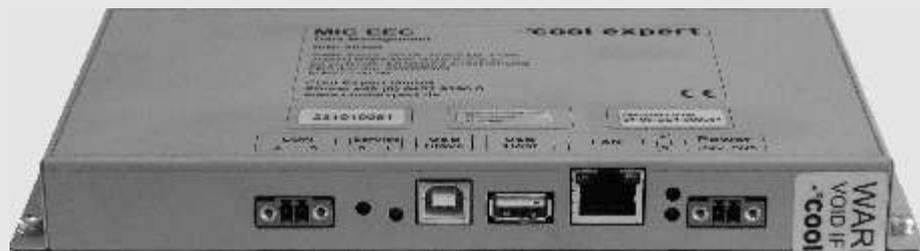


# -°cool expert



## MIC EEC

Data management

Art.No. 40300

For the benefit of the customer, in harmony with the environment

## Cooling system intelligence

### Management Information Control (MIC)

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CE4.r1.0.3-1.0-de

## Installation and operating manual

MIC EEC data logger by Cool Expert is the perfect complement to self-optimizing cooling control MIC QKL mini 2. The data of the cooling controls MIC QKL mini 2 will be transferred via LON network to MIC EEC and logged simultaneously. Therefore the MIC QKL mini 2 have to be equipped with LON-Transceiver FTT10A. The temperature history and switching status will be graphically displayed and also a large diagnostics and fault management is embedded. Further process data can optionally be logged by additional modules. Documentation and storage of temperature history takes place according to HACCP regulations accompanied by a large reporting system. Up to 1 GB of measurement and process data can be stored on an included SD-card. MIC EEC data logger is equipped with a LAN interface to enable connection to intranet and internet. The intuitive user interface is well-arranged and enables easy handling.

#### Data recording:

The time interval for the recording of temperature and process data can be selected by requirement. Due to the extendibility of LON network the operator of refrigeration plants can record the data of multiple chillers according to HACCP regulations. Optional additional modules can be used to record any process data via LON.

#### Alerting via email/SMS:

The cooling control MIC QKL mini 2 has implemented large diagnostics of possible malfunctions, that will be reported via LON. Information about character, extent and cause of malfunction will be sent on different ways (email/SMS) to the service staff in charge (this feature requires connection to the internet and causes additional expenses). So the fastest possible troubleshooting is ensured, in order to protect the goods in case of malfunction. Optional additional modules can record malfunctions to find the reason of malfunction in process variables on the graphical user interface.

#### Extensions:

Energy meters to record the power consumption and multiple analog or digital input modules can be connected via LON. Please contact Cool Expert Service to obtain a list of compatible LON-components.

#### Calling via web browser:

An integrated web server provides MIC EEC with access to intra- or internet. Usually no additional software is needed to use this feature. The clearly arranged graphic interface of MIC EEC allows comfortable change and handling. The web interface is, given adequate infrastructure, accessible from all over the world via internet (detailed information on page 4).

#### Multiple languages:

The language of the web interface can be chosen individually, und erweiterbar. At this time German, English, French and Dutch are implemented (de, en, fr,nl).

#### Access rights:

Access to the web interface of the data logger is hierarchically structured, to ensure that only authorised users can look up data, change settings or change system configuration. Therefore the levels guest, user and administrator are provided.

#### Configuration and remote maintenance:

The well arranged, intuitive web interface of MIC EEC allows easy configuration of the data logger. Cool Expert maintains its software and provides regularly

updates. These free of charge updates can be installed easily using the web interface.

#### Storage of documents:

On the documents' site any document belonging to the installation can be stored and looked up, e.g. manuals, plans and connection schemes.

#### Simple initiation:

Cooling controls MIC QKL mini 2 that are connected via LON will be detected automatically. Just the terms of logging have to be set. Ambition of the designing engineers of Cool Expert is to enable straightforward communication to in-house products without the usually necessary binding.

#### Data visualization:

The logged performance and process data will be shown in a list in a browser window and can be accessed and graphically displayed without previous knowledge.

