MNS *i*S Motor Control Center
Interface Manual Web Interface
System Release V7.0

Power and productivity
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This document relates to the MNS *i*S System Release 7.0.

Table of content

General

Target Group

This document describes communication and control interfaces used in MNS *i*S. The manual is primarily intended for those requiring information on accessing information and data provided from MNS *i*S. Furthermore the document provides information for integration of MNS *i*S as Fieldbus component into PLC or higher level Process Control Systems to control system and application engineers.

It is assumed that the reader of this manual is familiar with basic terms of Fieldbus and control communication (e.g. basic knowledge about PROFIBUS, Modbus etc.).

Use of Warning, Caution, Information and Tip icon

This publication includes **Warning**, **Caution**, and **Information** icons where appropriate to point out safety related or other important information. It also includes **Tip** icons to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:

The electrical warning icon indicates the presence of a hazard that could result in *electrical shock.*

The warning icon indicates the presence of a hazard that could result in *personal injury.*

The caution icon indicates important information or warnings related to the concept discussed in the text. It might indicate the presence of a hazard that could result in *corruption of software or damage to equipment/property.*

The information icon alerts the reader to pertinent facts and conditions.

The tip icon indicates advice on, for example, how to design your project or how to use a certain function

Although **Warning** notices are related to personal injury, and **Caution** notices are associated with equipment or property damage, it should be understood that the operation of damaged equipment could, under certain operational conditions, result in impaired process performance leading to personal injury or death. It is, therefore, imperative that you comply fully with all **Warning** and **Caution** notices.

Terminology

List of the terms, acronyms, abbreviations and definitions that the document uses.

Abbreviation	Term	Description
	Aspect Object	ABB technology. An Aspect Object is a computer representation of a real object such as a pump, a valve, an order or a virtual object such as a service or an object type. An Aspect Object is described by its aspects and is organized in structures.
	Alarm	Alarm is defined as status transition from any state to abnormal state. Status transition to abnormal state can be data crossing over the pre-defined alarm limit.
	Bus Local	A Control Access term describing that the M*Control* accepts its commands from a device on the switchgear control network, e.g. the Web Interface, M*View*.
COTS	Commercial off the shelf	Commercial off the shelf product, term to describe products available on the market, ready to use
DCS	Distributed Control System	See also PCS
DTM	Device Type Manager	Software module used to manage devices via Fieldbus (e.g. PROFIBUS) using frame application environment (e.g. PactWare, ABB Fieldbus Builder etc.)
Eth.	Ethernet	Ethernet is a local area network (LAN) technology. The Ethernet standard specifies the physical medium, access control rules and the message frames.
	Event	An event is a status transition from one state to another. It can be defined as alarm, if the state is defined as abnormal or as warning as a pre-alarm state.
FD	Field Device	Term for devices connected to the Fieldbus (e.g. motor control units or circuit breaker protection)
GSD file	Geräte Stamm Datei (German abbreviation)	A hardware description file for a PROFIBUS-DP or PROFIBUS-DP/V1 slave type
GPS	Global Positioning System	System to detect local position, universal time and time zone, GPS technology provides accurate time to a system
	Hardware Local	A Control Access term describing that the M*Control* accepts its commands from the Hardwired inputs, when the respective Local control input is set to true.

Abbreviation	Term	Description
HMI	Human Machine Interface	Generic expression
LVS	Low voltage switchgear	A factory built assembly built to conform with IEC 60439-1
MCC	Motor Control Centre	Common term for switchgear used for motor control and protection.
MNS		Modular Low Voltage Switchgear family from ABB
MNS *i*S		The integrated intelligent switchgear solution from ABB
	M*Start* M*Feed* M*Control* M*Link* M*View* M*Navigate*	MNS *i*S components integrated in the switchgear, see the MNS *i*S System Guide for technical details
	MODBUS	Fieldbus communication protocol
	MODBUS RTU	Fieldbus communication protocol
	Motor Starter	Consists of motor controller and electrical components to control and protect a motor, part of Motor Control Center
NLS	Native Language Support	Providing the ability to change the language of software tools in order to support native languages (English is basis, others are optional)
OPC		OLE for Process Control, an industrial standard for exchange of information between components and process control application
PCS	Process Control System	High level process control system
PLC	Programmable Local Controller	Low level control unit
	PROFIBUS-DP	Fieldbus communication protocol with cyclic data transfer (V0).
	PROFIBUS-DP/V1	Fieldbus communication protocol, extension of PROFIBUS-DP allowing acyclic data transfer and multi master (V1).

Abbreviation	Term	Description
	PROFIBUS-DP/V2	Fieldbus communication protocol, extension of PROFIBUS-DP allowing time stamp and communication between master and slave (V2).
	PROFINET	PROFINET is an open standard for Industrial Ethernet and standardized in IEC 61158 and IEC 61784.
PNIO	PROFINET IO	PROFINET for decentralized periphery and distributed automation
RCU	Remote Control Unit	Local control unit with pushbutton and indicator to operate a device (e.g. motor) from field level.
RS232		Standard No. 232 for PC communication, established by EIA (Electronics Industries Association, USA)
RS485		Communication interface standard from EIA (Electronics Industries Association, USA), operating on voltages between 0V and +5V. RS-485 is more noise resistant than RS-232C, handles data transmission over longer distances, and can drive more receivers.
RTC	Real Time Clock	Integrated clock function in devices used to generate time and date information if a remote clock system is not present
	Software Local	A Control Access term describing that the M*Control* accepts its commands from the hardwired inputs as a result of either the PCS or M*View* passing the Control Access Authority to Soft-Local. Note: Does not require the hardwired local input to be set to true.
SNTP	Simple Network Time Protocol	A protocol used for time synchronization in Control Network through Ethernet
	Switchgear Bus Network	Term used to describe the internal switchgear communication network, between M*Link* and M*Control*.
TCP/IP	Transmission Control Protocol / Internet Protocol	TCP/IP is a high-level connection oriented , reliable, full duplex communication protocol developed for integration of the heterogenous systems.
	Trip	A consequence of an alarm activated or an external trip command from another device to stop the motor or trip the circuit breaker.

Abbreviation	Term	Description
UTC	Coordinated Universal Time	Coordinated Universal Time is the international time standard. It is the current term for what was commonly referred to as Greenwich Meridian Time (GMT). Zero (0) hours UTC is midnight in Greenwich England, which lies on the zero longitudinal meridian. Universal time is based on a 24 hour clock.
	Warning	A warning is defined as status transition from any state to pre-alarm state to inform in advance before an alarm level is reached.

Related Documentation

MNS *i*S

1TGC910211 M0201 MNS *i*S Interface Manual M*Link*, Release 7.0

1TGC910111 M0201 MNS *i*S M*Link* Upgrade Kit Manual

1TGC910231 M0201 MNS *i*S Interface Manual OPC Server, Release 7.0

1TGC910241 M0201 MNS *i*S Interface Manual Profibus, Release 7.0

1TGC910251 M0201 MNS *i*S Interface Manual Modbus, Release 7.0

1TGC910291 M0201 MNS *i*S Interface Manual PROFINET IO, Release 7.0

1TGC910281 M0201 MNS *i*S M*Control* Interface Manual Profibus Direct, Release 7.0

1TGC910261 M0201 MNS *i*S Interface Manual Redundancy, Release 7.0

1TGC910271 M0201 MNS iS M*Connect* Interface Manual, Release 7.0

1TGC910001 B0204 MNS *i*S System Guide

1TGC910201 M0201 MNS *i*S Quick Guide Installation and System Setup, Release 7.0

1TGC910090 M0201 M*Navigate* Help file V7.0

1TGC910018 M0208 MNS *i*S ATEX – Enhancements for Safety

Related System Version

The content of this document is related to MNS *i*S System Release 7.0.

The described functions are designed but may not be fully implemented in all details. Please refer to the current system guides and release notes regarding possible restrictions.

Document Revision History

Introduction

This document gives a short introduction of the web server and its features. The web server is an option in MNS *i*S and it may not be available in each particular installation of MNS *i*S.

There are different possibilities to access the M*Link*. One possibility is using a web interface, e.g. Internet Explorer or Mozilla Firefox. The web interface can run on thin clients like Laptop PC or Desktop PC. Another possibility is the use of M*View* panel which is an option for the MNS *i*S cubicle.

All user actions can be performed with a mouse or a touch screen - a keyboard does not need to be connected.

The web server provides the following user functions (depending on user rights):

- Access to any M*Link* in the network
- Operation of all M*Control* belonging to a M*Link*
- Supervision of process values e.g. currents, voltages, switch status, etc.
- Sending commands to the M*Control* e.g. start, stop, open, close, etc.
- Display alarm and events, reset alarms
- Display of M*Control* parameters
- Setting the time and date of the M*Link*
- Showing M*Link* application details

Configuration parameters of the web server are stored in parameter files located on M*Navigate*. All required files can be downloaded by using M*Navigate*.

To use M*View* (or a PC with web interface) to access the web server in M*Link* a list with user names and passwords as well user rights (user profile) must be configured and loaded into M*Link* via M*Navigate*.

For further details refer to the MNS *i*S M*Navigate* help file.

Installation

Mechanical and electrical installation

For details on mechanical and electrical installation please refer to the MNS *iS* M*Link* Interface manual.

Software installation

If the M*View* panel is used, all required software is installed from factory. No further software installation is required.

If a 3rd party panel or web interface on a PC is used, please ensure that software requirements as listed below are followed.

- Web browser
    - Supporting XHTML 1.0, CSS 2.0, JavaScript 1.0, DOM 1.0, XML HTTP Request and Frames. This is usually supported by all standard web interfaces.
    - Cookies must be enabled

Hardware installation

A TCP/IP connection to the Switchgear Control Network must be available. Check the settings of the IP address and match the settings of the Switchgear Control Network. For web access connector LAN2 of M*Link* device has to be used. For details see the MNS iS MLink Interface Manual, see reference hereunder.

Hardware ID numbers	**1TGE1020x9Rxxxx**	**1TGE120021R0x10**
MLink Types		
Hardware available for MNS iS Versions	up to V6.0	from V6.1 onwards
MNS iS Interface Manual MLink	1TGC 91012x M020x	1TGC 910210 M020x

Operation

This chapter describes how to operate the switchgear using the web server.

Getting started

The first step is to enter the IP address (e.g. http://192.168.200.100) of any M*Link* in the network into the interface address bar. A list of all connected M*Link*s is then displayed

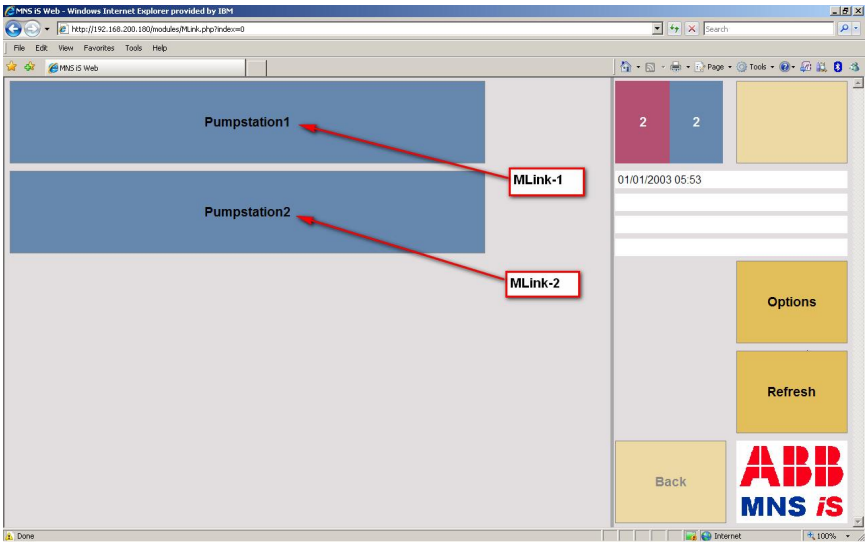


Figure 1 - M*Link* list view

Note: If M*View* is used it is not required to enter the IP address into the address bar. Before the first use M*View* has to be configured to access the desired M*Link* automatically. This is configuration can vary based upon the type of interface (touch panel or pc) used for the particular installation.

In situations where redundant M*Link*s are utilised only the active M*Link* is displayed.

If this list does not show all M*Link*s, please check the M*View* ID. This M*View* ID enables the user to create logical networks. Only M*Link*s parameterised with the M*View* ID for that particular network segment will be displayed. For more information please see chapter M*View* ID

Due to performance it is recommended to login with maximum 2 internet browsers to1 MLink simultaneously.

After choosing one MLink by clicking on the related button (e.g. “Pump Station 1”) the following screen appears. This screen is only visible after accessing the first time after power up. The device is creating an internal database containing all system related information. The time for creating that database depends on the number of configured MControls.

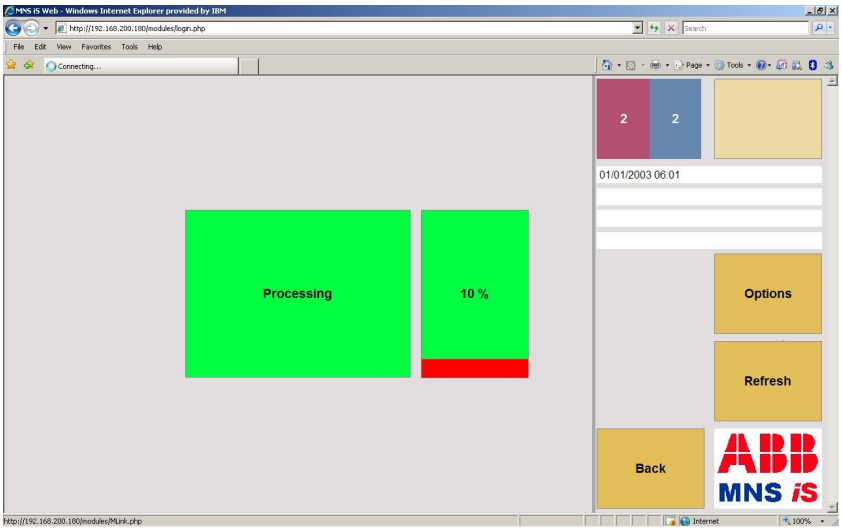


Figure 2 Progress indication

Afterwards a logon screen appears:

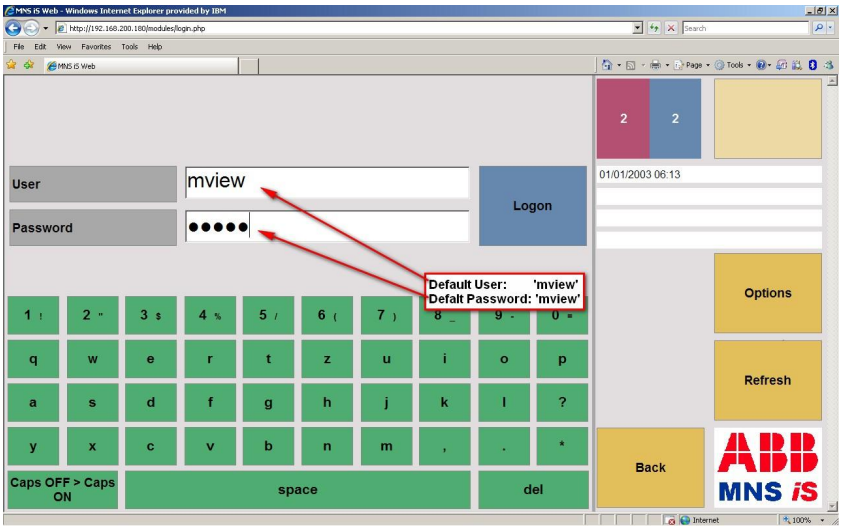


Figure 3 - Logon view

User and password must be entered by the virtual keyboard in the window (on M*View*) or optionally by a real keyboard if present. After selecting the Logon button the entered user and password are checked. For user administration, see document MNS *i*S M*Navigate* Manual. If the password is correct the user is allowed to access the switchgear view:

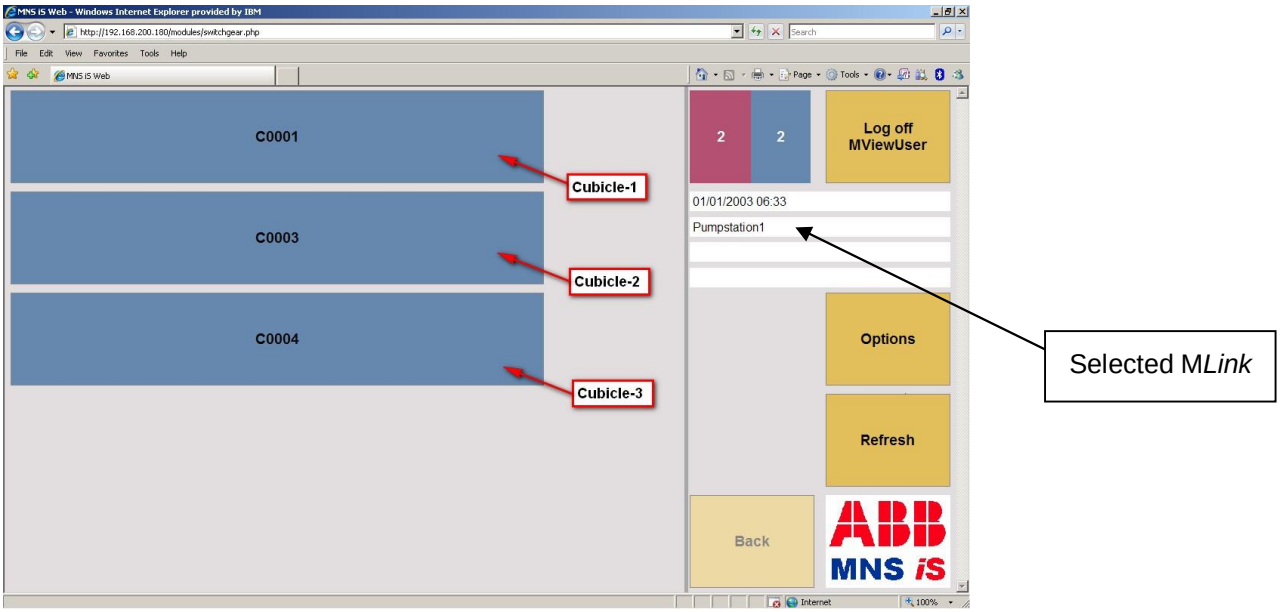


Figure 4 - Switchgear view

This view shows a list of all cubicles containing configured M*Control*s. This list could consist of up to 7 entries (cubicles). After choosing one cubicle (e.g. “B101-01”) the cubicle front view of the selected cubicle is displayed.

