

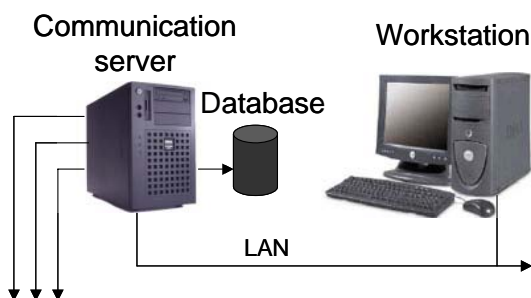


# MCom 3

**MCom 3 is a complete system for Automatic Meter Reading (AMR) of different meter types e.g. Electricity, Heat, Cooling, Gas and Water.**

The central system communicates with connected meters via one or more communication servers. The ability to use more than one server means that the system is scalable, from handling just a few meters up to handling hundreds of thousands.

The communication server communicates in parallel on all ports. Thus reducing the reading time in larger systems.



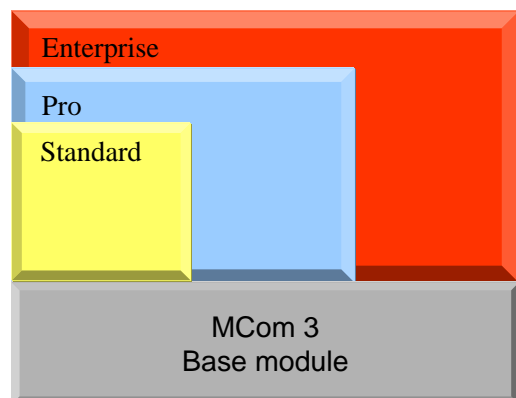
The system users are normally connected to the communication server via workstations in a local network. All communication between server and

workstations is done using TCP/IP, which also facilitates connection via the Internet.

## Program structure

MCom 3 is a modular system and is available in three different program packages, *Standard*, *Pro* and *Enterprise*. Each is based on the same base module.

## The base module



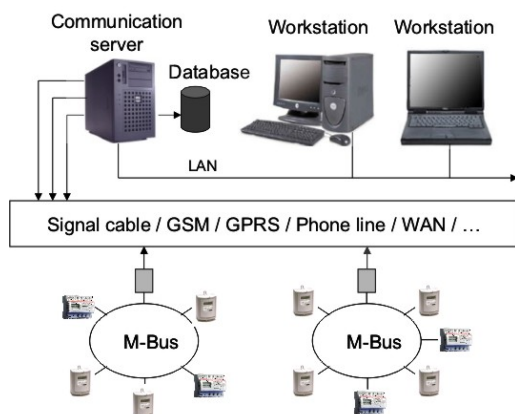
The base module contains the following functions:

## Communication

MCom 3 supports, as standard, communication via a number of different channels:

- Signal cable
- Optical fibre
- GSM
- TCP/IP
- Data modem

This means that the system easily can be adapted to various local conditions.



Communication with meters is normally done via M-Bus, but the system also supports other protocols.

### Data collection

MCom 3 can collect data from a large number of different meters.

Data collection can be done:

- On direct command from the user.
- At a pre-set date and time.
- Continuously at configurable intervals.

The system contains a scheduler, which can manage a large number of scheduled readings, so-called jobs. This makes it possible to, for example, collect momentary data from one group of meters every hour and at the same time collect data from another group of meters once a day.

### Data storage

MCom 3 contains as standard support for the following data formats:

- ASCII
- 002-files

The user can freely define the ASCII-format regarding, among other things, which values to include, field lengths and separators. This makes it possible to export data to many different external systems.

### Installation

MCom 3 supports automatic installation of connected meters making it possible for the system to search for and add meters automatically.

MCom 3 also supports import and export of meter and customer information via ASCII-files making it possible to import information from external systems.<sup>1</sup>

MCom 3 can import structure files from MCom 2.9.

### Configuration

MCom 3 supports remote configuration of connected meters. The parameters that normally can be configured are communication speed and address.

### User views

MCom 3 offers different views for the handling of meters and terminals.

The *physical view* displays how the meters are physically connected to the system. This view is mainly used for the administration of meters and terminals.

The *logical view* makes it possible to divide meters into different logical groups and is used to make readings of specific groups of meters.

The *Job view* displays all scheduled jobs. It's also possible to edit and erase jobs from this view.