#### Factory settings of TCP/IP & Log-in

IP-Address: 192.168.20.100  
Subnet mask: 255.255.255.0  
Webserver Port: 80

Username: admin  
Password: admin

# Technical specifications

Supply voltage	24 V ± 20 % DC, typ. 8 W	
Ambient temperatures	storage	0 °C (-4 °F) bis 50 °C (122 °F)
	transport	0 °C (-4 °F) bis 50 °C (122 °F)
	operation	0 °C (-4 °F) bis 50 °C (122 °F)
Atmospheric moisture	< 90 % relative, non-condensing	
Prozessor	Intel(R) XScale(R) CPU @ 520 Mhz	
Storage	64MB SD RAM	
Flash	32MB Flash Disk, Internal SD/MMC extension slot	
Cooling	fanless cooling max. switching capacity 8(3) A 250 V AC	
Terminals	2-pin Phoenix plug MC 1,5/ 2-STF-3,5	
Communication interface	1x 10/100 Mbit/s Ethernet (integrated web server)	
	1x USB-1.1 Host Interface, max. 500 mA	
	1x USB-Slave Port	
	1x LON TP/FT10 Interface (connection to LON-network)	

Case	zinc coated sheet steel
Storage	1 x SD-card 1 GB (storage of measuring data and documents)
RoHS compliant	Yeah!!!

## Safety advice:

The input voltage of DC 24 V may only be connected to the designated terminal ("24V DC"). Wrong connection leads to sudden destruction of the data logger. **Watch out for right polarity.**

Separate source voltage leads to destruction of the data logger and can be fatal. This applies to any terminal or contact section of MIC EEC.

Subject to technical modifications without prior notice!

# Safety and work instructions

## General safety instructions

Cool Expert does not assume any liability for damages resulting from inappropriate installation or use of MIC EEC and related equipment.

Do not open or repair MIC EEC. Always install MIC EEC according to local and national standards and technical regulations.

Data logger MIC EEC is supplied by a safety-low voltage of 24 V DC. The transformer providing the voltage have to fulfill the requirements of EN 61558-2-6 respectively EN 61558-1.

A separator with a contact opening width of at least 3 mm / 0,12 in must be fitted at each pole (main and service switch).

After installation and revision safety functions have to be tested according to the applicable guidelines.

For use in potentially explosive rooms the applicable guidelines for this have to be observed. Data logger MIC EEC must be installed outside potentially explosive areas.

## Voltage supply and storage

After restoration of voltage supply the data logger MIC EEC restarts. If voltage breaks down no more data can be logged, so it has to be ensured that voltage drop does not occur and neither the data logger will be switched off by external switches, e.g. by a manual control switch. Frequent drops of voltage cause fragmentary logging. If the data logger is used for data recording according to HACCP, an uninterruptible power supply might be provided.

## Work instructions

### Electrical installation

Before working on MIC EEC disconnect the device from mains and assure against switching on unintendedly.

Electrical installations are to be carried out by authorized specialist companies only. The VDE 0100/0700 and DIN 8975 part 7.33 as well as the regulations of the local electricity supplier and all other safety and protection regulations, including the performance specifications of the components connected, must be observed.

# Installation and connection

## Case and dimensions

Mounting:	DIN rail installation with snap fit (DIN rail acc. EN5022)
Dimensions:	212,6 x 105 x 23 mm (L x W x H)

The device has to be mounted in a control cabinet.

## Installation instructions

The device has to be installed in a dry and dust-free environment. Warranty voids in case of failure!

### Mounting option:

Data logger MIC EEC can be mounted on DIN rail as well as on surfaces. For surface mounting the case is equipped with four catch hooks, that can be pulled out with a screwdriver.

### Mounting on DIN rail:

Data logger will be snapped on DIN rail. For removal push down MIC EEC gently and pull off the DIN rail bottom first.