Cubicle View

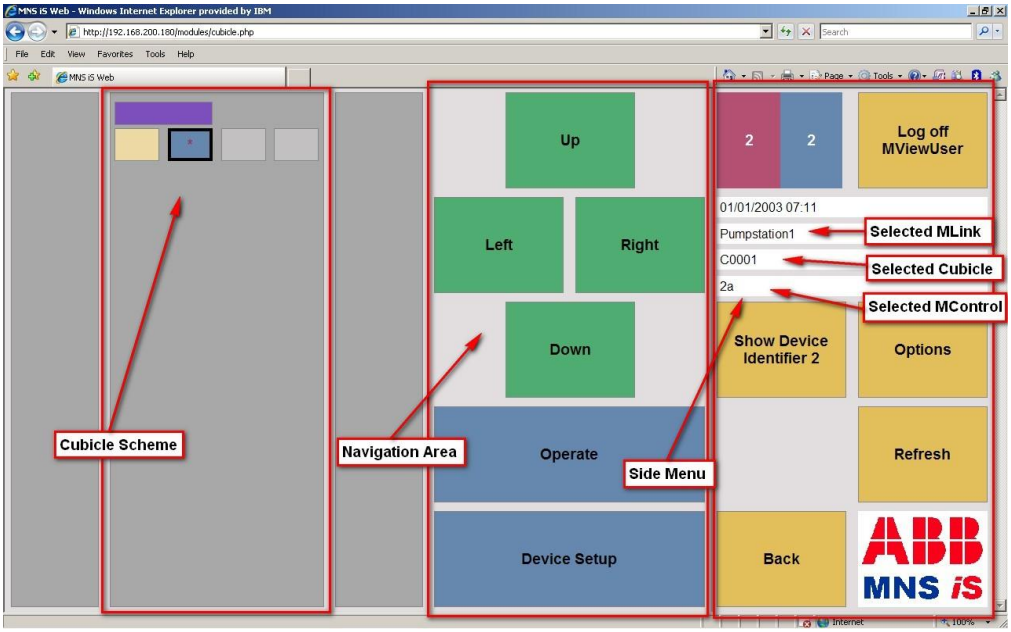


Figure 5 - Cubicle view*

* Colors shown are from the standard MNS *i*S color profile.

Side Menu

In the example in **Figure 5** the menu and navigation button are located in the right part of the screen (default). For lefties the menu can be located on the left side, **Figure 6** by setting the corresponding flag in the user definition in M*Navigate*.

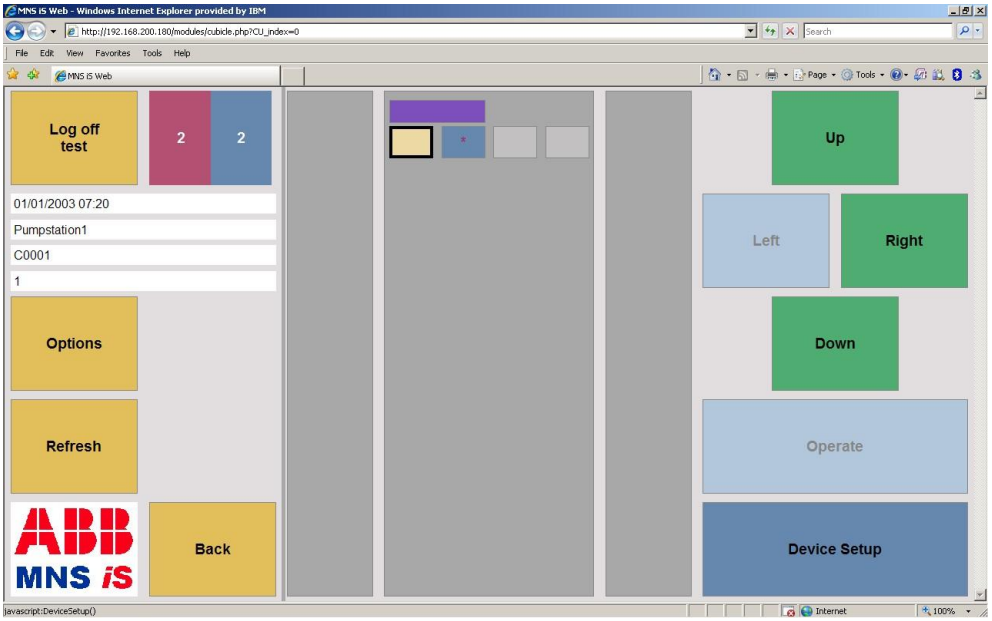


Figure 6 Cubicle view with menu left

The elements of the menu have the following functions (top down):

- "Log off <user name>": This button shows the user who is logged in. By clicking the button the user is logged off and gets back to the M*Link* list view, see **Figure 2**.
- ABB Logo: By clicking on the logo the version of the web server is indicated
- Text area with 4 lines. This text field indicates the current position in the navigation hierarchy:
    1. Current system time
    2. Name of the M*Link*
    3. Name of the cubicle
    4. Name of the M*Control*
- "Options": By clicking this button additional buttons appear, providing the following options:
    1. "Show Device Identifier <x>": The M*Link* and M*Control* devices have the possibility of 3 identifiers. This button allows switching to the next identifier (x ranges from 1 to 3)
    2. "Show all Alarms" / "Show current Alarms only": This option is used for alarm view only. If option "Show all Alarms" is selected, all possible alarms / events are shown and only active alarms / events are highlighted
- "Refresh": Refresh the current view
- "Back": Go back to the last visited view. This button is inactive in **Figure 2** (start view) and **Figure 4 - Switchgear view** (go back by "Log off <user name>")

Cubicle scheme

Apart from the menu the view consists of a scheme of the cubicle and a navigation area.

The cubicle scheme shows the positions of the devices in the cubicle. The upper one with the default plum colour is the M*Link*, the remaining are the positions of the configured M*Starts*. The colours depict the status of the combined M*Control* and M*Start* combination.

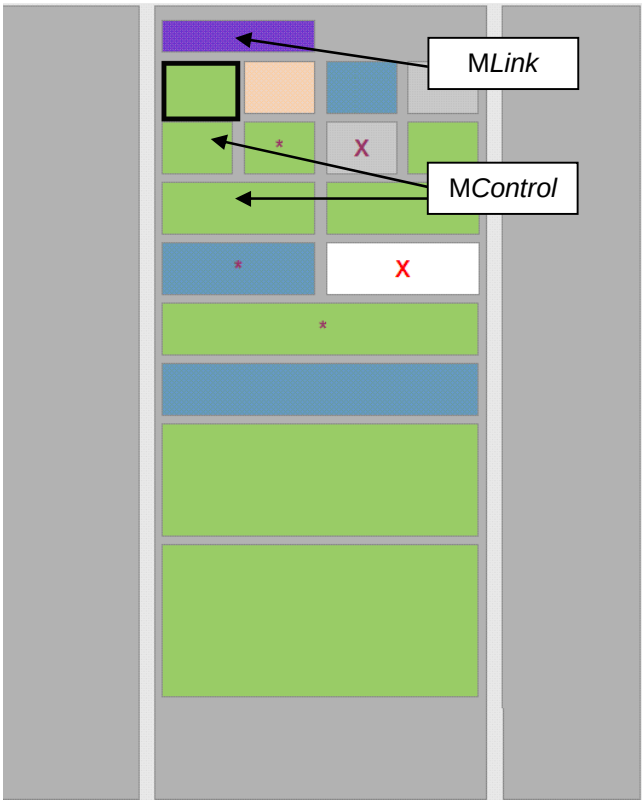


Figure 7 – Cubicle view, cubicle scheme

All colours that are highlighted with an [e] can be edited in M*Navigate* with the Web Colour Settings function.

For more details please refer to the M*Navigate* Help File

Colour *	Device Icon	M*Control* Status
Grey		Configured according to DeviceList, but currently absent
Beige		In place but offline
Orange[e]		Online and switched on
Green[e]		Online and switched off
Blue[e]		Online and tripped
Orange incl. red star[e]	*	Online, switched on with alarm
Green incl. red star[e]	*	Online, switched off with alarm
Blue incl. red star[e]	*	Online, tripped with alarm
Grey incl. red cross	X	Configured according to DeviceList but currently absent, and Application file missing (M*Control* application download required).
white incl. red cross	X	Online, Application file missing (M*Control* application download required)

* Colors shown are from the standard MNS *i*S color profile.

Navigation

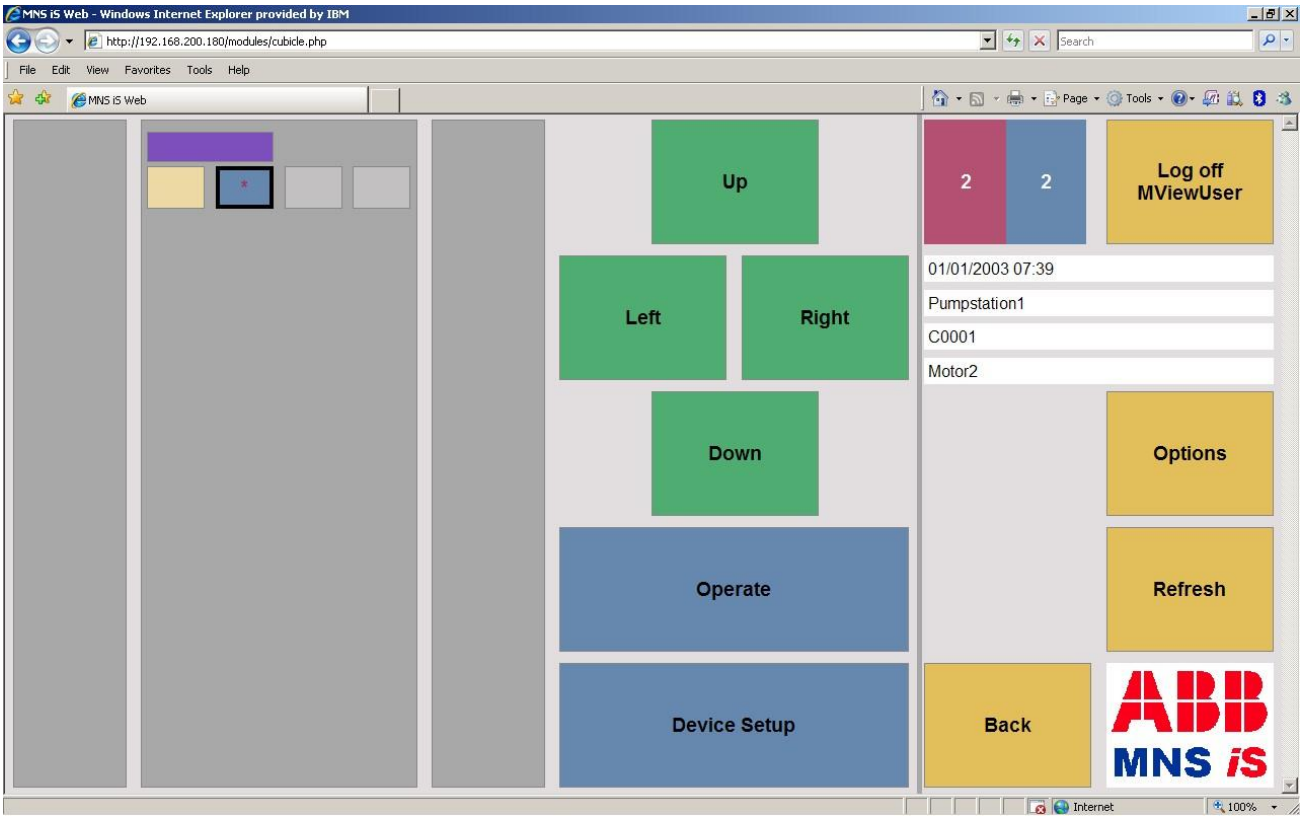


Figure 8 - Cubicle Navigation overview

Selection of a particular device is performed with the use of the four directional navigation keys, individual devices are selected by highlighting them with the focus, the selected device is the device with the black frame.

M*Control* with focus

Information relating to the highlighted device is shown in the text area on the right hand side of the screen.

Device names / information	Description
01/01/2003 07:39	Time and Date
Pumpstation1	Name of MLink
C0001	Name of Cubicle
Motor2	Name of Module

The information can change when utilising the 'Show Device Identifier, this enables the user to toggle the device identifiers associated with the MControls.

Dependant upon the requirements different options exist:

- When the M*Link* is highlighted it is only possible to select Device Setup
- When M*Control* is selected both Device Setup and Operate are available
- Selecting Operate for the M*Control* is only possible when the device is 'Online'. For more information on the M*Control* status please review to the Cubicle View.

M*Control* Device setup

The M*Control* Device setup provides the following functions dependant upon the User Profile configured in M*Navigate*. The Device setup page is navigated to from the Cubicle View page

In some cases the shown setup menu items may not be available (disabled) due to the user profile and the M*Control* status. Disabled setup items are shown light blue.

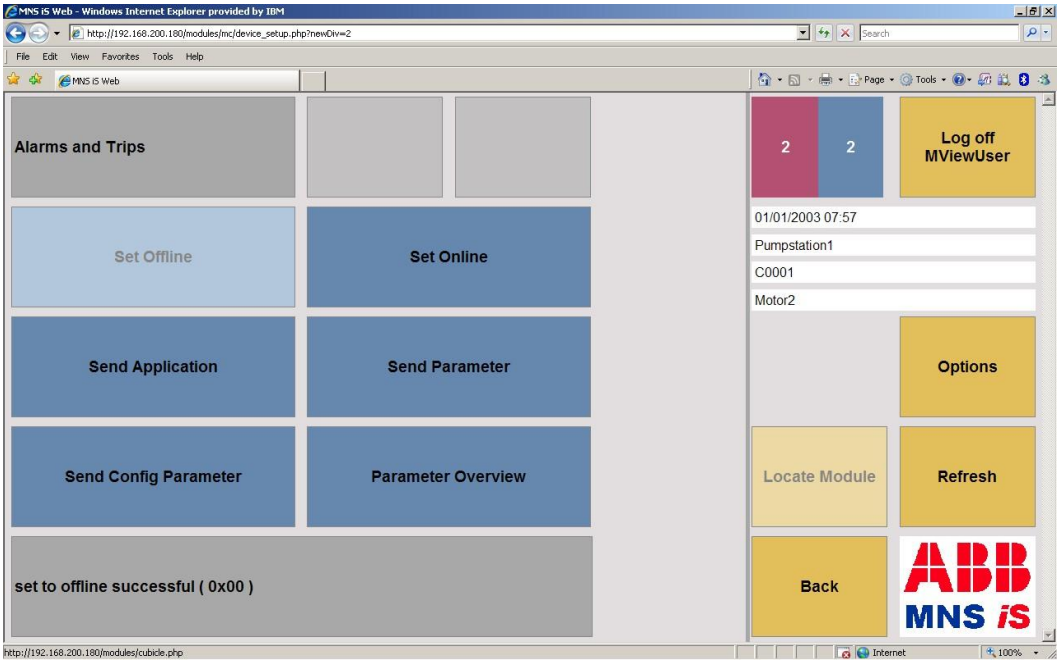
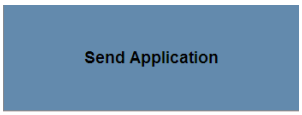


Figure 9 M*Control* Device Setup screen

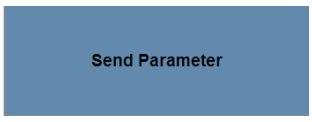
Actions and Options for M*Control* Device Setup

Sets the M*Control* to the Offline condition

Sets the M*Control* to the Online condition

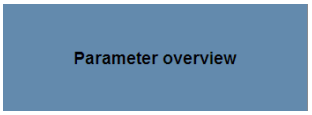


Downloads the Application to the M*Control*



Downloads the Parameter to the M*Control*

Downloads the Configuration settings to the M*Control*



Enables the user to view the Parameter and Configuration settings of the M*Control*

If an operation is performed a result message is then displayed at the bottom of the screen

"Locate Module" is enabled when MControl is ONLINE and disabled when MControl is OFFLINE. For details about functionality please refer section Locate Module.

Parameter Overview

If the user selects the option MC Parameter overview the parameters of the selected M*Control* are shown.

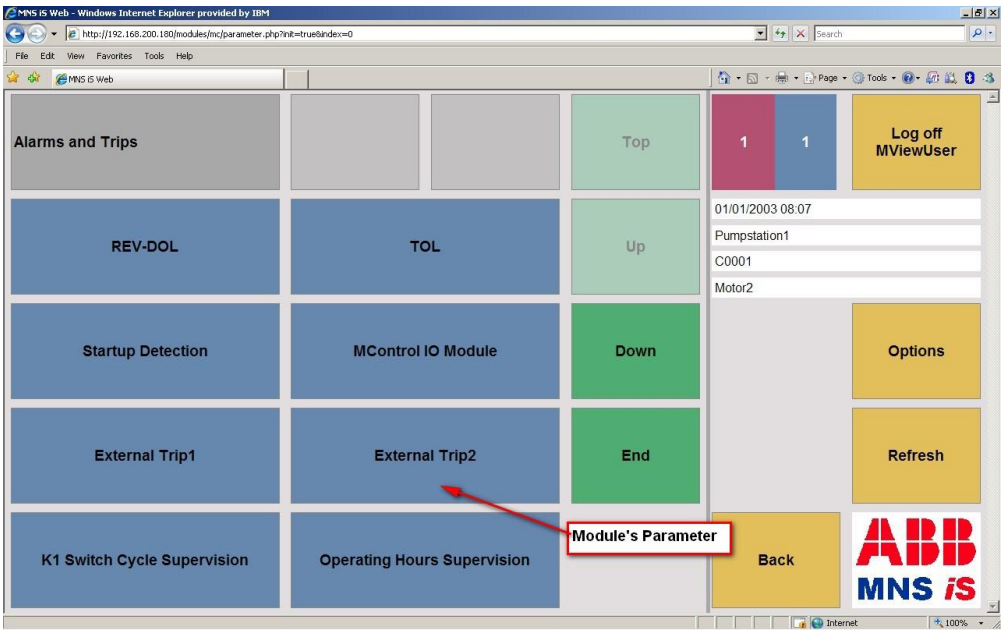


Figure 10 M*Control* parameter module overview

After selecting the parameter module a detailed overview appears.