The *Activity view* presents all on-going activities in the system offering the user an overview of system activities.

### Supervision

MCom 3 contains a function for the setting of limit values. MCom 3 compares the defined limit values with corresponding parameters at each reading generating an alarm when a deviation occurs.

All errors and alarms are displayed with blinking symbols in the views. Logging of errors and alarms

<sup>1</sup> Planned for future release.

requires an event log. See the program packages *Pro* and *Enterprise* below for more information.

### Fault-tracing

Since all errors and alarms are displayed, it's very easy to quickly find out where a problem has occurred.

In addition MCom 3 contains a built-in line listener for the COM-ports. This makes it possible to see all on-going communication without the use of an external line listener.

### Authorization system

MCom 3 contains an authorization system, which makes it possible to assign users a role. The role controls what users can do and see in the system. This makes it easy to customize the user interface for different types of users.

### Modem pools

MCom 3 has built-in support for modem pools. By using modem pools it's possible to significantly reduce the reading time and to increase security. MCom 3 automatically chooses the modem that is free for each reading. The system can communicate on all modems simultaneously. If one modem breaks down it will be automatically disabled and the remaining modems will take over communication. It is also possible to reserve modems for instantaneous readings. This function is used to prevent the system from occupying all modems for scheduled reading jobs.

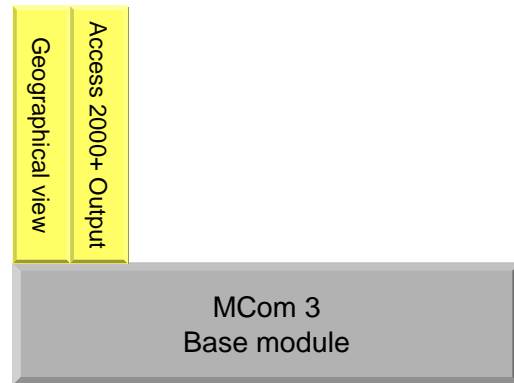
### Other functions

- **Installation information**– MCom 3 can store information about each installation, for example customer number, address, telephone number etc.
- **Handling of counter values** – MCom 3 can manage scaling, offset and units for counter values.
- **Load points** – A load point is a virtual meter that can be used to sum up a number of meters in a particular area without having to install an extra meter. The user can freely decide which meters to add up and/or subtract in each load point. The load points are handled as any other meter in the system.
- **Enabling / disabling** – Meters can temporarily be disabled from the system. This is used to prevent alarms being generated from meters that are known to be out of order.
- **Job actions** – MCom 3 can be configured to start other applications after a completed reading job.

- **Automatic back up** – MCom 3 has built-in functionality for the automatic back up of system information.

## MCom 3 Standard

The program package *Standard* contains, in addition to the functions in the base module, the following modules:



**Note** that the program package *Standard* does not support multi-user systems. Server and client must be run on the same machine.

### Geographical view

The geographical view shows the meters geographical location on a map or other picture. Different users can work with different pictures. The meters are easily placed on the map with a "Drag & Drop" interface.

MCom 3 also supports systems of co-ordinates; this makes it simple to swap maps without having to set out the meters again.

MCom 3 supports different systems of co-ordinates, e.g. Longitude/Latitude and 2- dimensional systems of coordinates.

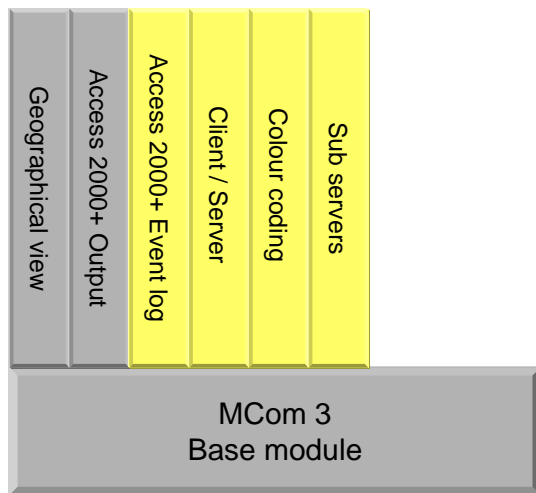
MCom 3 supports the following file formats: BMP, JPG, WMF and EMF.

### Access 2000+ output

This module makes it possible for MCom 3 to store meter data in an Access database. The module also contains a simple report generator.