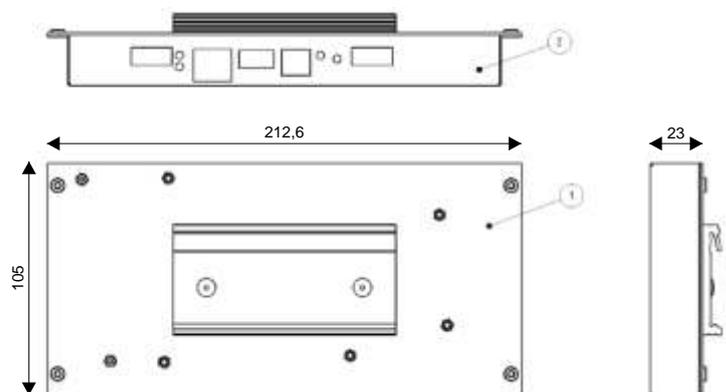
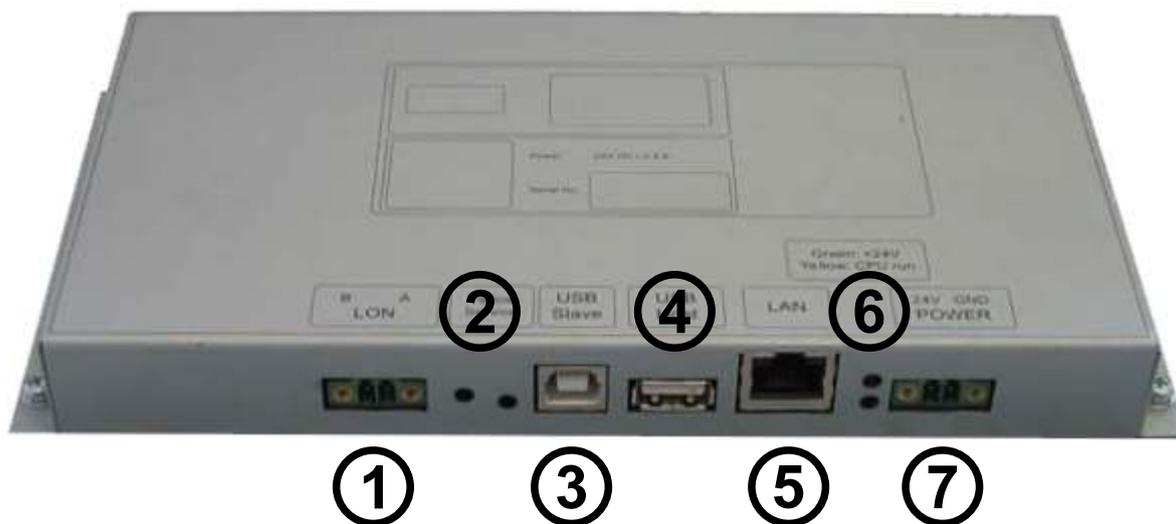


Illustration similar



### 1 LON® interface

The LON® Interface has an integrated FTT-10A Transceiver. Connect to LON-bus according to acknowledged installation direction.

### 2 - LON® Service

„Service LED“ and „Service Button“ for LON® Interface.

### 3 - USB Slave interface

Interface for software update.

### 4 - USB Host interface

1x USB-1.1-Host interface, max. 500mA.

### 5 - LAN interface

LAN interface is equipped with a standard Rj45 connector with integrated LEDs. The green LED indicates link status and flashes while data communication. The yellow LED indicates data transfer rate: „off“ means 10MBit/s and „on“ means 100MBit/s (Fast Ethernet).

### 6 - Control LEDs

Green LED indicates power supply, the yellow one system ready (“CPU-RUN”).

### 7 - Power supply

24VDC power supply. The pin assignment is printed on the case. Ground is connected internally to the case.

## Hardware installation

### Pay attention to the safety and work instructions!

The control cabinet has to be on zero-potential before mounting. Detailed information on page 2.

### Mounting of the data logger

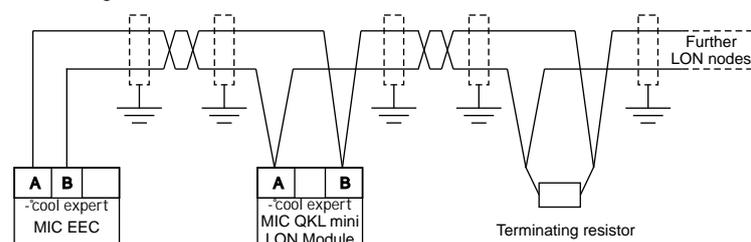
Please pay attention to the mounting instructions on page 2.