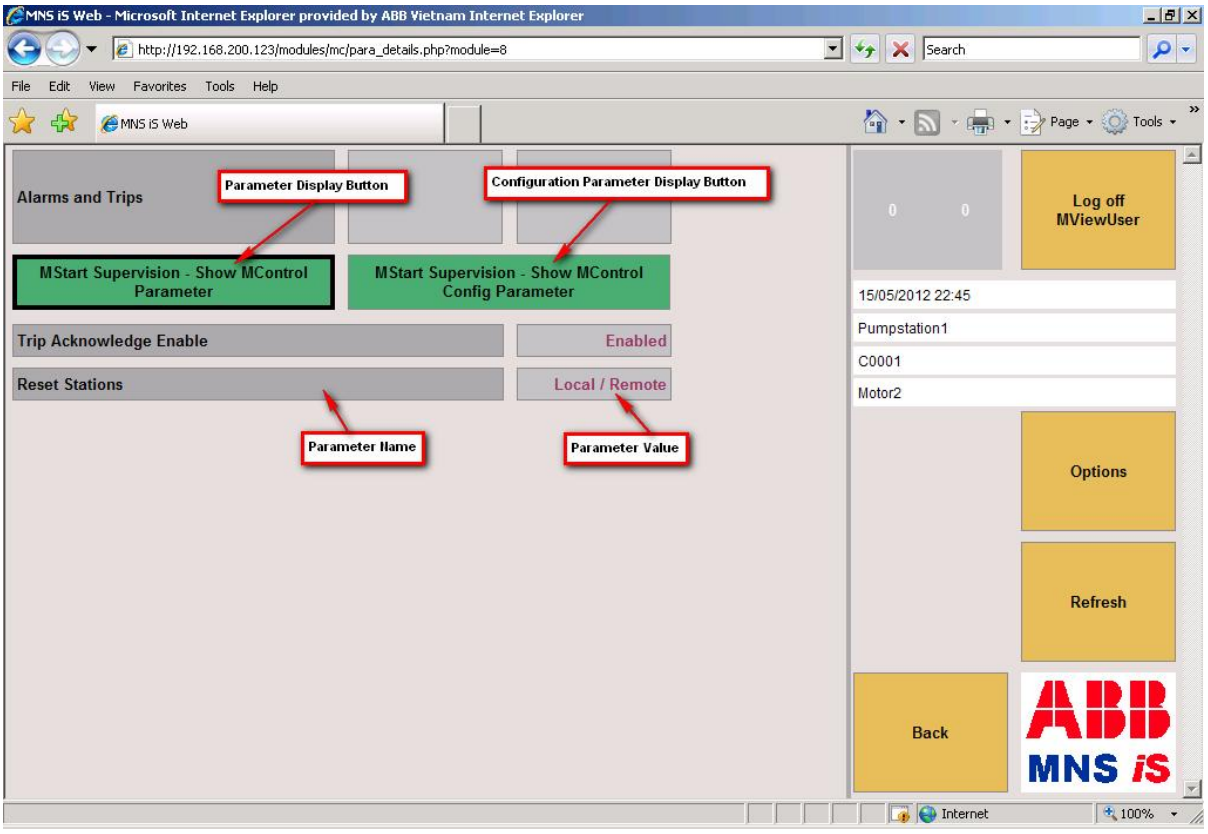


Figure 11 M*Control* parameter details

When user selects ‘Show MControl Config Parameter’ the following screen appears:

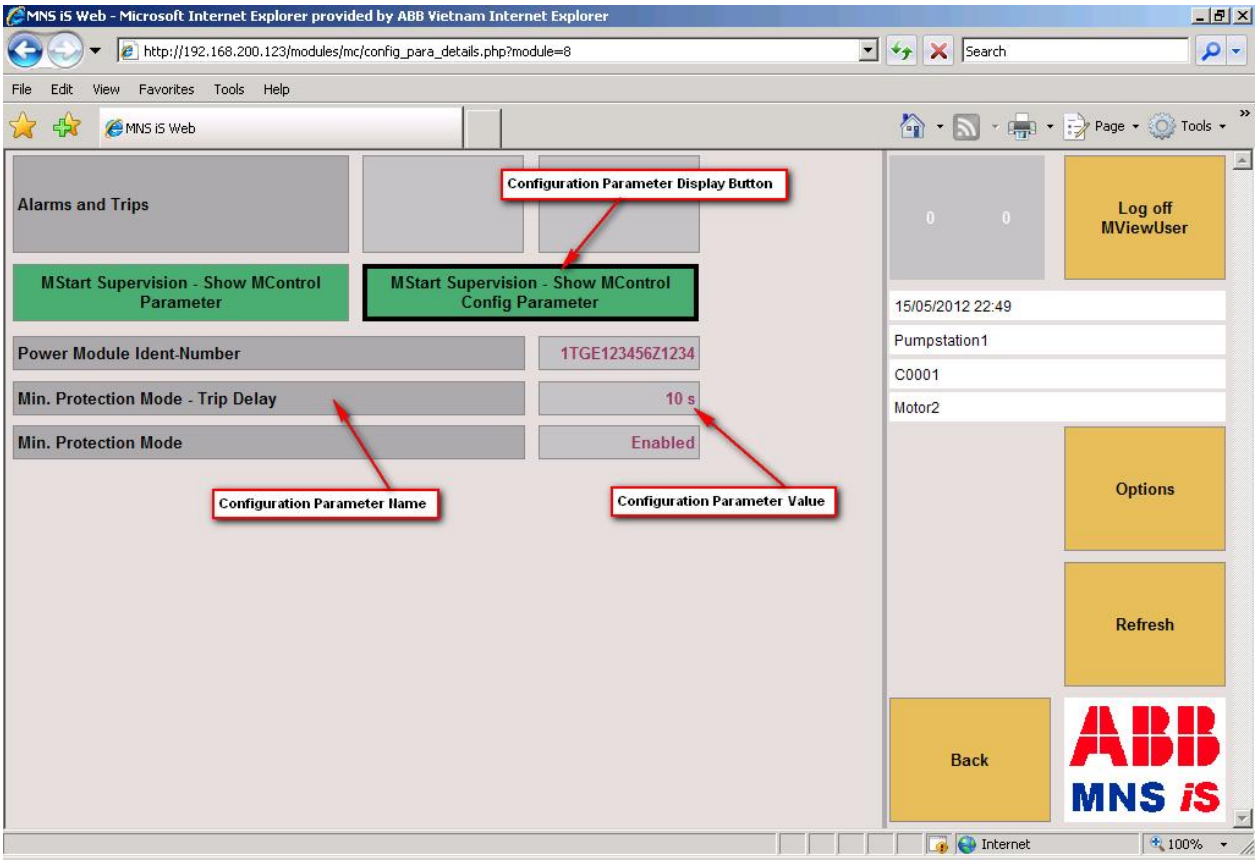


Figure 12.1 M*Control* configuration parameter details

Use the Back button to return to the cubicle view

Operate view

The view below is the focal point for operating and monitoring the M*Control* / M*Start*.

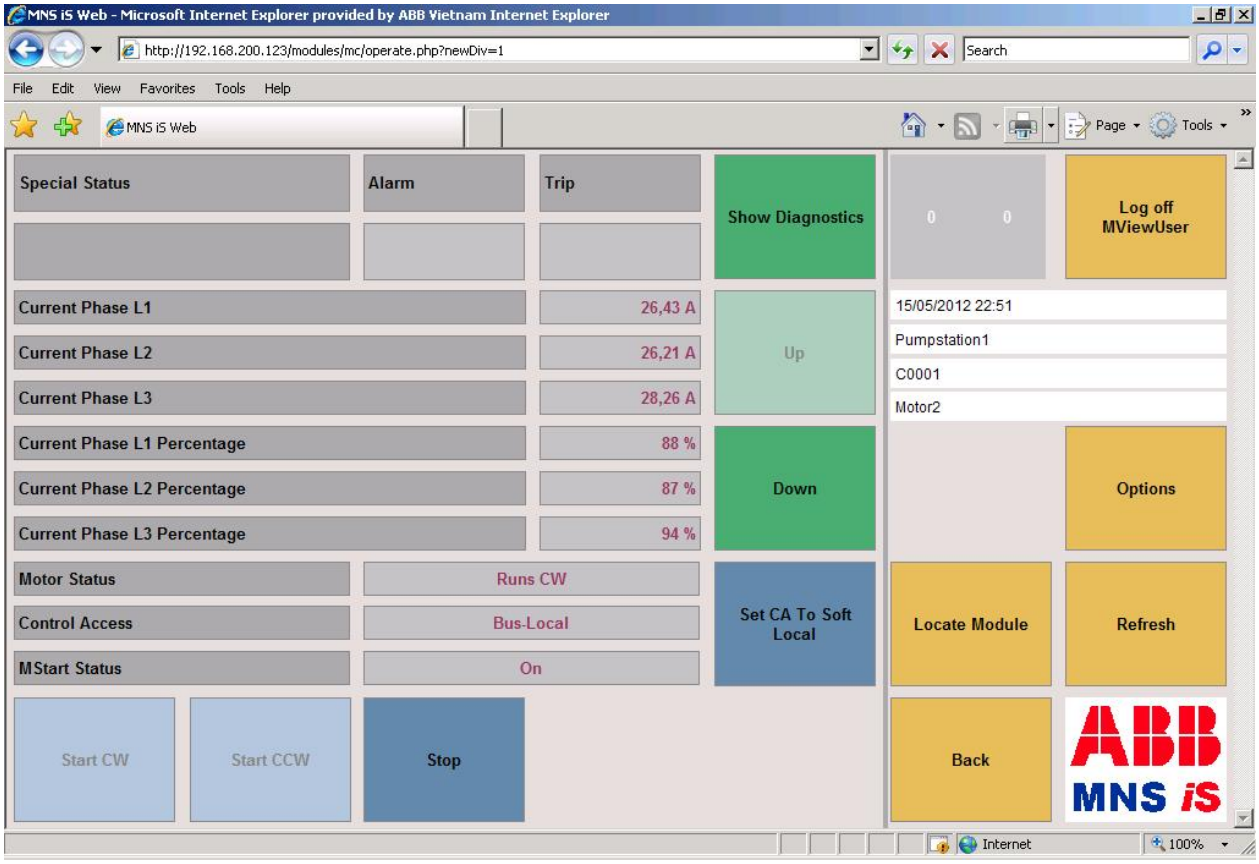


Figure 13 - Operate view

This screen enables interrogation and operation as follows:

Control	On / Off and Control Access Handling
Alarm & Trip Interrogation	Viewing of Alarm & Trip status together with Event monitoring
Status Information	Operation and Maintenance information and diagnostics
Process Variables	Interrogation of Process and Measurement values
Special Status Information	Indication of running Proof Test & Indication of activated Minimum Protection Mode

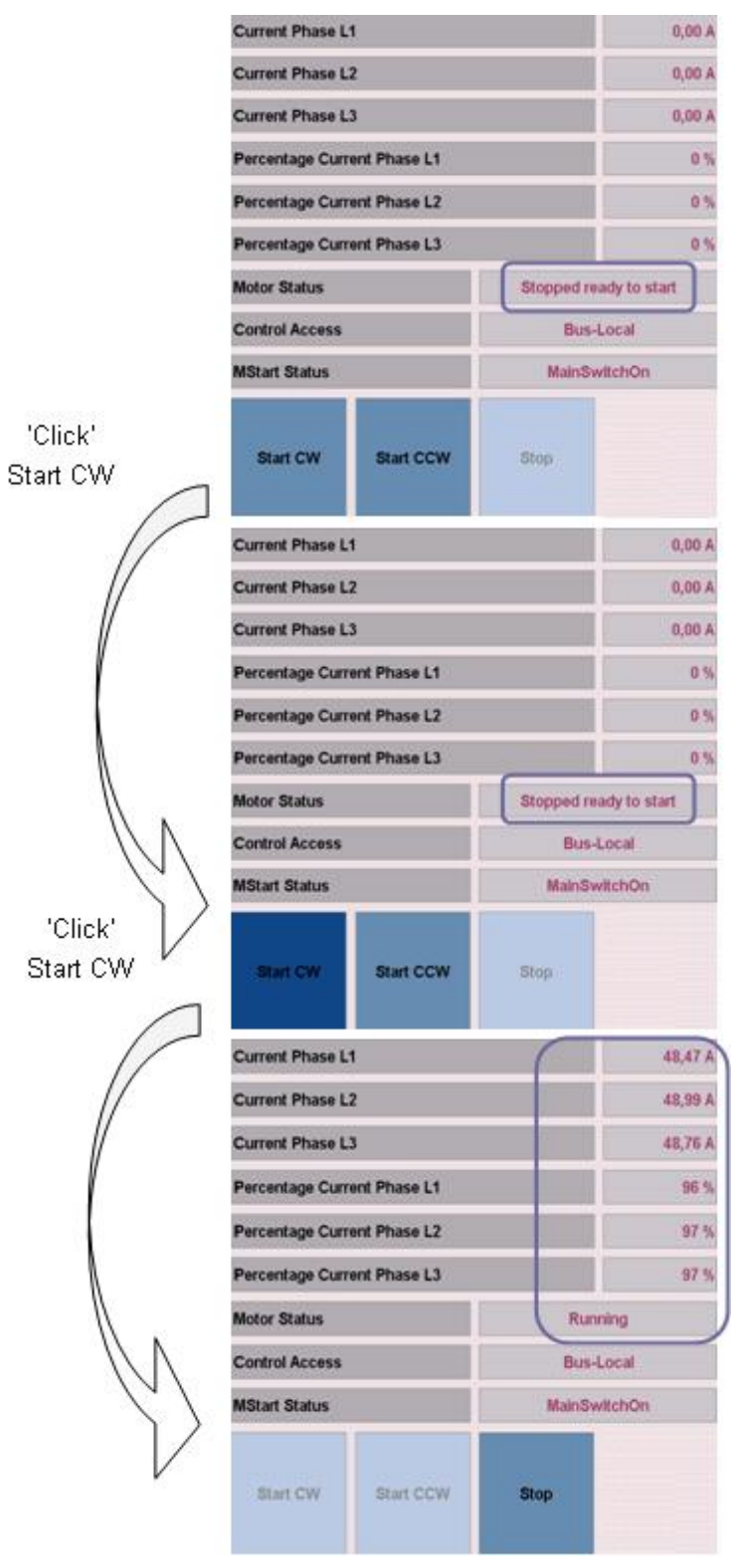
Controlling a device

To control a single device from the Web Interface, the following is required;

- The M*Contro*l must be in the 'Online' state.
- The User Profile created in M*Navigate* must allow 'Switching' commands to be sent.
- The Motor Status must be Stopped Ready to Start, Running or Tripped.
- The M*Start* Status must be either Main Switch On or Test Position.
- The Control Access status must be set to Bus-Local.

Select before operate

For safety reasons the active buttons (for sending commands to M*Control*) work according to “select before operate” in two steps:



The example left shows the sequence required to start a motor in the CW direction from the M*View*, for this to be possible the Control Access must be in the Bus-Local state.

With the first click the button is selected and adopts another colour (dark blue). Motor Status indication remains unchanged.

With a second click on the selected button the command is finally sent to the M*Control*.

Motor Status then changes to ‘Running’ and current flow is indicated.

Command Selector

Device specific commands can be sent to the M*Control*. In this example (motor control) commands like “Start CW”, “Start CCW” or “Stop” are listed. “Stop” is inactive (light blue) since the motor is stopped. Other factors influencing buttons to be inactive are the control access, user rights, and parameterisation and configuration of the modules

Locate Module

Locate module function enables the user to check availability of physical MStart in switchgear panel. *Locate module* function is available at *"Operate"* page & *"Device Setup"* page under menu column next to *Refresh button*. The functionality can be used to check the physical location of MStart module. As soon as the button is pressed the LED's on the front of MStart are blinking for a dedicated time interval (40 seconds).

When MControl connected to MStart is ONLINE, Locate Module button will be enabled and if MControl is OFFLINE Locate Module button will be disabled.

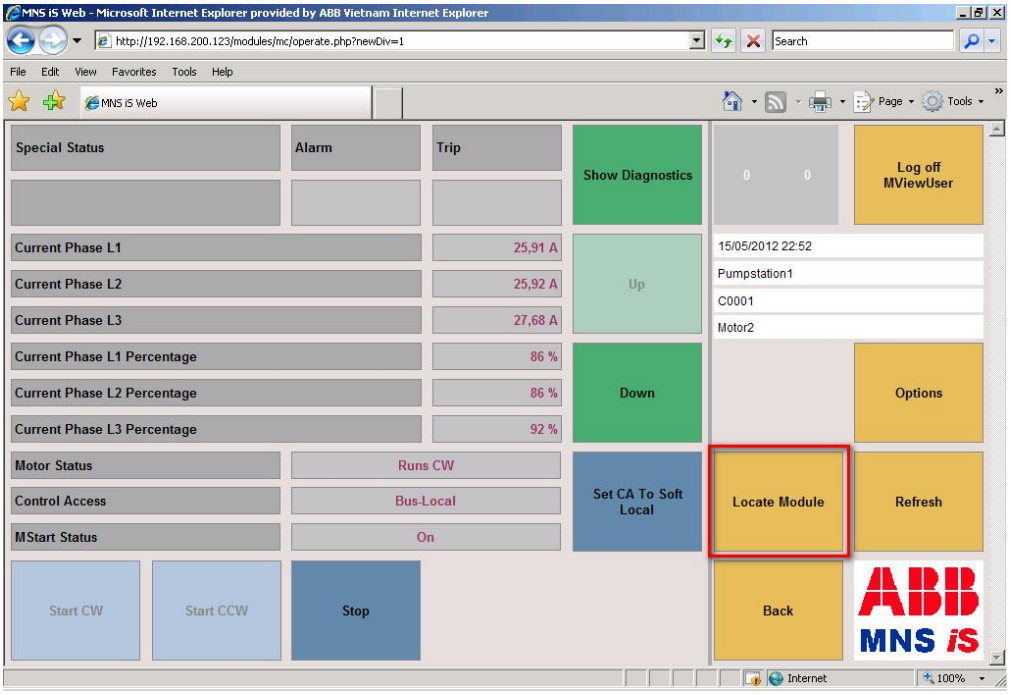


Figure 14: Locate Module Function in Operate Page

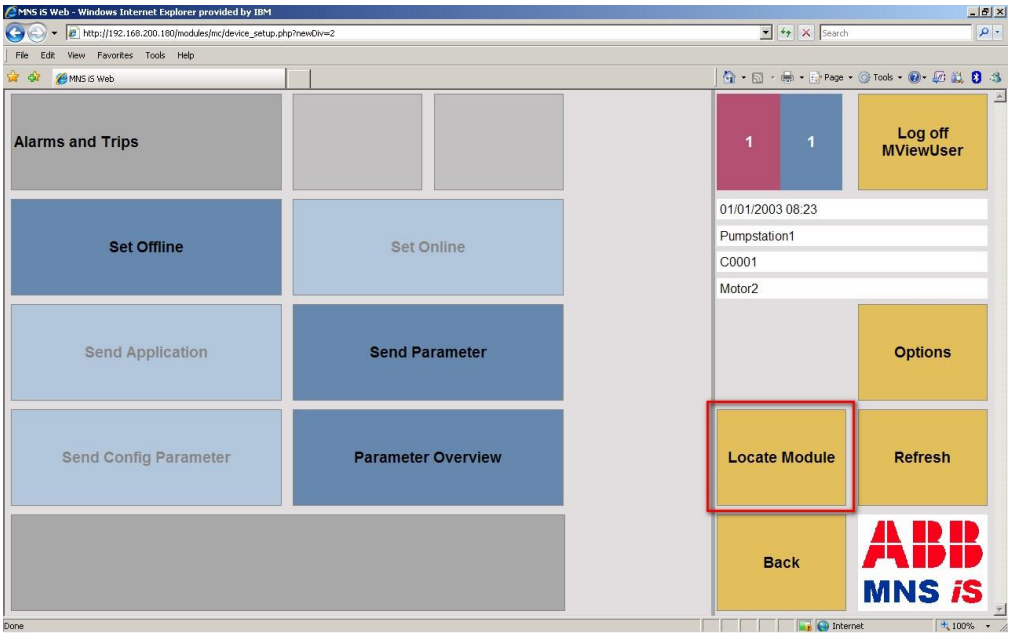


Figure 15: Locate Module in MControl Device Setup page

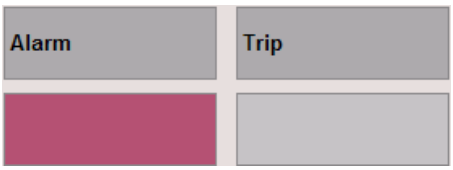
Alarms and Trips

The top section of the Operate View is where the Alarms and Trip are indicated in the Web Interface. The examples below are shown with the standard MNS *i*S color profile, these colors may be edited in MNavigate to suit plant operating requirements.

