for yes.
- Modified data only becomes effective after a restart, e.g. after a cold boot.
- SSH connections must be properly terminated after configuration.

### Setting the network parameters

Via the `netpar -x` command, you can retrieve information on the current network parameters (e.g. the IP address and port), which you can then change.

 When assigning the IP address and setting up the network, observe the current state-of-the-art technology for securing and segmenting corporate networks. Interflex recommends operating all installed components and servers in *one* VLAN.

Confirm values (e.g. Gateway, Netmask, etc.) that you do not wish to change by pressing the **Enter** key.

When your changes are complete, a list of the current network parameters is displayed after a few seconds and then the connection to the controller is terminated.

```

</> fieldservice@IF-xxx:~ netpar -x
IPv4 address/netmask [172.18.12.65/16]:
IPv4 gateway [172.18.70.1]:
Port [2001]:
Hostname [IF-xxx]:
Connection 'netpar' (e046c1c5-2eb5-4be0-8655-4f79acffc8bc) successfully
deleted.
Connection 'netpar' (8ff8bd2e-7229-4914-a214-3d60dc0e7f16) successfully
added.
Activate profile netpar
Connection successfully activated (D-Bus active path: /org/freedesktop/
NetworkManager/ActiveConnection/3)
Current profile: netpar
IPv4 address/netmask: 172.18.12.65/16
IPv4 gateway: 172.18.70.1
IPv4 address/netmask (active): 172.18.12.65/16
IPv4 gateway (active): 172.18.70.1
Port: 2001
Hostname: IF-xxx
fieldservice@IF-xxx:~

```

The subnet mask is appended to the IP address as CIDR notation, e.g.: 172.18.70.23/16

CIDR notation	Subnet mask
4	240.0.0.0
8	255.0.0.0
12	255,240.0.0
16	255,255.0.0
24	255,255,255.0
30	255,255,255,252

## Restoring the default IP address

You have the option of restoring the default IP address if you can no longer reach the controller after changing the IP address.

- ◆ Perform a factory reset.

Further information can be found in the section Restarting the controller [▶ 18](#)].

## 4.3 Configuring the interfaces and the booking memory

Via the command `oc -h`, you can

- change interface settings
- adjust the size of the booking memory

Press the Enter key to confirm values that you do not wish to change.

```
</> fieldservice@IF xxxx:~ oc -h
base address : 1
No. of term. bus 1 : 6
bus 2 : 4
bus 3 : 6
IF LT64 at bus 2 : 0

Protocol bus 1 : 0
bus 2 : 0
bus 3 : 0

KryptAddr bus 1, 2, 3: 0xFF
Baudrate bus 1 : 3
bus 2 : 3
bus 3 : 3

Number of bookings (1000) : 50

Notice: Baud rate, terminal bus: 2 (9600, 8, ep), 3 (19200 , 8, ep)
apprpr. terminals only

Protocol terminalbus: 0 (erfProt), 1 (rsiProt, 9600,8,noParity)

Your license allows 16 terminals as maximum
```

	Description
base address	Base address (max. 16)
No. of term. bus n	Number of terminals on bus n
IF-LT64 at bus 2	Number of IF-LT64 components at bus 2
Protocol bus n	0 = terminal protocol 1 = RSI protocol
KryptAddrbus	0xFF, Data encryption unchangeably enabled
Number of bookings (*1000)	Size of the booking memory Default: 50, corresponds to 50 000 bookings The booking memory works as a ring buffer. When the memory is full, the oldest entry is overwritten.



## 4.4 Listing the configuration data of terminals

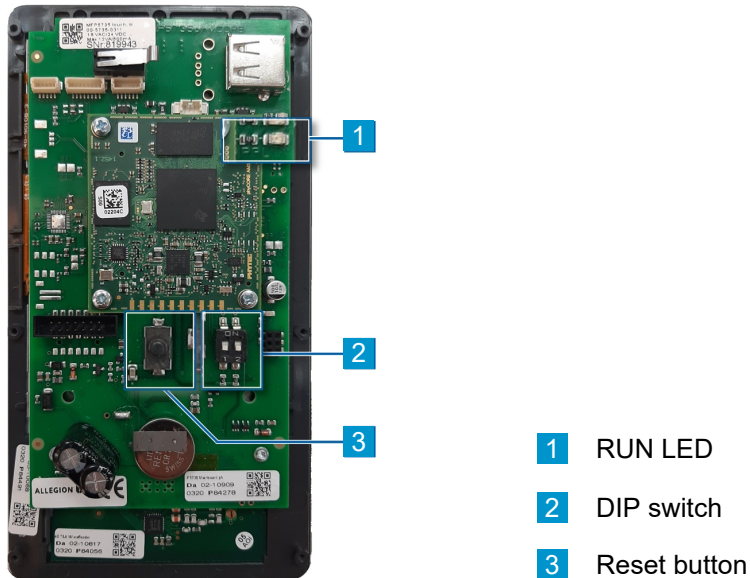
The `cfg` command lists the configuration data of terminals.

```
</> fieldservice@IF xxxx:~ cfg
Terminal configuration IF xxxx/4735 IT-2018.02.0-794-g91e557d6d26e
Host: Ethernet
-----
No B A HA TNo type HWU SWU display keys read.1 read.2 In/Out I/O
-- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
1 1 A 1 0 IF611 3.00 7.b ../.... ....N. PSCR/P ..... ++
2 1 B 2 0 IF600 3.00 7.c ../.... ..... LAP4 ..... ++
-----
Internet address: 172.18.12.65
Port-number: 2001
MPU board: phyCORE-AM335x
```