### MCom 3 Pro

The program package *Pro* contains, in addition to all the functions included in the program package *Standard*, the following modules:



### Access 2000+ Event log

This module makes it possible to continuously log all alarms, errors and events that occur in the system and store them in an Access database. The information is stored together with date and time information. The module also contains a simple report generator.

### Client/Server

This module makes it possible to use MCom 3 in a multi-user system. Server and client can be installed on different machines in a local network. The permitted number of simultaneous clients is dependant on the type of license.

### Colour coding of meters

This module contains a function which makes it possible to display meters and terminals in different colours depending on user defined limit values. This function can be used to supervise certain parameters, e.g. pressure, temperature, power, flow etc.

In combination with the geographical view, where all meters and sensors are placed out on maps, this makes a powerful tool for supervision and fault tracing.

### Sub servers

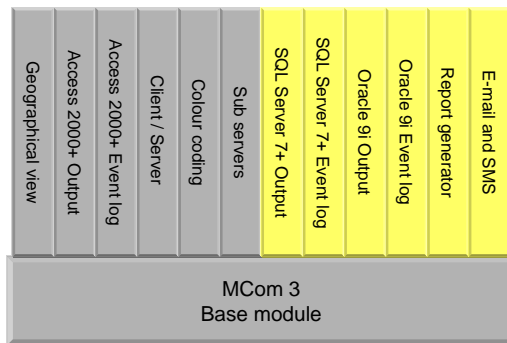
The ability to use sub servers is above all used in three fields of applications:

1. To increase the system capacity by distributing the meters to be read to several computers.
2. As a local data concentrator.
3. As a local collection system in case the meters are scattered over wide geographical locations.

Assuming all sub servers are connected to the same network as the main server, all connected meters can be read from all clients.

## MCom 3 Enterprise

The program package *Enterprise* contains, in addition to all functions included in the program package *Pro*, the following additional modules:



### SQL Server 7+ Output

This module makes it possible for MCom 3 to store meter data in an SQL database. The module also contains a simple report generator.

### SQL Server 7+ Event log

This module makes it possible to continuously log all alarms, errors and events, which occur in the system to an SQL database. The information is stored together with date and time information. The module also contains a simple report generator.

### Oracle 9i Output

This module makes it possible for MCom 3 to store meter data in an Oracle database. The module also contains a simple report generator.

### Oracle 9i Event log

This module makes it possible to continuously log all alarms, errors and events that occur in the system to an Oracle database. The information is stored together with date and time information. The module also contains a simple report generator.

### Report generator

The program package *Enterprise* is delivered with a separate, powerful report generator. This makes it possible for the user to create advanced reports from the database.

### E-mail and SMS<sup>2</sup>

With this module errors and alarms that occurs in the system can be reported through e-mail or SMS. This makes it possible for service staff, for example, to receive error reports directly in their mobile phones.

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<sup>2</sup> E-mail and SMS are planned for future release.

## Technical specification

### Base module

- Automatic meter reading
- Installation
- Configuration \*
- Data storage
- Supervision
- Authorization system
- Fault tracing
- User views
- Modem pools

### MCom 3 Standard (Basic module +)

- Geographical view
- Access 2000 Output

### MCom 3 Pro (Standard +)

- Access 2000 Event log
- Client/Server
- Colour coding
- Sub servers

### MCom 3 Enterprise (Pro +)

- SQL Server 7+ Output
- SQL Server 7+ Event log
- Oracle 9i Output\*
- Oracle 9i Event log\*
- Advanced report generator
- E-mail and SMS\*

\* Planned functions.

### System requirements - Server

MCom 3 server operates with Microsoft® Windows® 2000. We recommend a server with a 3 GHz processor or better, 1 GB RAM , 120 GB Hard disk space and a 10/100 network card. If the server is required to have a database installed, the need for disk space might be higher.

MCom 3 is protected by a dongle which is normally connected to an USB-port. In addition at least one free COM-port is normally required. The exact number of COM-ports needed depends on the system solution.

### System requirements - Client

MCom 3 work station operates with Microsoft® Windows® 2000 & XP. We recommend a PC with a 2 GHz processor or better, 1 GB RAM, 100 GB Hard disk space and a 10/100 network card. The exact amount of disc space needed depends, among other things, on the number of locally stored maps.

If large maps are used it's an advantage to have a powerful video adapter.

**Note that third party products such as Access, SQL Server and Oracle are not included in MCom 3.**