The Alarm indication is .to the left and Trip indication is to the right. Indication is given if any Alarm or Trip is active, for more detailed interrogation navigate to the Alarm View by selecting the active Alarm or Trip area.

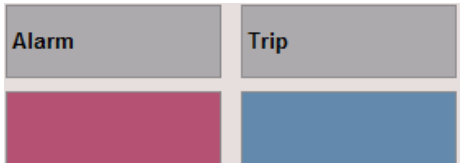
The following basic possibilities exist for Alarm and Trip indication; other combinations may be displayed due the actual plant operational conditions.

No Alarms or Trips active



Any active Alarm

Any active Trip



Active Alarm and Active Trip

Trip has been Acknowledged

Trip may now be reset

Alarm view

By selecting the alarm or trip area in the Operate view the user is able to access the alarm view.

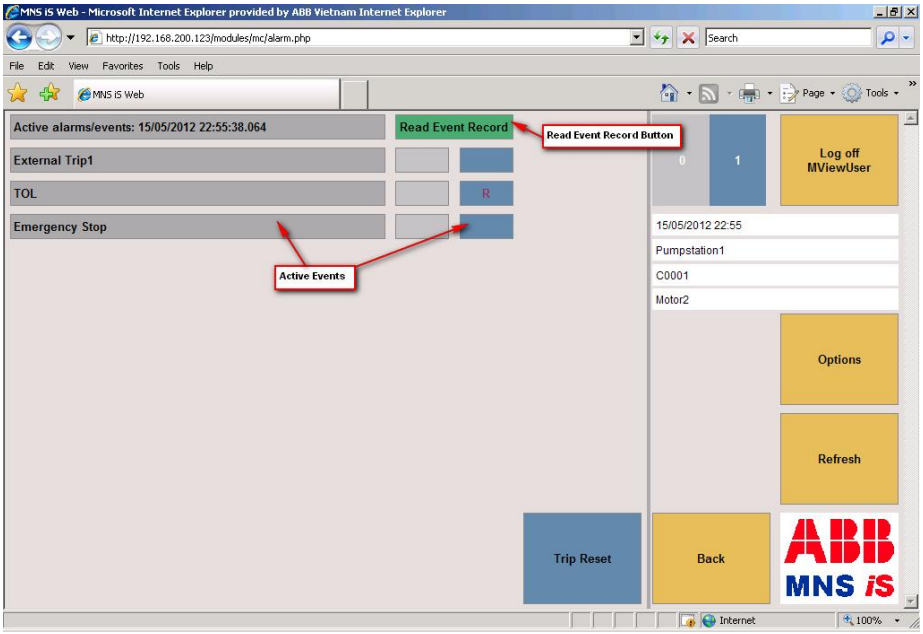
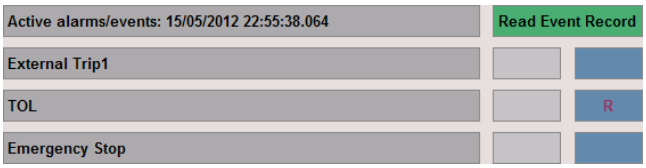


Figure 16 - Alarm view, current alarms

After selecting either the Alarm or Trip area from the Operate View, the Alarm View is then displayed. All active Alarms and Trips are then displayed for the selected device.

Device information is displayed as in the Operate View to the right hand side.

The top row shown in the Alarm / Trip indication is the Time Stamp from the last Event to occur, this can be either an Alarm, Trip or Event.



In the Alarm view indication for both Alarm and Trip is split as in the Operate View. The left hand side indicates the Alarm and the right hand side the Trip. The Acknowledged and Reset functions are also indicated here.

Where trips are highlighted with a blue boarder it is not possible with the current user rights to reset. Please refer to the MNavigate Help File section 'Reset Mask' for further information.

The colors shown above are the standard MNS *i*S color profile

Read Event Record

When user clicks on 'Read Event Record' button in Alarm view the last 32 event details related to a particular MControl are shown.

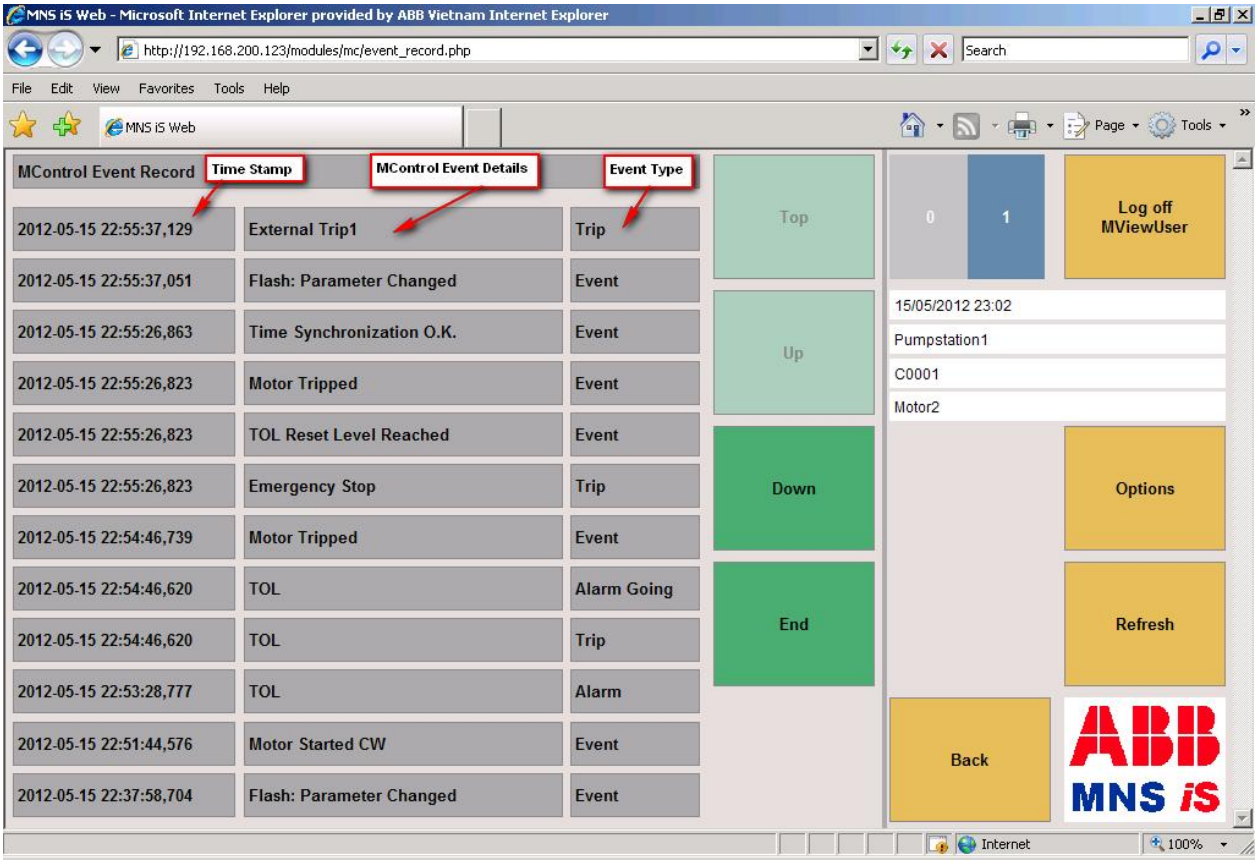


Figure 17 – Read Event Record

Use the Back button to return to the cubicle view

Show All Alarms / Events

From the Alarm View shown previously the possibility exists to view all events and alarms associated with the particular M*Control* / M*Start*.

The Alarm view as default shows only the active Alarms.

To interrogate all events; the following commands are available:

Select Options 

Show All Alarms 

The following is then displayed

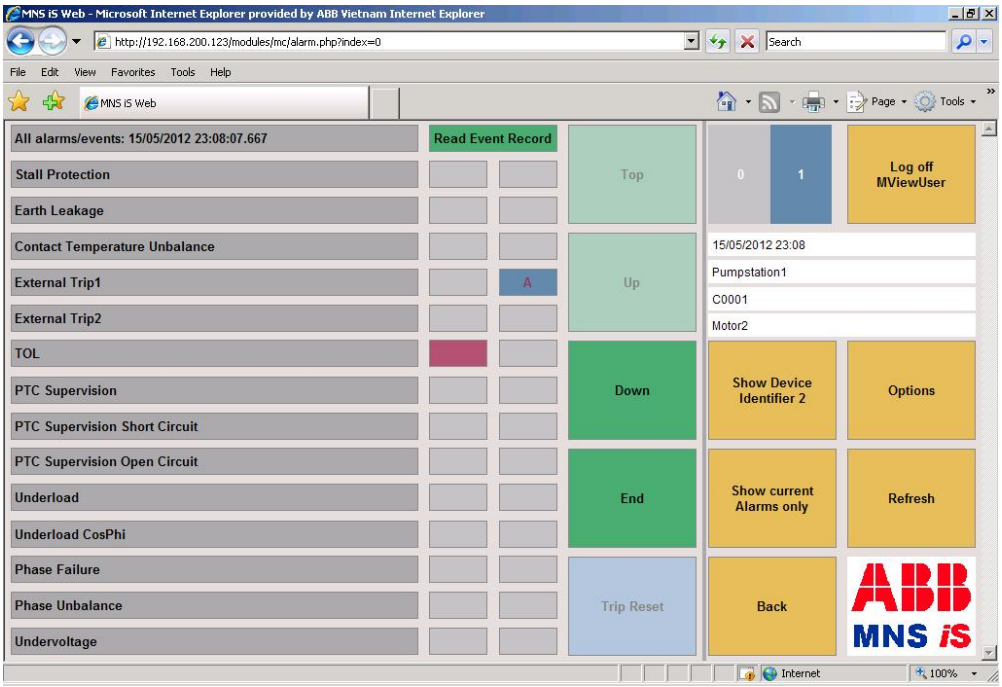


Figure 18 - Alarm view, Show all alarms / events

It is now possible to navigate through the alarms and events with the following keys

Up

Pages up through the table.

Top

Navigates to the first entry in the table.

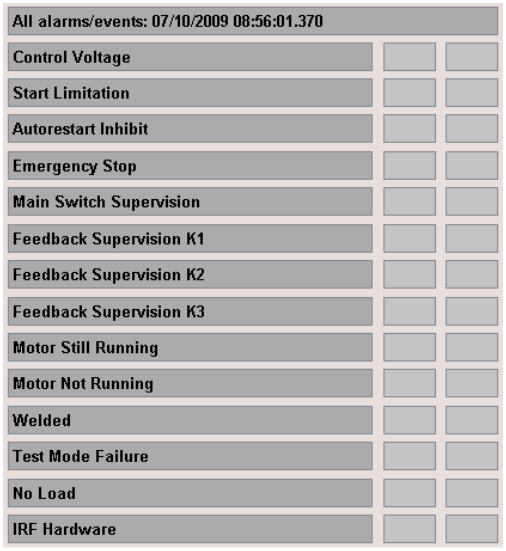
Down

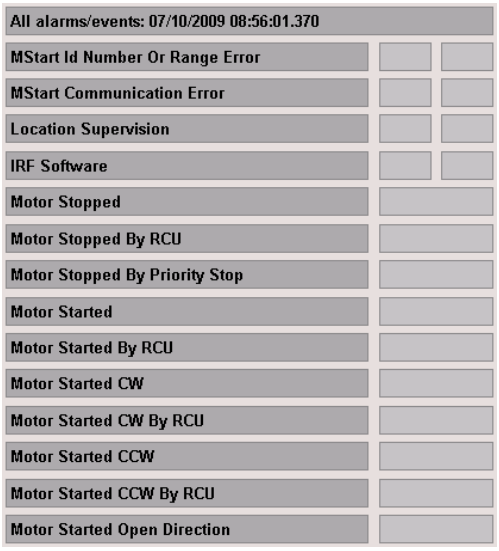
Pages down through the table.

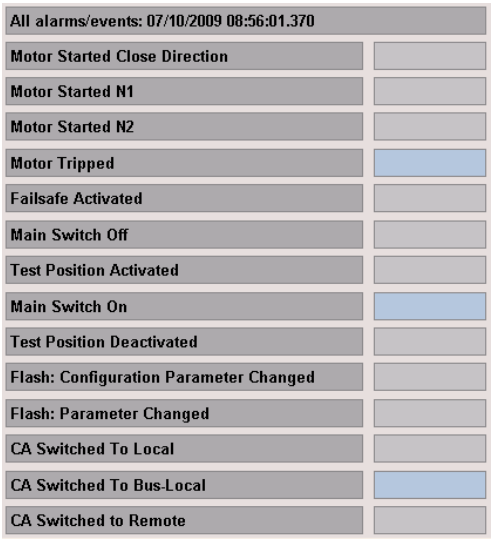
End

Navigates to the last entry in the table

Alarms / Events displayed depend upon Project configuration.







When entries are in Alarm / Trip format they are displayed with both Alarm and Trip indication

When they are an Event they are displayed as below

Figure 19 Alarms and Events

General Alarm/Trip Indication

General Alarm/Trip Indication function informs user about the Alarms or trips occurred in any MControl which is connected to any MLink in the network with same MView ID. It also indicates number of alarms or trips occurred in MLink network.

This function is located at the top of side menu bar in all MView pages except on pages inside ABB Logo.

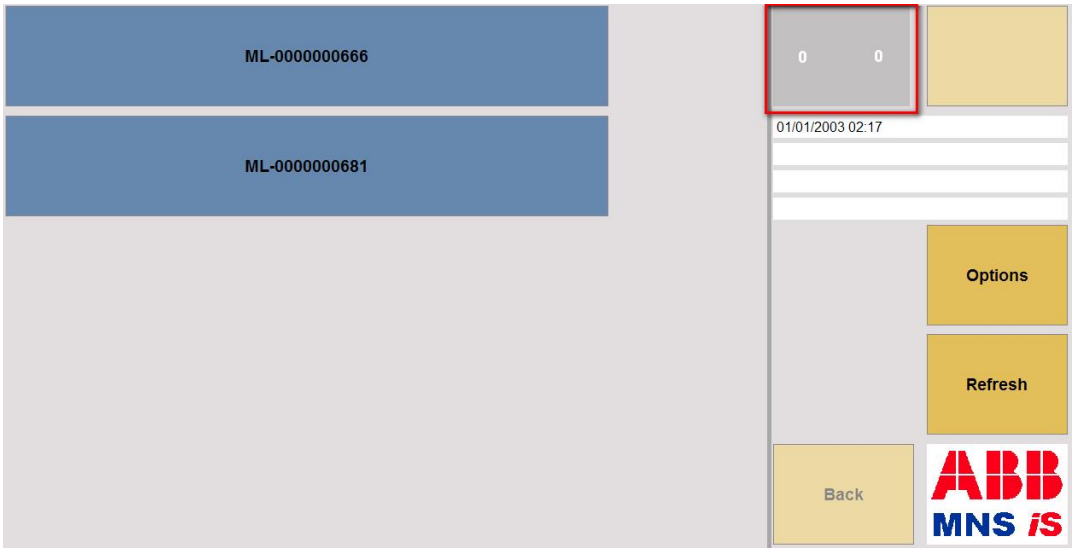
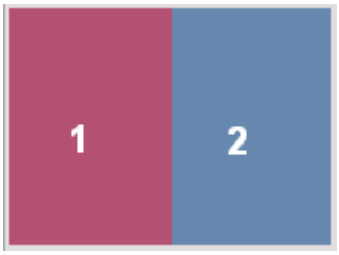


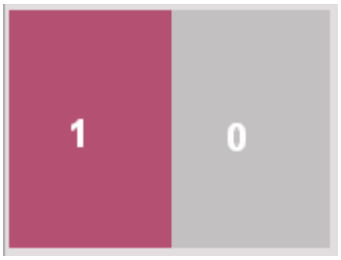
Figure 20: General Alarm/Trip Indication on MLink list page

General Alarm/Trip indication button is partitioned in two sections: one for Alarms and another for Trips. General Alarm / Trip button can have the following layout:

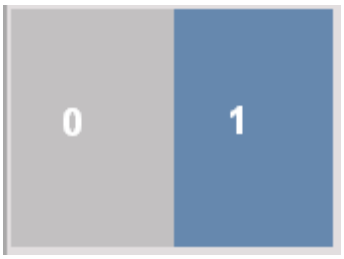
1-Alarm and 2-Trip of MControl:



1-Alarm and 0-Trip:



0-Alarm and 1-Trip:



0-Alarm and 0-Trip:

Note:

Colors shown are from the standard MNS iS color profile. User can change colours of Alarm and Trips by changing web colour settings in MNavigate.

When user clicks on General Alarm/Trip indication button at MLink list page (user is not logged-in) it will redirect to login page. User has to enter the user credentials. After entering user credentials, it will redirect to Plant alarm page as shown in below image.

Plant Alarm page will list all the devices containing Alarms and Trips occurred in MLink network provided MView IDs of all connected MLinks are same. List gives information of Device identifier and MLink name to which the device is connected and also alarm and trip.