### Connection of LON components

Please follow the instructions of the manufacturer.

### Installing LON network

The LON network should be installed completely including the necessary terminating resistor.



### Please note:

- Only use twisted and shielded cable for data or bus connection.
- Connect data or bus connection by twisted wire pairs.
- The shielding must be grounded in the control cabinet.
- The terminating resistor can be obtained from Cool Expert (item no. 40231).

Conduit	Terminating resistor	Length of bus connection
any	any place terminating impedance 52,3 Ohm	cable total length < 450 m node distance < 250 m
in line (max. stub < 3 m)	at the end terminating impedance 105 Ohm	cable total length < 900 m

### Please note:

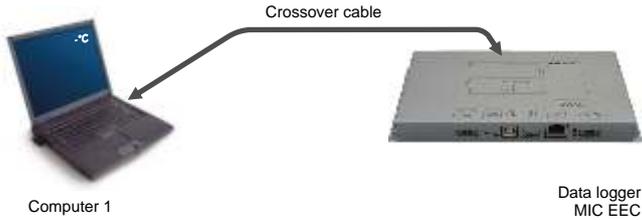
- Further cable length, specifications and network topology according to Echelon® guidelines.
- The devices MIC EEC and MIC QKL mini 2 LON Transceiver work on FTT10A LON transceivers.

## Connect ethernet cable

The data logger can be connected either directly to a computer or to a LAN network.

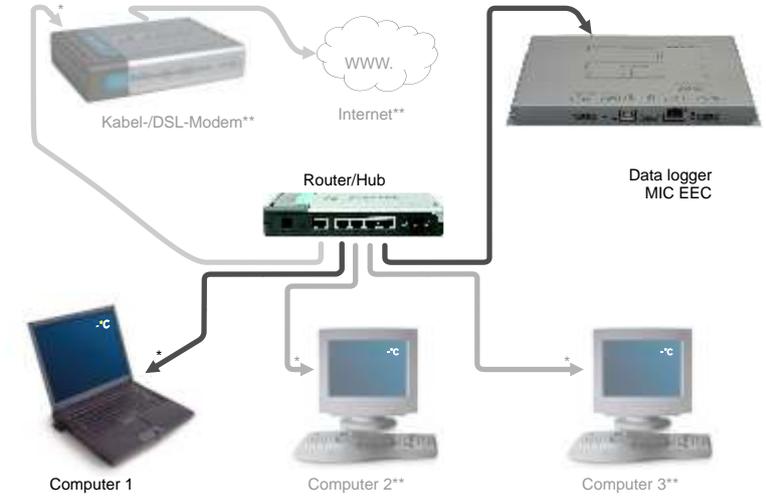
### Direct connection to a computer

Connection to a single computer can be installed using a crossover cable.



### Connection to an existing LAN network

Connection of the data logger to an existing LAN network is set up using a router or hub. For this please use a patch cable. After configuration of the data logger the web interface can be entered from any computer connected to the LAN.



\* Patchkabel

\*\* Additional components, not necessarily installed

## Starting up of the data logger (software)

The following description is for starting up data logger that is directly connected to a single computer.

### Set up direct connection to a computer

Connect the data logger to a computer using a crossover cable, as described above 'Connect ethernet cable'.

### TCP/IP settings

The data logger MIC EEC is preconfigured prior to delivery. In order to connect to the MIC EEC the network settings (TCP/IP settings) of the computer have to be changed.

#### Procedure for Microsoft Windows XP

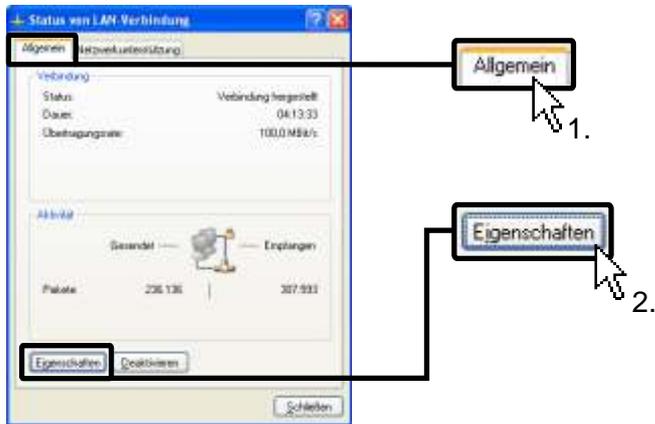


#### Open LAN connections

Open "Start" and "control panel". Then open "Network connections" and select "Local-Area Connection".