Text	Description
B	3 bus interfaces with the terminal distribution, e.g. the factory-configured default distribution of 6, 4 and 6 terminals
A	Alpha hardware address of the terminal
HA	Numeric hardware address with which the time/access program manages the terminals
TNo	Host management number The numbers are configured in the time recording/access control program and are displayed after the data has been loaded.
type	Component, e.g., terminal IF-xxx
HWU	Hardware status, e.g., 2.04 for MPU hardware HCS12
SWU	Software status, e.g. version 6.b
display	Display type (type / line x columns)
keys	Keypad type, e.g. N = numeric keypad, F = function keys
read.1	First reader type, e.g., PSCR/P for MIFARE readers
read.2	Second reader type, e.g., BCR for terminals with barcode reader
In/Out	Configured RS-232 interface, e.g. >RKASS< for a cashbox
I/O	- + = 1st I/O controller board for door control is ready for operation + - = 2nd I/O controller board (I/O expansion board) is ready for operation + + = 1st First I/O controller board and 2nd I/O controller board ready for operation - - = Terminal is operated without I/O controller board

## 4.5 Restarting the controller

Some changes require a restart of the controller. You can do this directly on the controller or with the appropriate commands via the console.



### Warm boot

A warm boot performs the following actions:

- Close application
- Restart application

Associated console command: `oc -s` or `factory-reset application-restart`

### Reboot

A reboot performs the following actions:

- Close application
- Shut down operating system
- Boot operating system
- Restart application

1. Set switches:



2. Shortly press the Reset button
3. Wait until the RUN LED lights up again (procedure can take up to 30 seconds)

Associated console command: `factory-reset reboot`

## Cold boot

All settings made on the controller via IF-6040 or OC Task are deleted or reset to default. System or operating system settings, such as the IP address or password, are retained.



Use the cold boot during initial operation and in the event of malfunctions that cannot be remedied by other means, e.g., a warm boot.

1. Set switches:



2. Shortly press the Reset button
3. Wait until the RUN LED lights up again permanently (procedure can take up to 45 seconds)
4. Reset switch position:



Associated console command: `oc -c oder factory-reset application`

## Reset network settings to factory default

The network settings are reset.

1. Set switches:



2. Shortly press the Reset button



The previous network settings are *not* saved temporarily, unlike in earlier variants.

## Factory reset

All factory settings are restored.



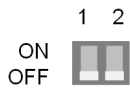
For initial operation, the controller can then only be accessed via a serial console or the IF-ServiceApp.

1. Set switches:



2. Shortly press the Reset button
3. Wait until the RUN LED lights up again (procedure can take up to 30 seconds)

## 4. Reset switch position:



Associated console command: `factory-reset full`

## 5 Technical specifications

### Power supply

Nominal voltage	18 to 24 V AC/DC
Power supply via Ethernet	PoE IEEE 802.3at of power class 0 (up to 13 W)
Power consumption	Max. 12 VA
Fuse	PTC resistor

### Equipment

Credential reader	RFID: MIFARE® Classic/DESFire, LEGIC® advant/prime or (F-5735 only (SimonsVoss 'Active Technology')) IF-5735: BLE
Read range	RFID 40 cm, BLE optional
Display	Capacitive 4.3 inch color display; resolution of 480 x 272 pixels
Keypad	IF-5735: PIN entry possible
Signaling	Audible: Buzzer Visual: Color LEDs
Data interfaces	Ethernet network connection with SSH TTL service interface
Inputs	IF-5735: Up to two I/O controller boards with 2 floating sensors each (optional)
Output relay/switching capacity	IF-5735: Up to two I/O controller boards with 1 floating sensors each (optional), max. 30 V / 2 A
Anti-tamper switch	Anti-tamper switch, activated when front panel is removed

### General data

Degree of protection	IP30 (with concealed wiring)
----------------------	------------------------------

Humidity	Max. 95%, non-condensing
Ambient temperature	+4° C bis +40° C
Dimensions (W x H x D):	163 x 87 x 45.8 mm
Color	Black or white
Installation type	Surface-mounted
Cable feed	Flush-mounting (surface-mounting with spacer possible)
Weight	0.4 kg
Housing material	Thermally tempered white glass on a polycarbonate body

## 6 Disposal



Once its service life comes to an end, the device must be disposed of properly as electronic waste. You can dispose of the device yourself or return it to the supplier.

## 7 Declarations of conformity

### 7.1 UK Declaration of Conformity



The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Radio Equipment Regulations 2017

The complete Declaration of Conformity can be found on our website [www.interflex.com](http://www.interflex.com).

### 7.2 EU Declaration of Conformity



Interflex hereby declares that the products comply with the directives 2014/53/EU (RED) and 2011/65/EU (RoHS).

The complete EU Declaration of Conformity can be found on our website [www.interflex.com](http://www.interflex.com).

This product uses program packages that are subject to Open Source License Terms. The license information and the links to the OpenSource projects are available for download on the product in the directory /home/fieldservice/app/docs/.

Source code and updates are provided in the directory \Software\Firmware\Controller\ on the Interflex FTP server: <https://ftpservice.interflex.de>.

The information contained in this manual is to the best of our knowledge accurate and reliable. However, errors or mistakes cannot be completely ruled out. The information herein is therefore subject to change without prior notice.

The original manual is in German. Other languages are translations of the original manual.

Version: 07.22