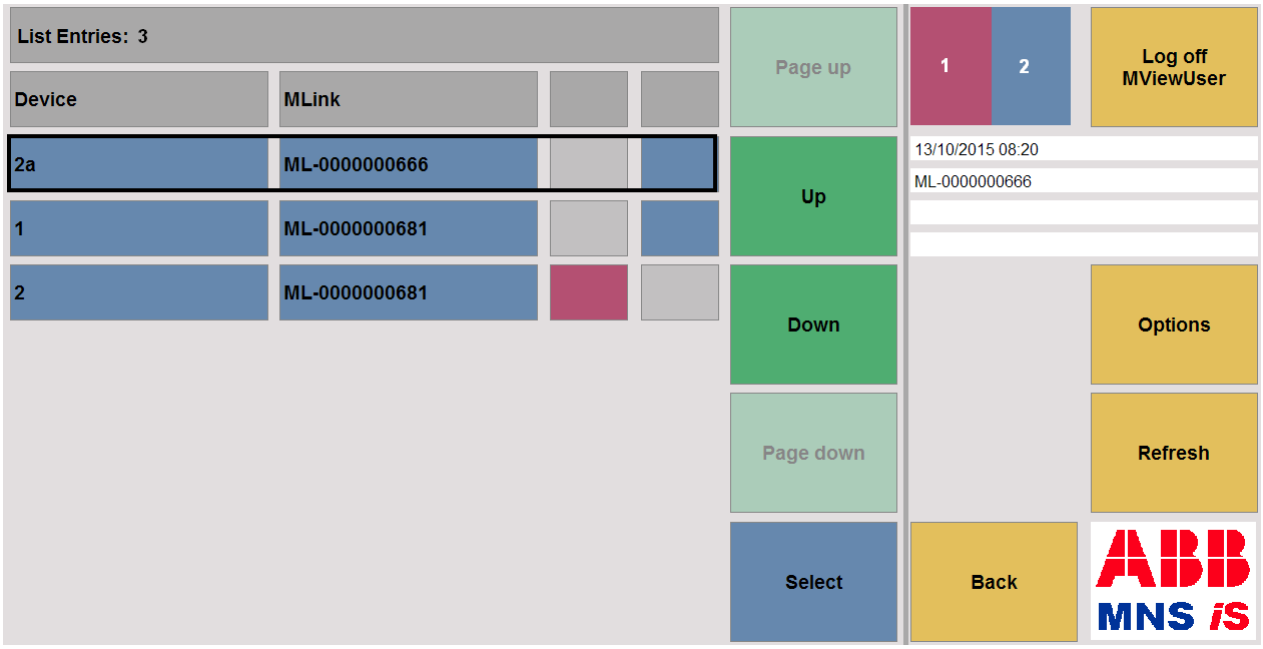


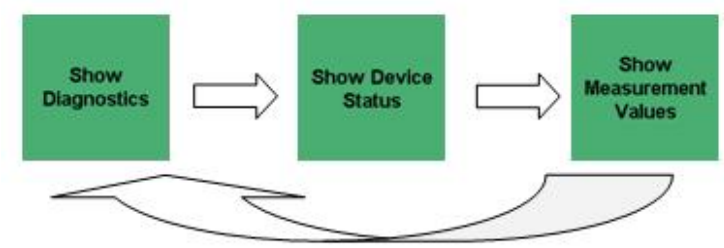
Figure 21: Plant Alarm page

Selecting one of the listed devices will redirect to Alarm/Event page of that particular device. If the user is created on both MLinks the redirection is done automatically. If not the user has to enter the credentials before redirection to Alarm/Event page.

Process values / measurement values

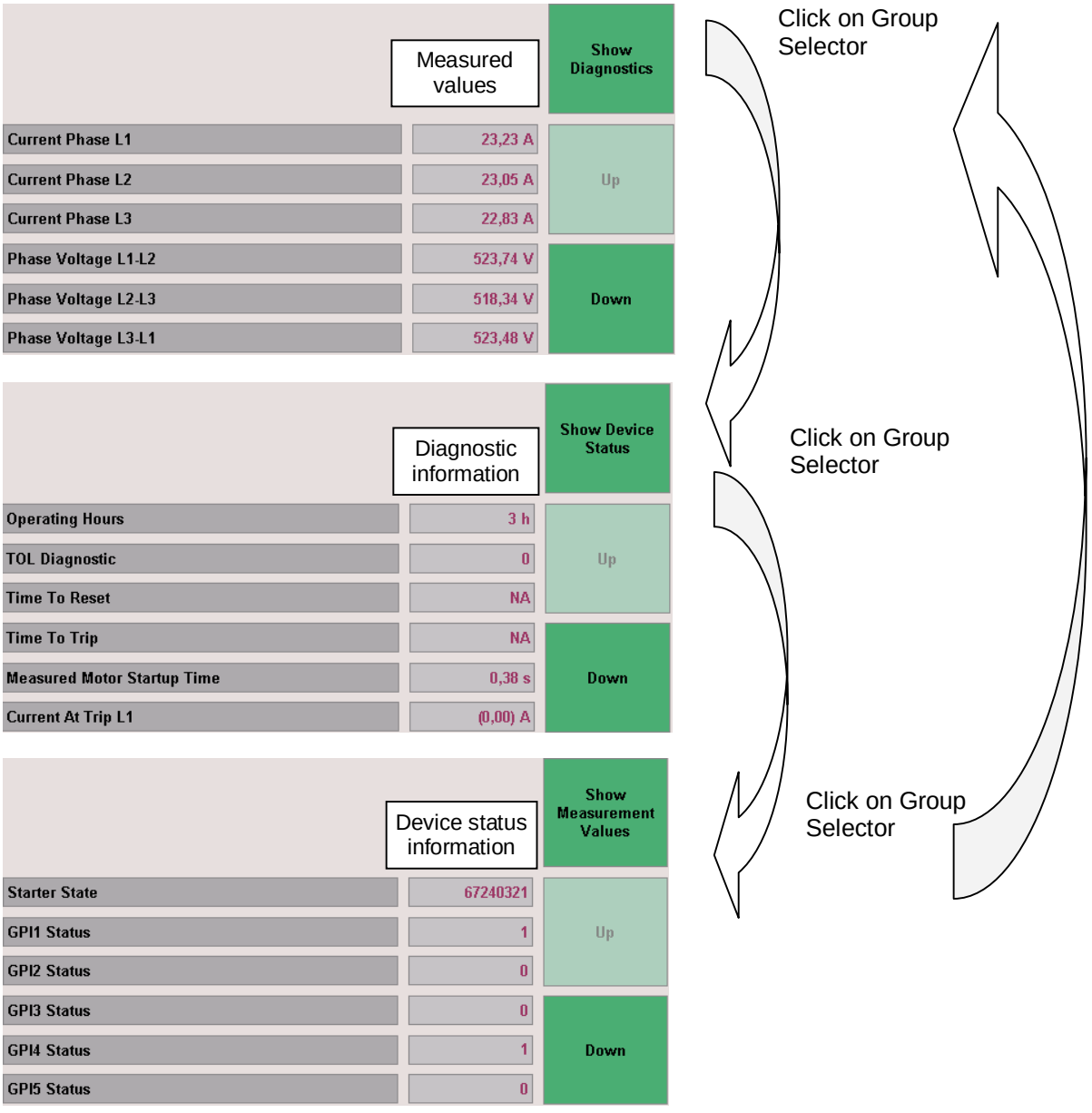
The process value area shows different groups of values received by M*Control* depending on group selector settings. The display changes from measurement values to diagnostic values to the device status. All values are updated periodically. If there are more than 6 process values the list can be scrolled up and down by the navigation buttons to the right of the list.

Group Selector



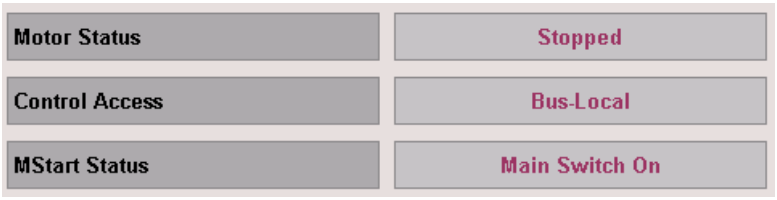
Using the group selector three different groups of values can be displayed:

- Measurement Values (default)
- Diagnostics
- Device Status



Status information

The Status information area is located above the Command Selector keys. Information on the Control Access function is contained in the Control Access status (CA) section.



The information displayed here enables the user to have an overview of the M*Start*, the Motor and which interface holds the current Control Access rights.

Figure 22 – Status Information Area

The following possibilities exit for **Motor Status**.

NOTE: Motor Status information is Starter Type Dependant. Please refer to the M*Navigate* Help File for further information.

No Alarms or Trips present.

Starter type dependant information

Stopped due to Protection function or external action

When background of the Motor Status is highlighted with Blue, this indicates that the M*Start* has been switched to Failsafe Status, this is due to loss of communication between the M*Control* and M*Link* or M*Link* and DCS.

The following possibilities exit for **M*Start* Status**

Main power and Control circuits connected. Isolator in ON position.

Main power circuit disconnected, Control circuit connected. Isolator in TEST position.

Main power and Control circuits are disconnected. The isolator is in either the OFF position or the ISOLATED position.

Control Access status (CA)

Control Access (CA) is a mechanism within MNS *i*S to define and determine which interface has control rights to operate the M*Control*, this handling is defined below. Control Access rights can be given, for example, by a specific command sent to switch operation rights from push-button (hardwired to M*Control*) to any other interface connected to the switchgear control network (e.g. M*View* or PCS). Soft-Local or Remote options exist for the CA handling from the Web Interface, it is only possible to have one of these selected for operation on any single M*Link*.

The following possibilities exit for Control Access Status

Control from Plant Control System via the Fieldbus interface.

Operation is possible via M*View* (local panel in switchboard) or via a Web interface (any PC with a Web Browser software).

Operation is possible via digital inputs on M*Control.* Soft Local does not require a hardware input to be set

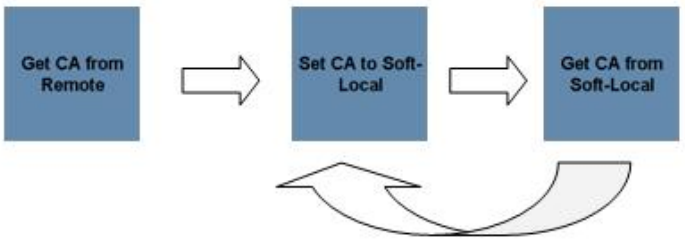
Operation is possible via digital inputs on M*Control.* Hardware Local required a signal to be set on the 'Local' Function, parameterised in M*Navigate*. Hardware Local

Operation is possible only via MControl Direct Fieldbus interface card (direct connection).

CA Status – Soft Local / Bus Local Operation

Operation of the CA for the Web interface utilises the "select before operate" mechanism

Here the PCS currently 'Holds' the CA. The PCS can at anytime request the CA by sending the 'Remote' or 'Auto' command.

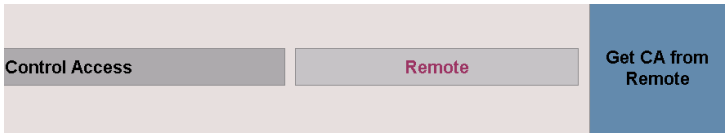


To obtain the CA at the Web Interface, select 'Get CA'…. This is possible either when the CA has either Remote or Soft-Local status. Once the CA is Set to Bus-Local it is then possible to Control the M*Control* from the Web Interface. From Bus-Local it is then possible from the Web Interface to set the CA to Soft-Local.

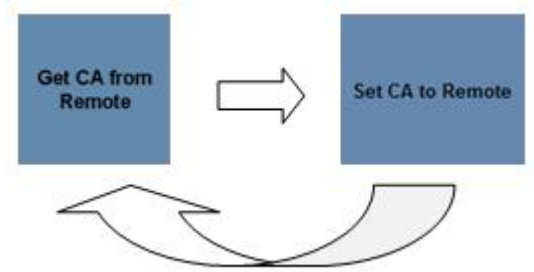
Note:

The CA can be taken from any holder by the Hardware-Local functionality. This has the highest Control Access authority. For more information please refer to the M*Navigate* help file.

CA Status – Set CA to Remote Operation



Here the PCS currently 'holds' the CA.



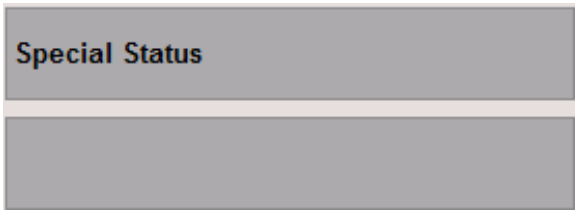
In this mode of operation the Web Interface can at anytime obtain the CA from Remote and also return the MControl to Remote operation

Note:

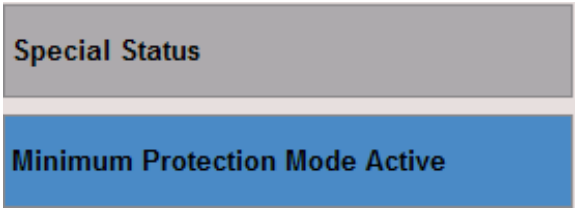
The CA can be taken from any holder by the Hardware-Local functionality. This has the highest Control Access authority. For more information please refer to the M*Navigate* help file.

Special Status Information

The top section of the Operate View is where the Special Status Information is indicated in the Web Interface.



No Information



As long as the Minimum Protection Mode is running the shown indication is done. If the Minimum Protection Mode is finished the box is cleaned.

MLink Device setup

The user selects the device setup from the cubicle view by highlighting the MLink with the cursor and selecting ‘Device Setup.

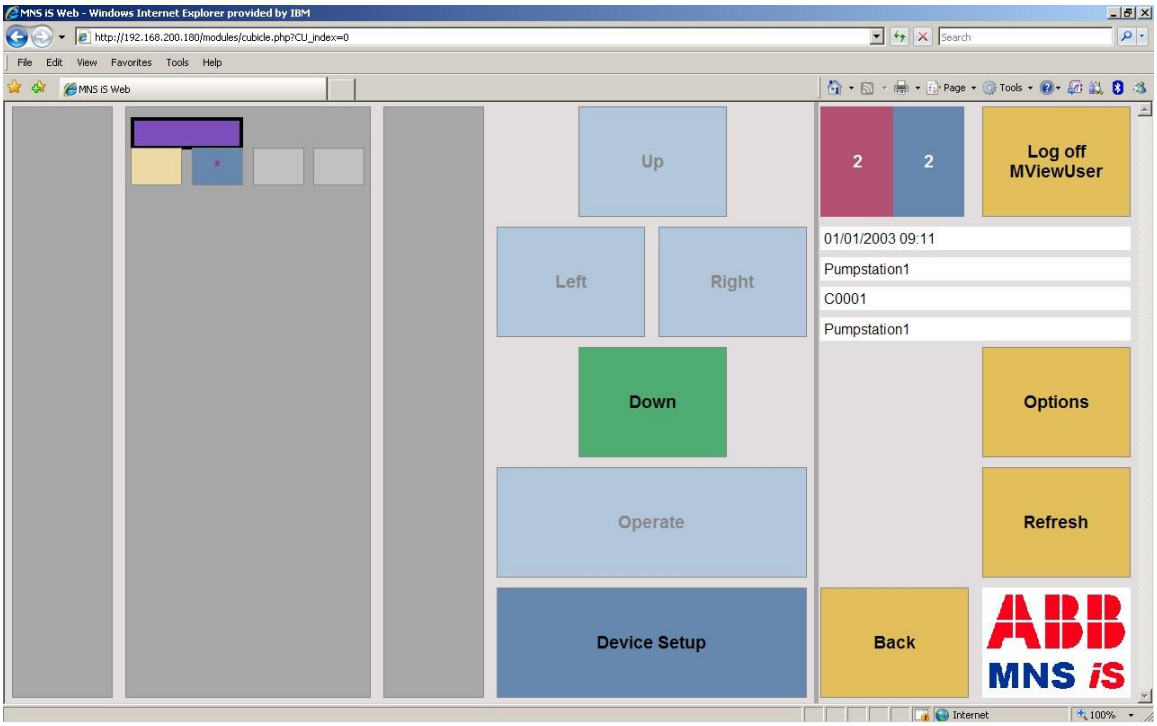


Figure 23 MLink Device Setup selection

MLink settings

The device setup for M*Link* gives the user the possibility to providing the correct user rights are available.

- Set the internal system time (Time synchronization)
- Obtain application version / status information (Application Information)
- Search for M*Controls* (M*Control* Search)
- Retrieve Network Information (IP Configuration setting)
- MLink Parameter overview

Time synchronization

Depending on the kind of time synchronization RTC or NTP the device setup looks different. In some cases the shown menu items may not be available (disabled) due to the user profile. Disabled menu items are shown light blue.