#### Open properties of "LAN connections":

Select "General" from register list. Afterwards select "properties" to open.



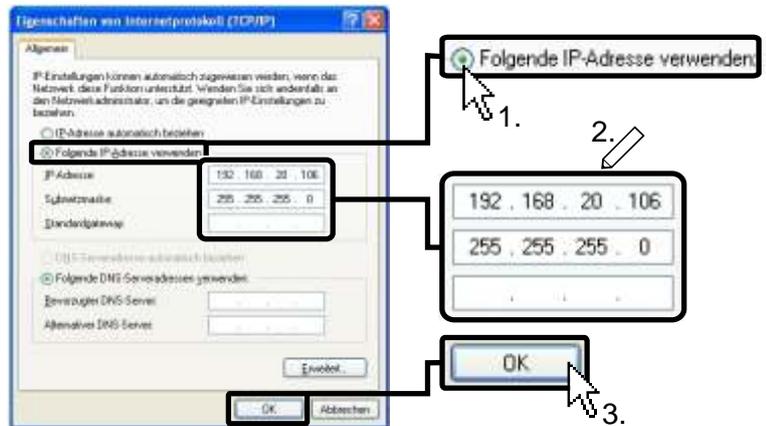
#### Open TCP/IP settings:

Select in list "Internet Protocol TCP/IP" and afterwards click "Properties" to open.



### Change IP address settings:

Select "Use the following IP Address", enter the following settings and verify by pressing "OK".



#### Procedure for Microsoft Windows Vista

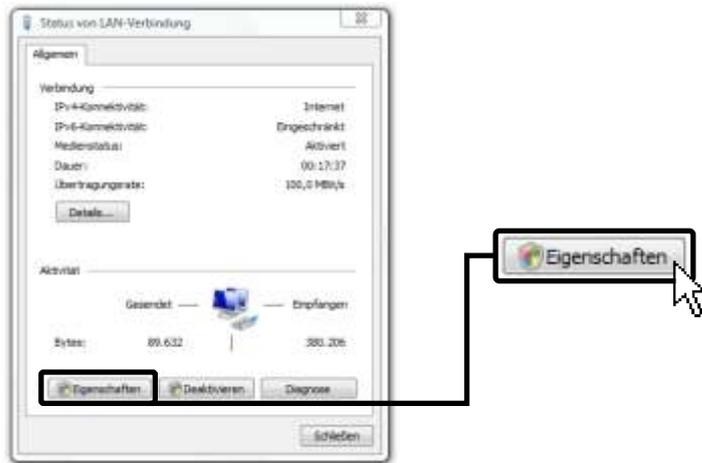


#### Open LAN connections

Select "Start" and "Control panel". Then select "Netzwerk- und Freigabecenter" and on the left "Netzwerkverbindungen verwalten". Open "LAN connections".

#### Open properties of LAN connection:

On register list "General" open "Properties".



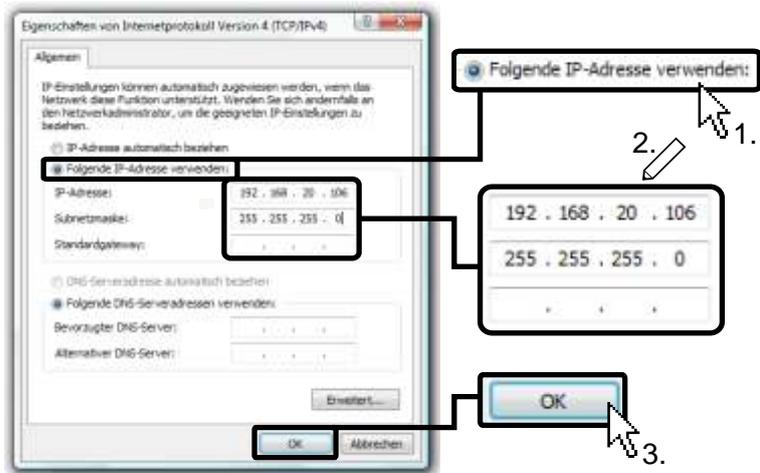
**Select TCP/IP settings:**

Choose in selection list "Internetprotokoll Version 4 (TCP/IPv4)" and open properties.