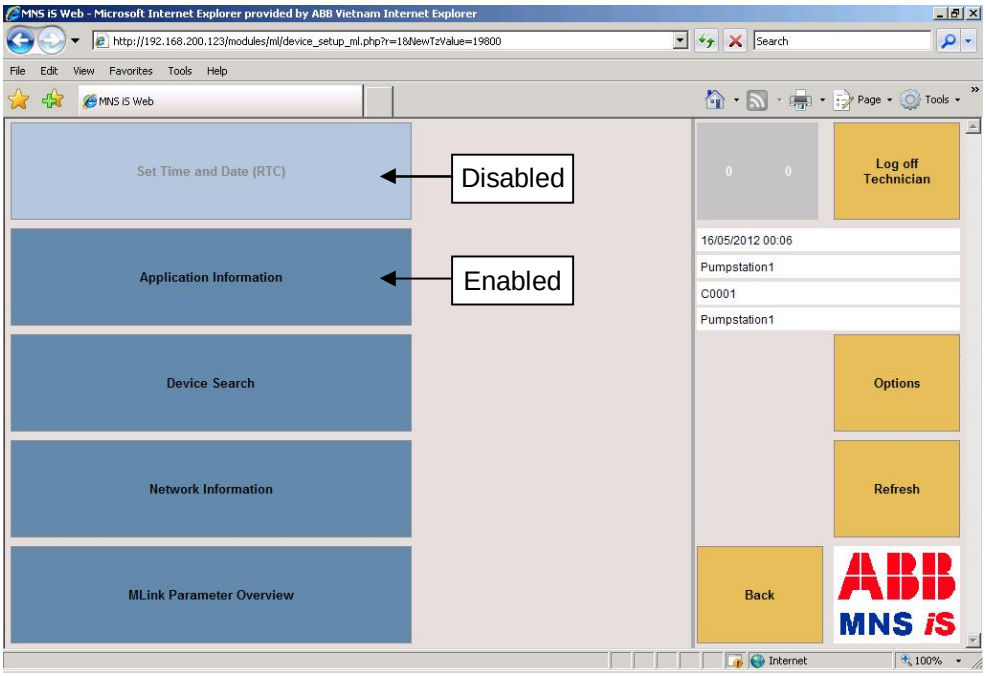


Figure 24 M*Link* Device Setup, no user right for setting the MLink system time (RTC)

Time synchronisation

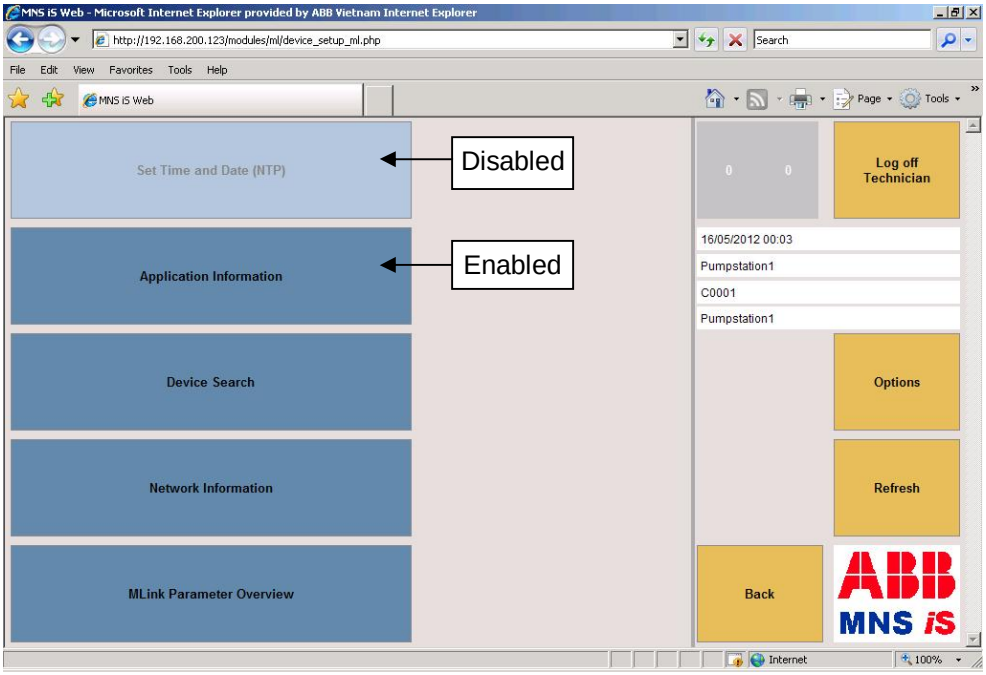


Figure 25 M*Link* Device Setup, no user right for setting the M*Link* system time (NTP)

Depending upon the user profile setting and project configuration “Time Synchronization” the following options are possible:

1. No time synchronization configured

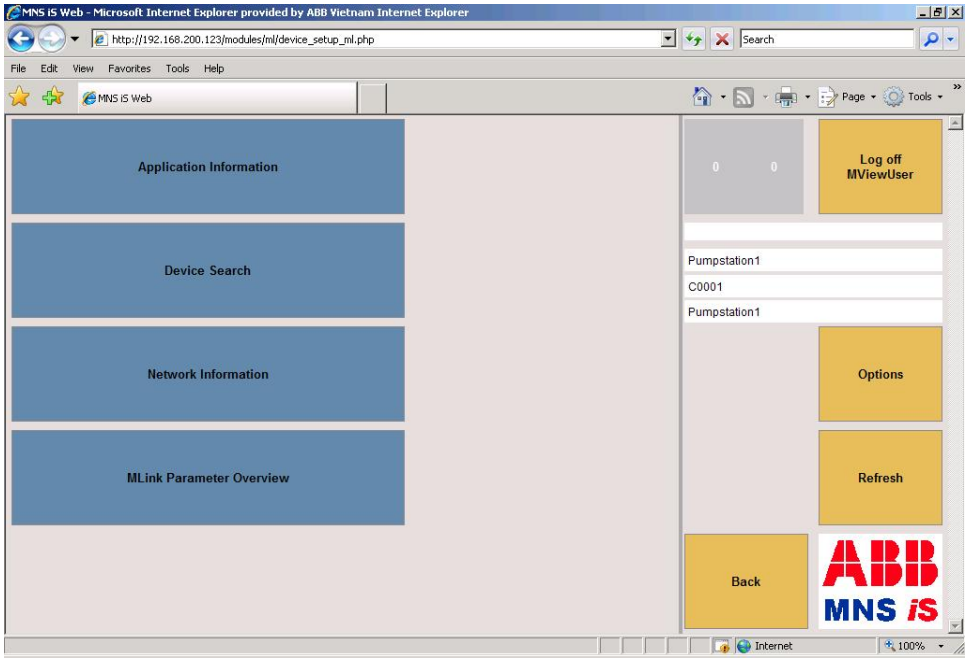


Figure 26 M*Link* Device Setup, no time synchronization configured

2. RTC time synchronization

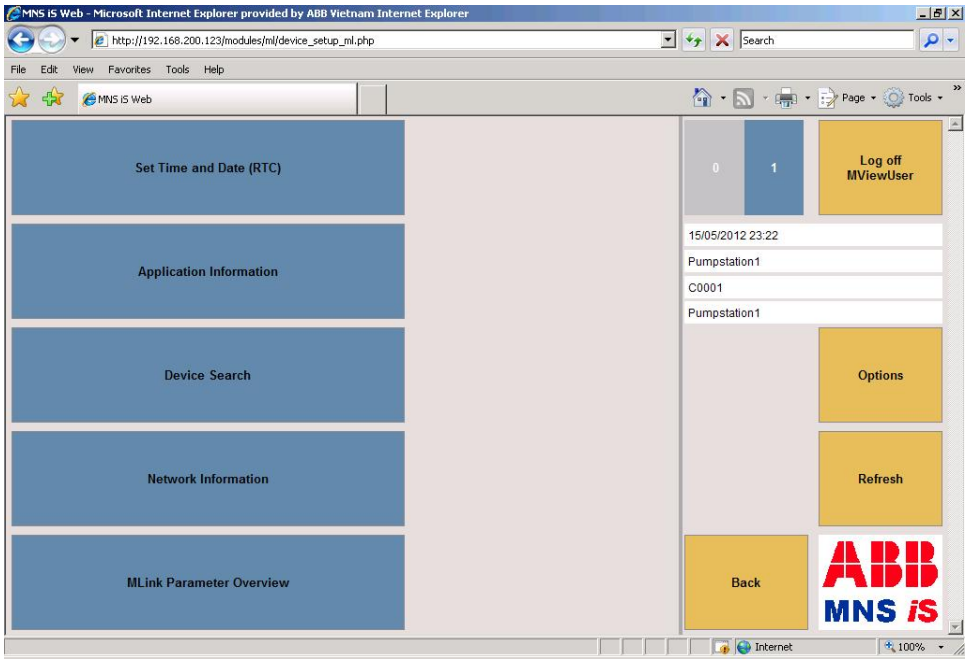


Figure 27 M*Link* Device Setup, RTC time synchronization

After selecting the menu item **Set Time and Date (RTC)** the following screen appears.

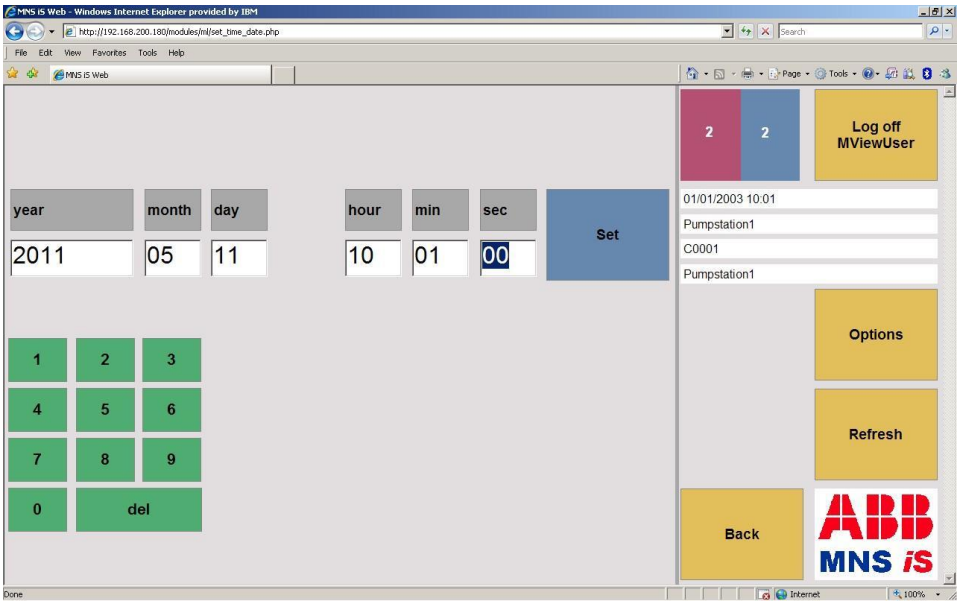


Figure 28 M*Link* Device Setup, setting RTC time

From here it is possible to set the M*Link* system time.

Use the Back button to return to the cubicle view

3. NTP time synchronization

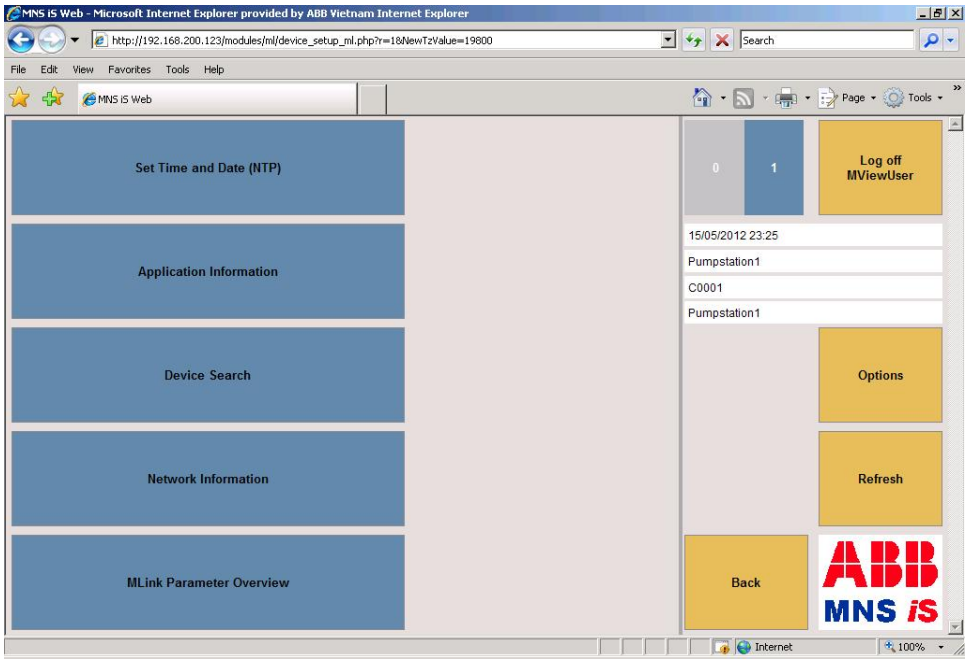


Figure 29 M*Link* Device Setup, NTP time synchronization

After selecting the menu item **Set Time and Date (NTP)** the following screen appears.

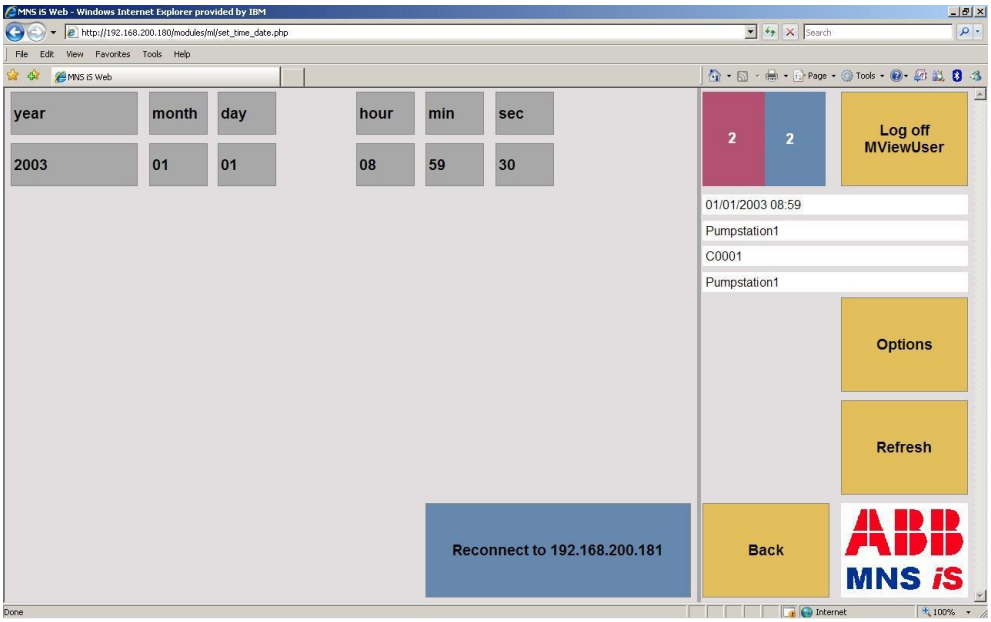
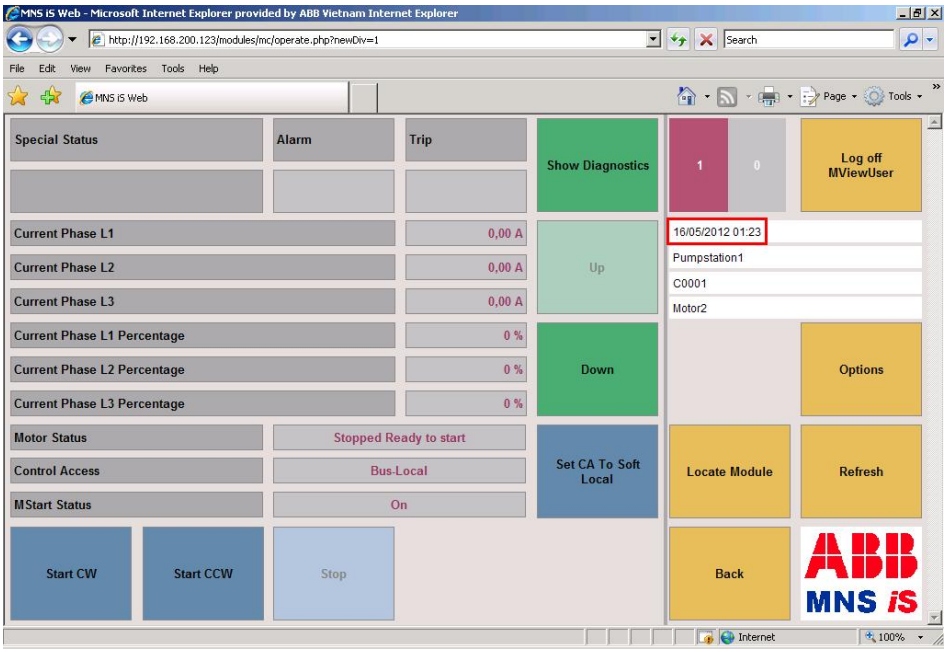


Figure 30 M*Link* Device Setup, reconnect to NTP server

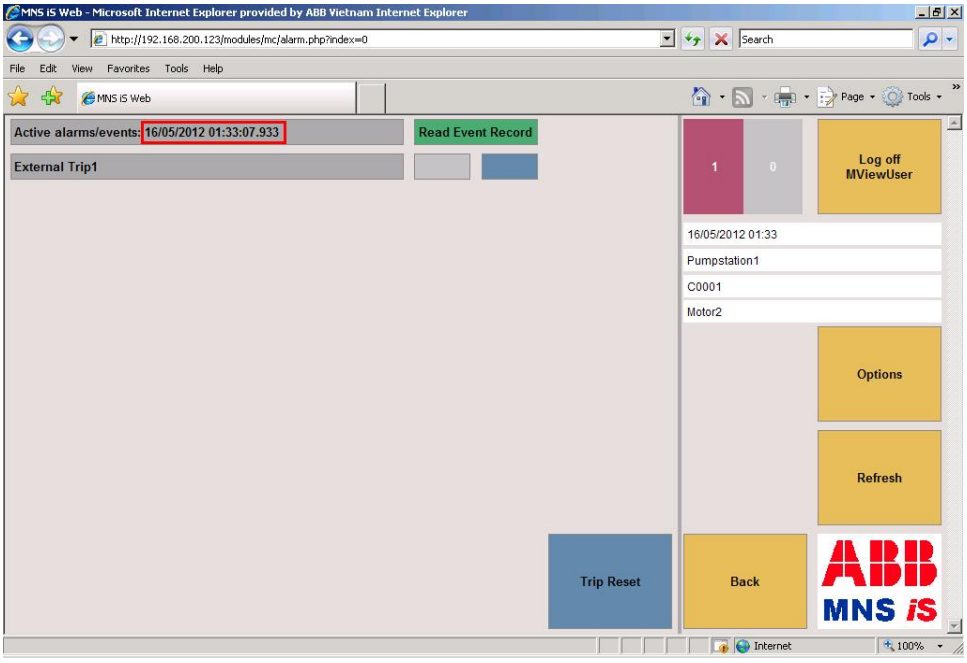
Here the user has the possibility to request the time from the time server again.

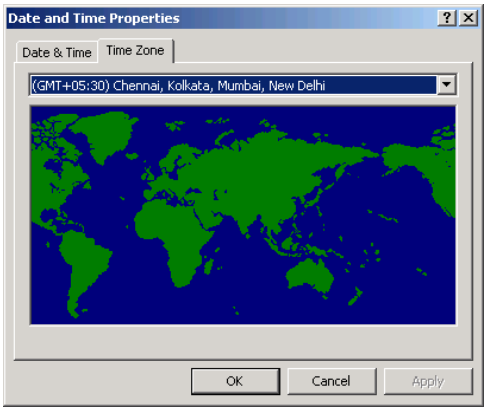
Local Time Zone Support

After enabling **Use Time Zone Offset** in M*Navigate* the WEB interface shows localized time information on the system menu and on Alarm / Event overview page. As soon as the parameter file is downloaded the local time zone offset is taken out of the client machine and added to M*Link* system time information.

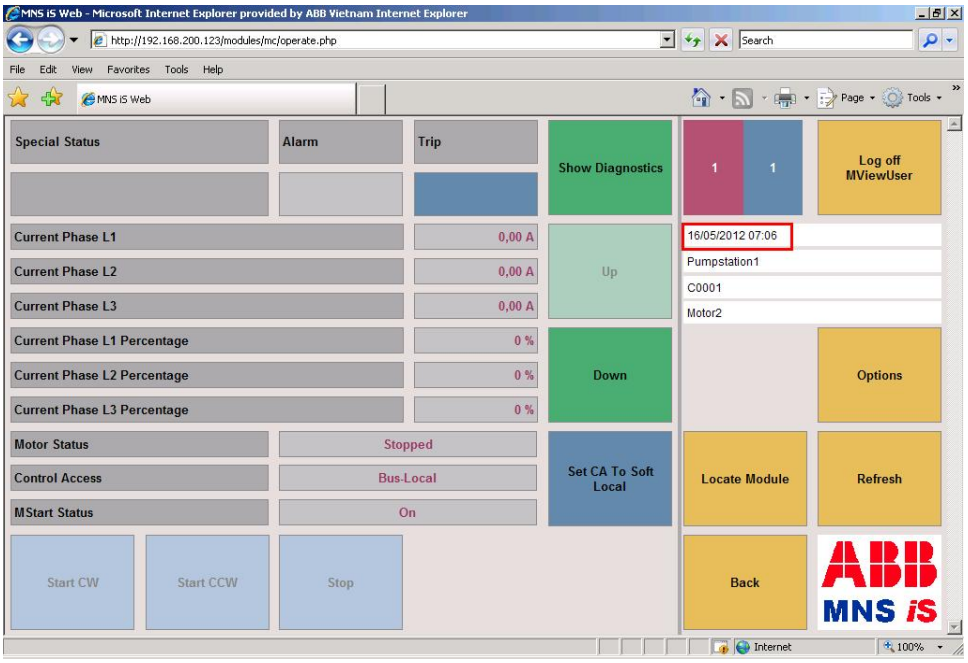


If the **Use Time Zone Offset** setting is disabled the UTC system time is shown in system menu.

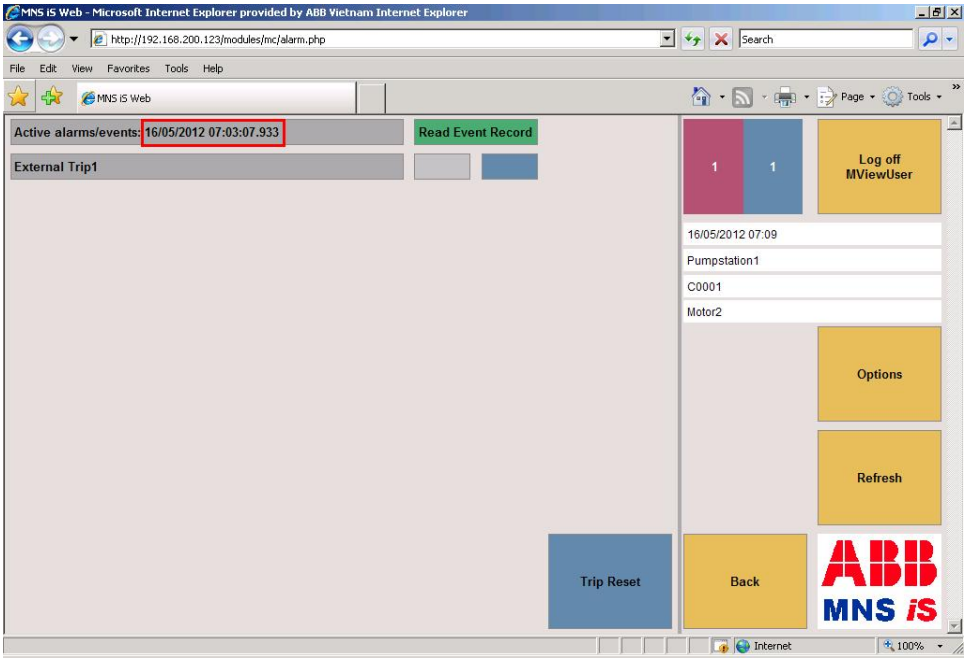




The Web Interface is running on a machine having an offset of 2h (1h offset & 1h daylight saving).



After enabling of **Use Time Zone Offset** setting in M*Navigate* the offset is added accordingly (system menu & Alarm / Event overview).



For further details how to activate local time zone support (**Use Time Zone Offset**) refer to the MNS *i*S M*Navigate* help file.

Use the Back button to return to the cubicle view

Application Information

If the user selects **Application Information** the following screen appears, giving M*Link* application version information.

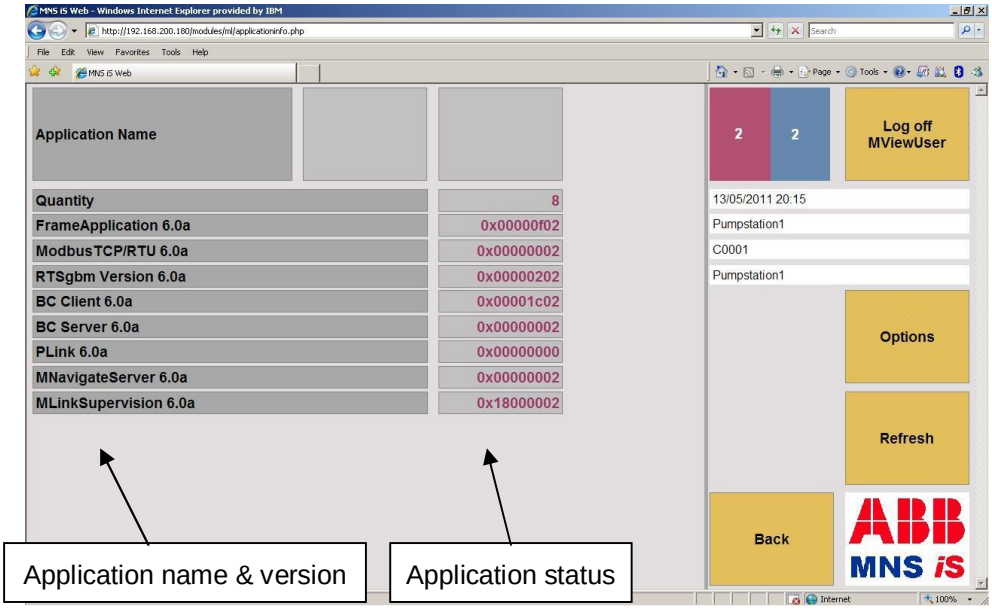


Figure 31 M*Link* Device Setup, Application information

This screen can be used by to review internal tasks and processes executed by the M*Link*.

Use the Back button to return to the cubicle view

M*Control* Search Function

If the user selects **M*Control* Search** the following screen appears, giving the possibility to find M*Controls* in a MNS *i*S system:

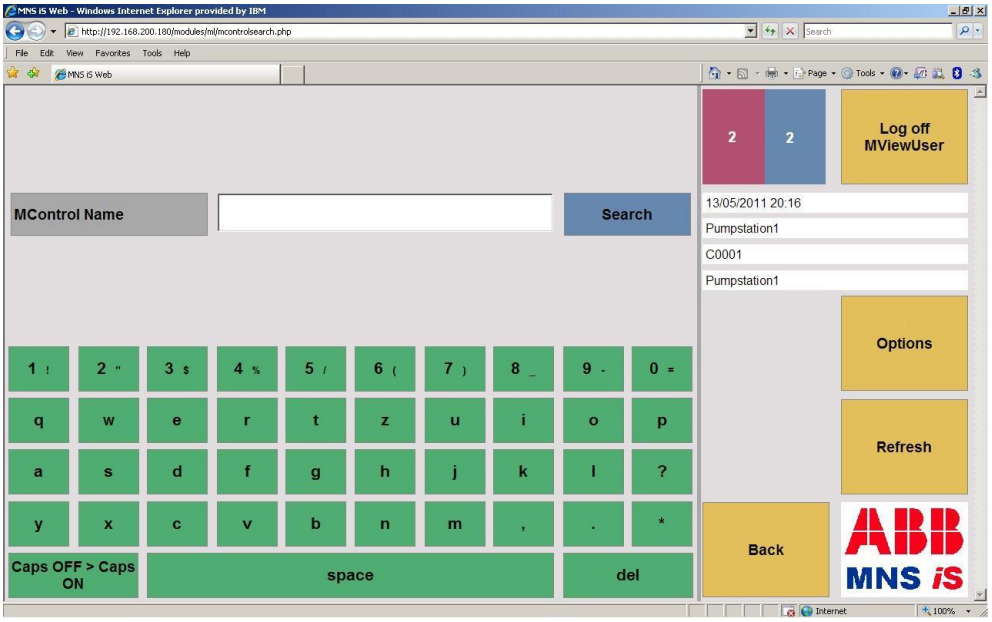


Figure 32 M*Control* Search Dialog

From here it is possible to either enter the full tag name or a group of characters to search for a module. The input field allows entering two supported 'wild'search characters:

? Replaces a single undefined character

* Replaces an undefined string

The M*Link* then searches with the entered M*Control* tag name against all 3 device identifiers (Device Identifier 1, Device Identifier 2, LocationId (Device Identifier 3)). If the M*Control* name matches to one of these identifiers the result is shown in a dialog containing three columns. The third column is the identifier the match occurred.

Device	MLink	ID
Valve-4	PumpStation2	1

In the example above the M*Control* / M*Start* has the name ‘Valve-4’ designated as its ‘device identifier 1’ and M*Link* named PumpStation2 is connected.

Result	Device	MLink	ID Device Id Number
Match in M*Control* Device Identifier 1	Device Identifier 1 of M*Control*	DeviceName1 of M*Link* is shown	1
Match in M*Control* Device Identifier 2	Device Identifier 2 of M*Control*	DeviceName2 of M*Link* is shown	2
Match in M*Control* Device Identifier 3	Device Identifier 3 of M*Control*	LocationId of M*Link* is shown	3

The following shows an example of the correct usage of this feature. Here the shown MNS *i*S network structure is taken as precondition. The startup page of M*View* is M*Link* Pump Station 1.

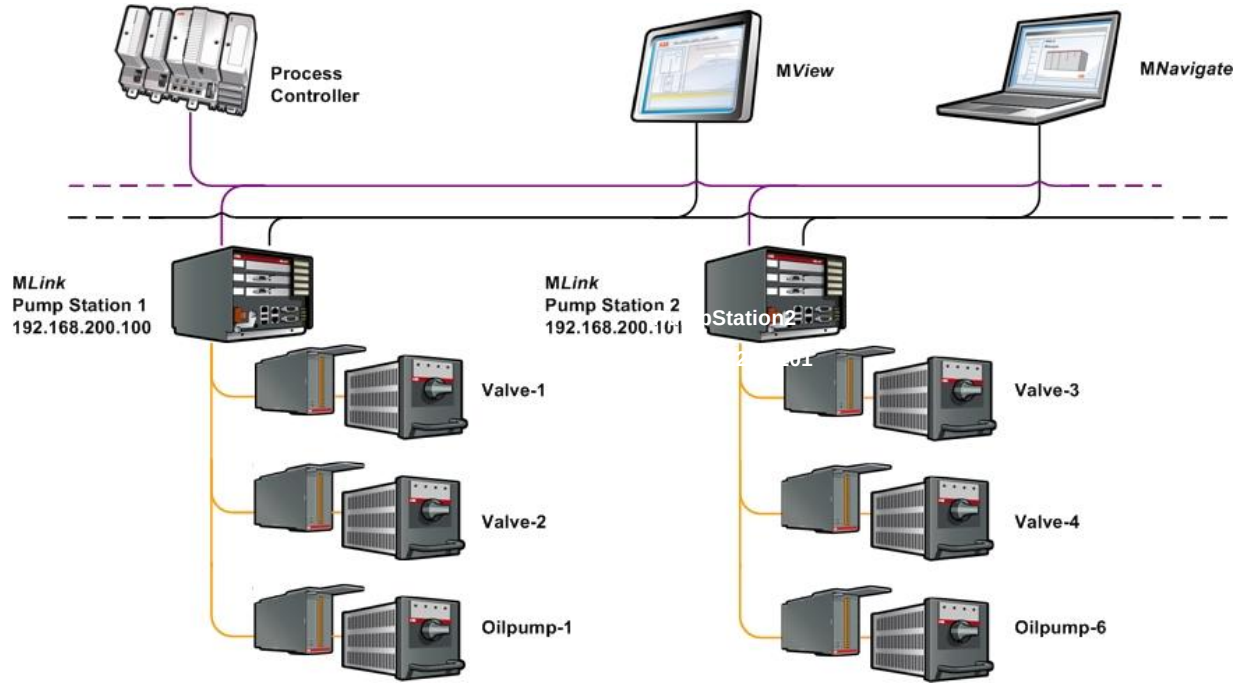


Figure 33 MNS *i*S System Structure

If an M*Control* is not found with a know Device Identifier please check the M*View* ID . This M*View* ID enables the user to create logical networks. Only MControls connected to a M*Link* parameterised with the M*View* ID for that particular network segment will be displayed. For more information please see chapter MView ID

When the physical location and / or the exact name of a M*Control* is not known the search function can be used in the following way.

User input: “Valve-01”:

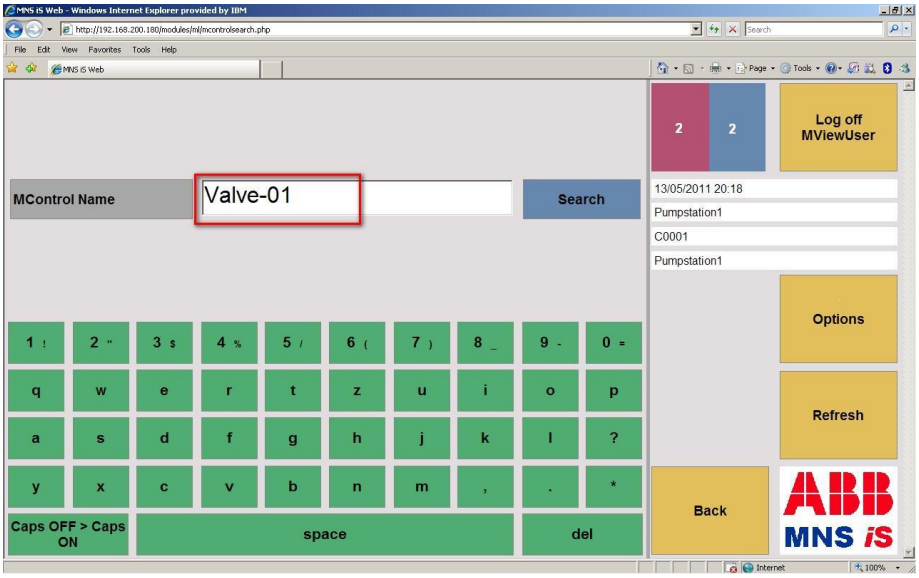


Figure 34 User Input 1

M*View* output:

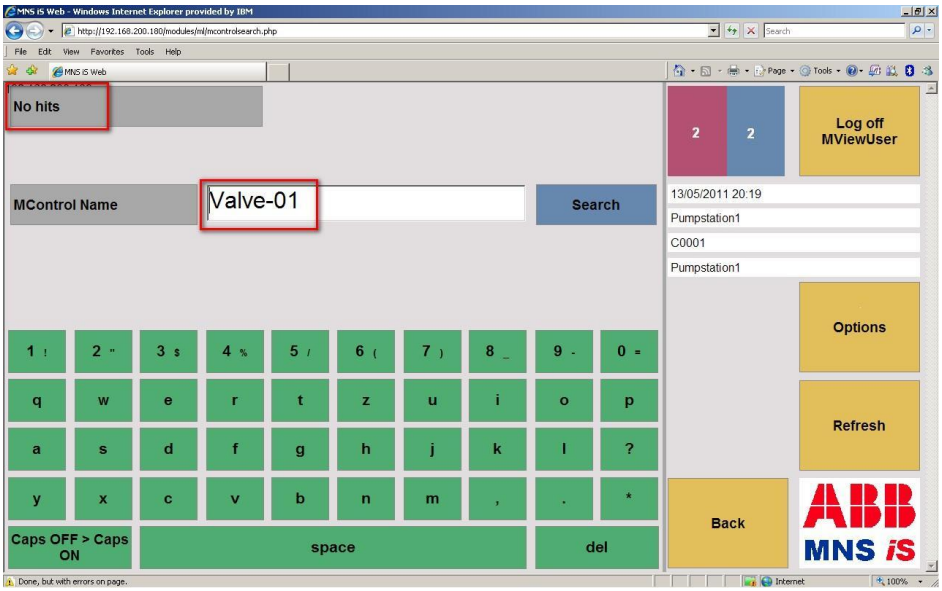


Figure 35 Search Results 1

Result: There is no M*Control* “Valve-01” available in the MNS *i*S network.

User input: “Valve-?” – Search with undefined character

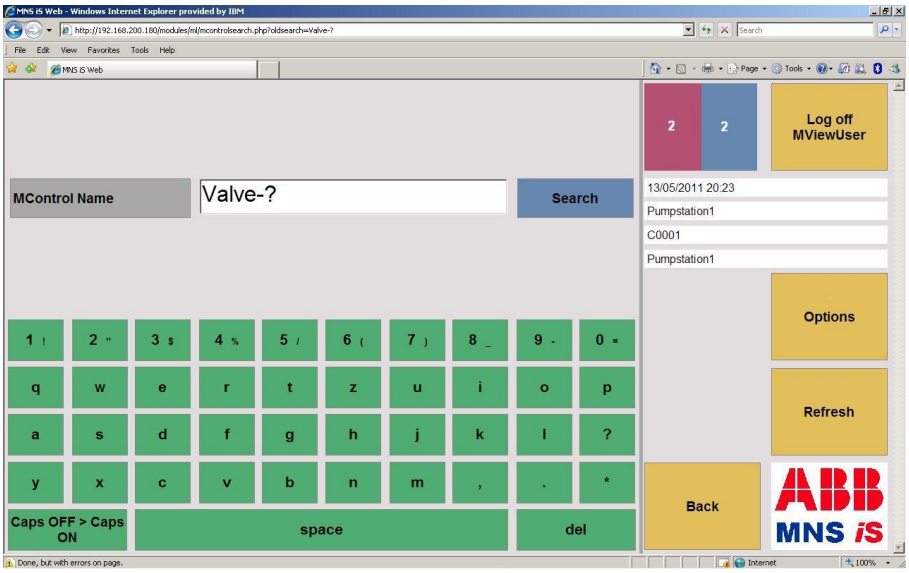


Figure 36: User Input 2

M*View* output:

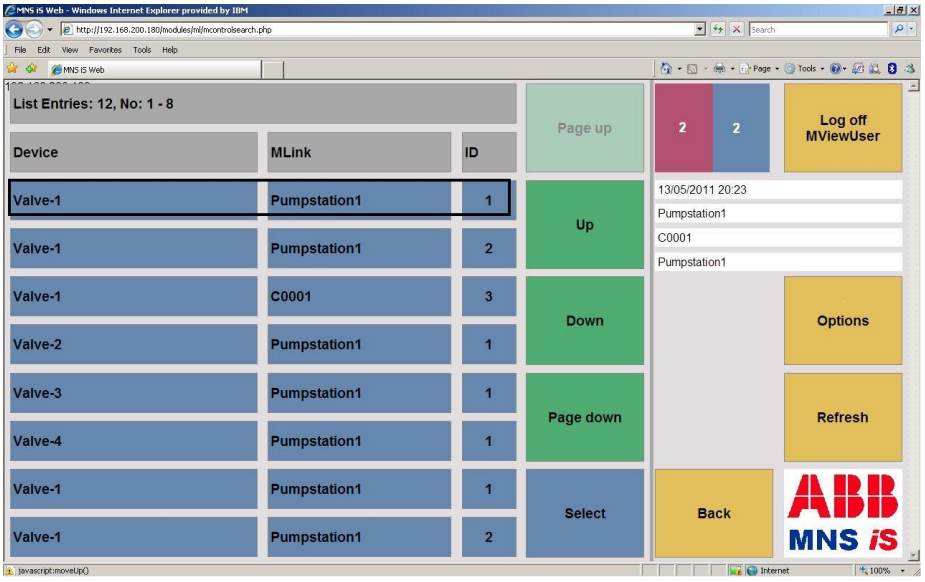


Figure 37: Search Results 2

Result: 4 M*Controls* were found, connected to two different M*Links*. In this case the selected M*Control* is connected to the same M*Link* the M*View* uses (Pump Station 1). If the user selects one of theses M*Controls* (Valve-1) a redirection is done to the Operate Screen of the dedicated M*Control*.