**Changing IP address:**

Select "Use this IP address" and change settings as shown. Verify clicking 'ok' button.



**Invoke web interface of the data logger**

**Start browser**

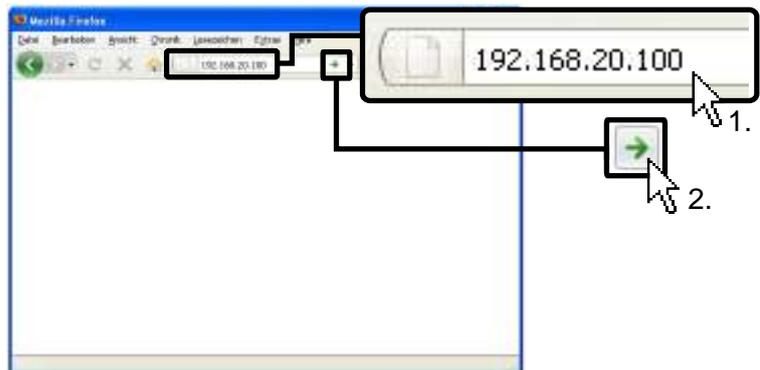
Open browser on a computer connected to the data logger via ethernet.

Supported browsers:

- 1) Internet-Explorer Version 7 or newer 
- 2) Mozilla Firefox Version 3.0.5 or newer 

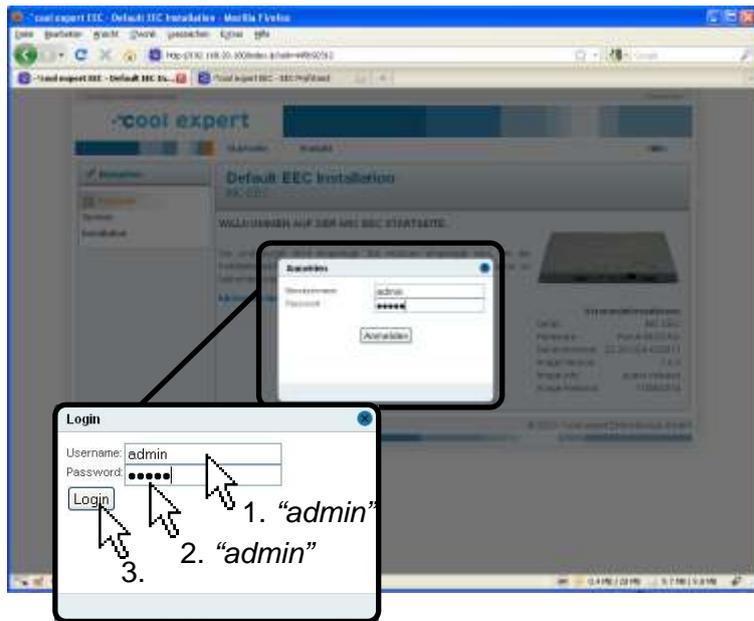
**Enter address of data logger**

Enter IP address of the logger in the address bar. Factory setting is 192.168.20.100, if the address has been changed, you will find the new address listed on the last side of this manual.



**Log-in on web interface**

After start page has loaded, log in using username "admin" and password "admin".



**Factory settings of TCP/IP & Log-in**

IP-Adresse:	192.168.20.100
Subnet mask:	255.255.255.0
Username:	admin
Password:	admin

## Online help

### Invoke of online help

Further information on handling and function of the data logger can be found in online help. This will show up in a pop-up window after activating the help button.



### Please note:

- The administrator password must be changed for safety reasons on initial installation.
- Usually the data logger should only be accessed in user or guest mode. The set up of user accounts is to protect the system from unintended changes.
- Changes of TCP-/IP settings have to be documented in parameter reference.