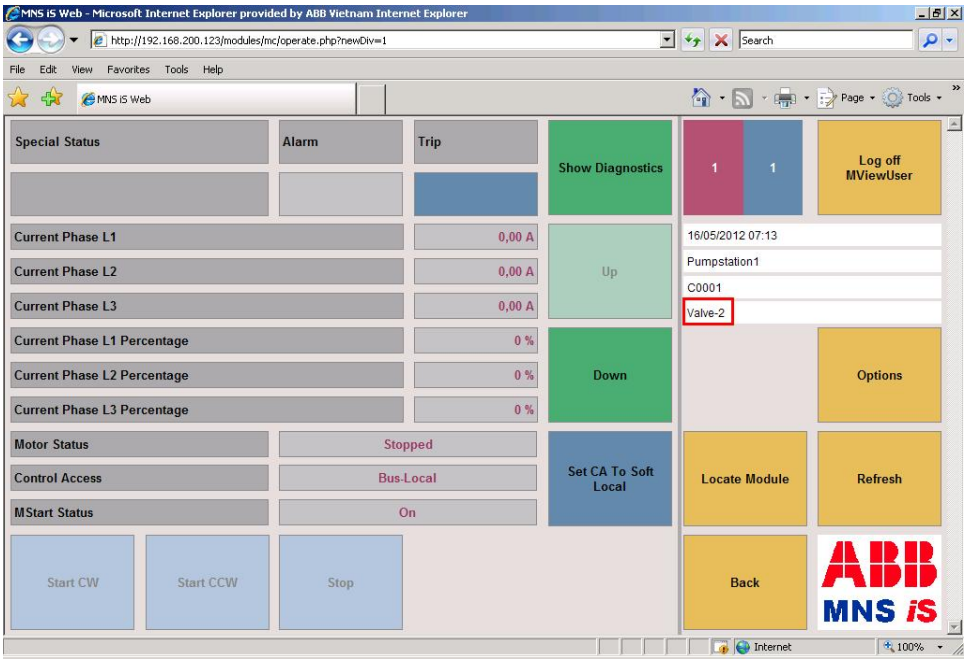


Figure 38: Redirection from Search Results 2

User input: "Val*"-?" – Search with undefined string

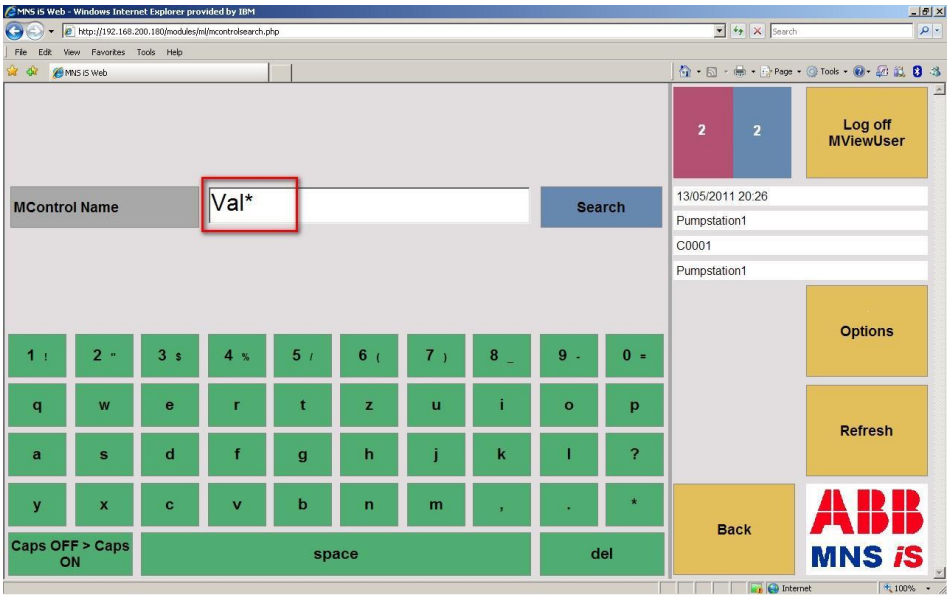


Figure 39: User Input 3

M*View* output:

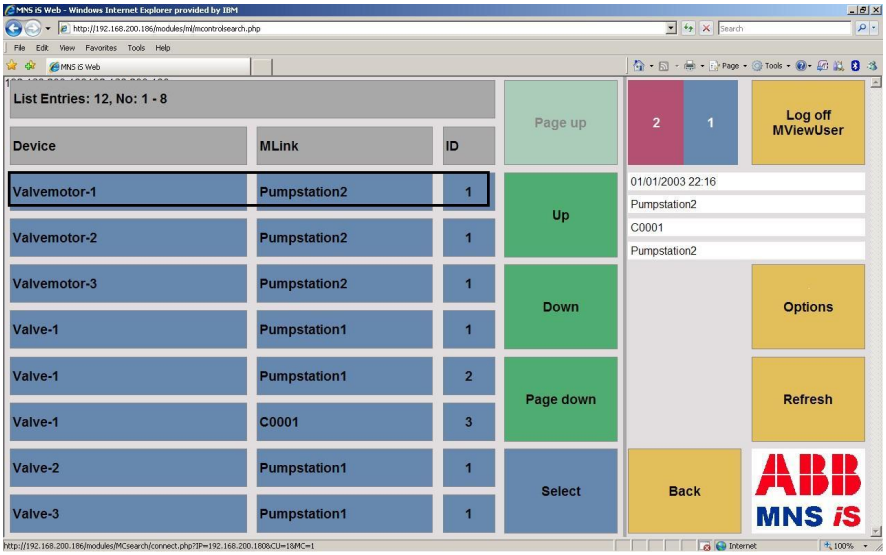


Figure 40: Search Results 3

Result: 4 M*Controls* were found, connected to two different M*Links*. In this case the selected M*Control* is connected to another M*Link* the M*View* uses (Pump Station 2). If the user selects one of these M*Controls* (Valve-3) a redirection is done to the **Operate Screen** of the dedicated M*Control*.

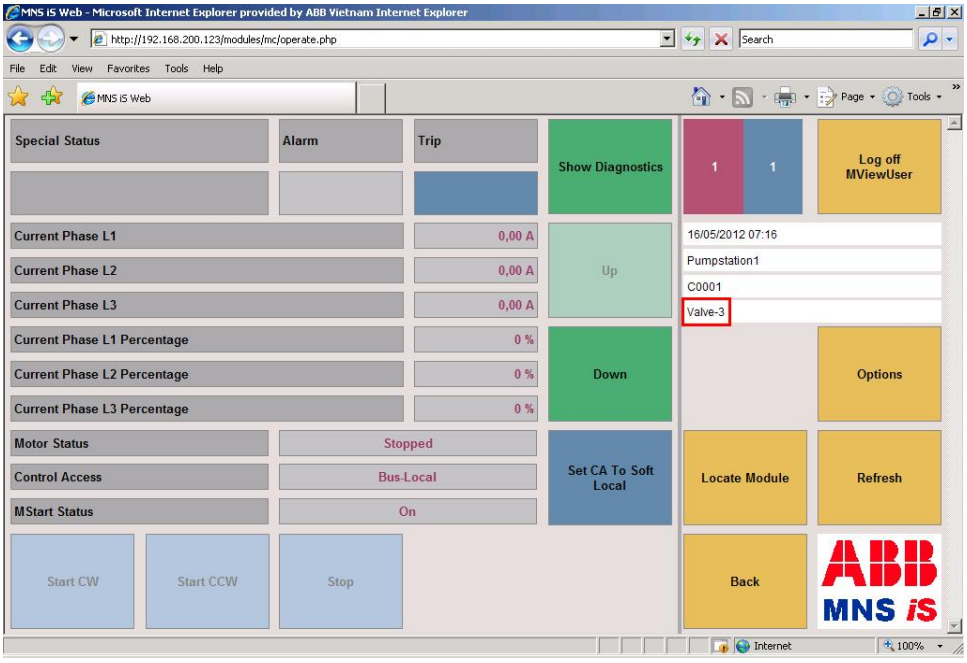


Figure 41: Redirection from Search Results 3

Network Information

If the user selects **Network Information** the following screen appears, giving information regarding used Ethernet IP address settings and Subnet masks.

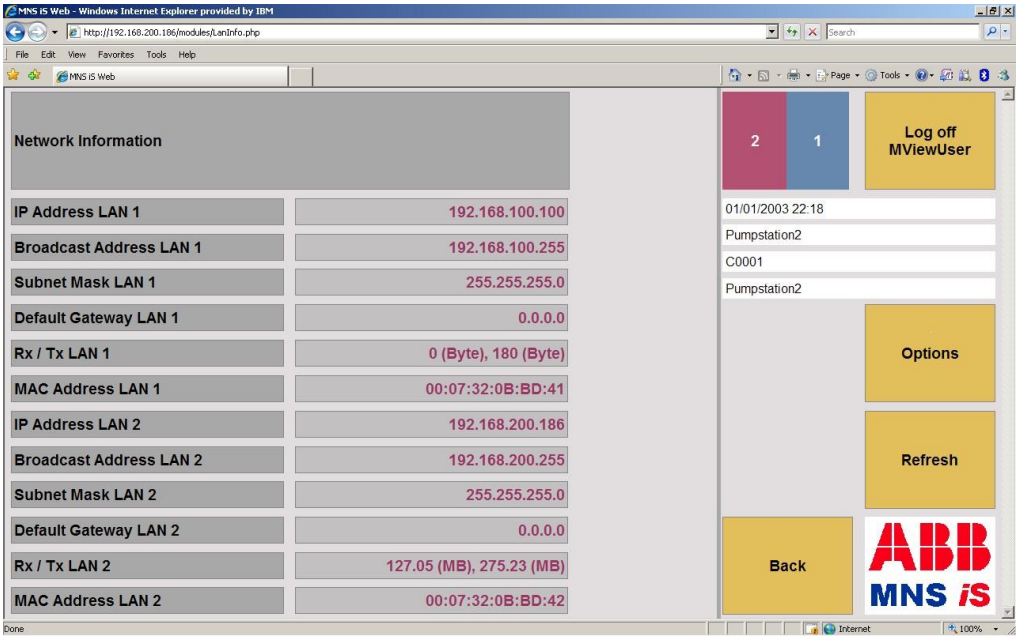
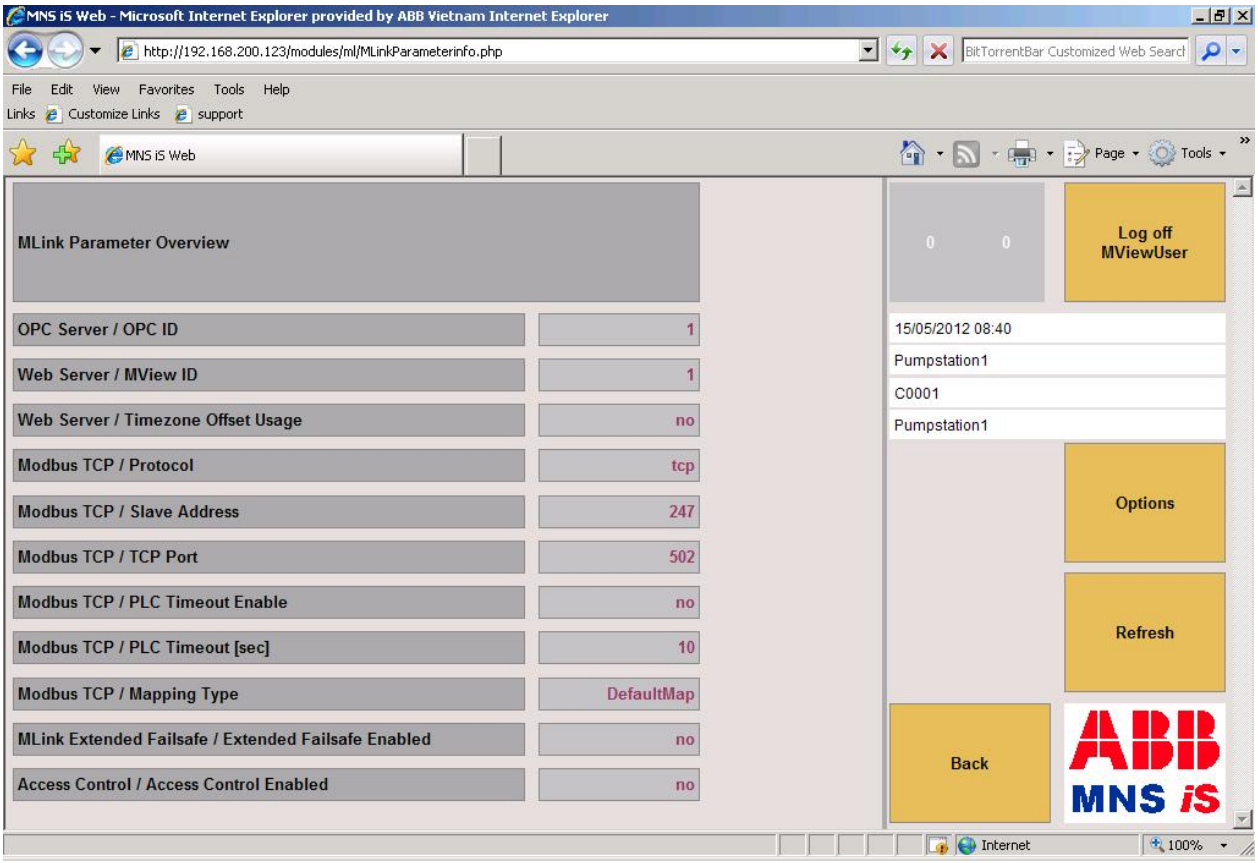


Figure 42 Network Information Dialog

Use the Back button to return to the cubicle view

MLink Parameter Overview

If the user selects ‘MLink Parameter Overview’ the following screen appears, giving overview regarding various MLink Parameters i.e. OPC ID, MView ID, Access control. These have direct relationship with parameter value set and downloaded to MLink via MNavigate.



Use the Back button to return to the cubicle view

Redundancy

The web interface will always use data received from the primary M*Link*. Should a change over occur the web interface will be automatically redirected. The following sequence will run when a change over of the primary M*Link* is initiated. For more information please refer to the MNS iS Redundancy Manual.

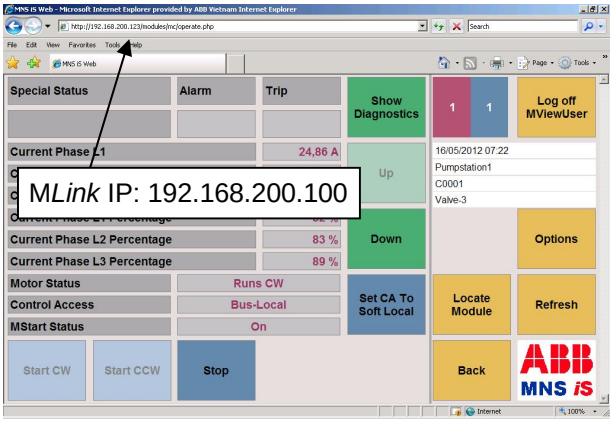


Figure 43 Screen before redundancy event

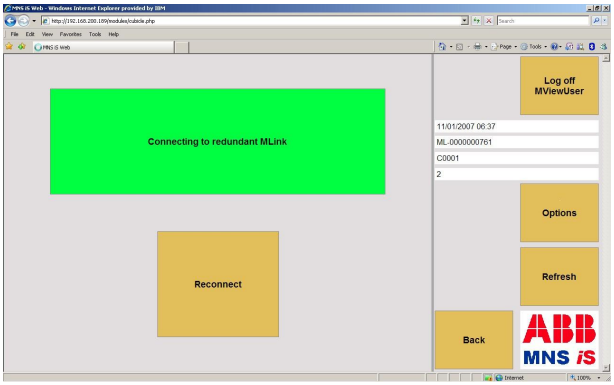


Figure 44 Screen during redundancy redirection

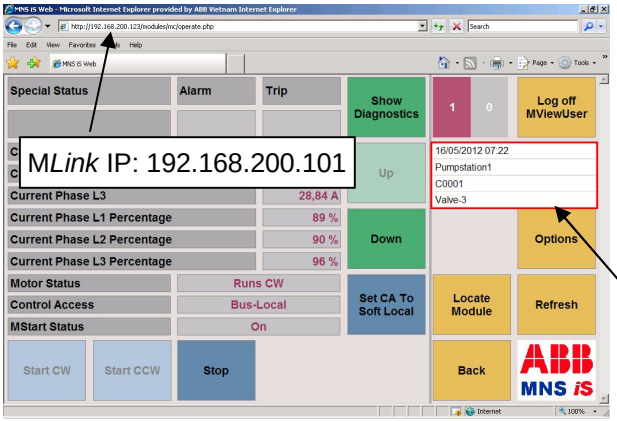


Figure 45 Screen after redundancy event

Change over of M*Link* initiated.

Web Interface redirection

Web Interface redirection

The red frame on the right hand side is indicating a redundancy error. Please refer to the MNS *i*S Interface Manual Redundancy for more detailed information.

MView ID

The M*View* ID enables the user to create MNS *i*S Ethernet network segments without the need of physical splitting. This could be required in systems containing a large number of M*Links*. In these circumstances it may not be possible to handle all M*Links* in one M*View*, because of the size of the M*Link*-list available, (one entry for every physically connected M*Link)*. By using the M*View* ID the number of accessible M*Links* can be reduced.

By using M*Navigate* an M*View* ID can be configured for each M*Link*. The example below will describe the system behaviour if this function is used.

	M*Link*1	M*Link*2	M*Link*3	M*Link*4
M*View* 1	yes	yes	yes	no
M*View* 2	no	no	no	yes

The MView ID has to be set accordingly by using M*Navigate*. After downloading the settings to M*Link* and adapting the start-up page for M*View* as described below the following segmentation is created:

M*View* name	M*View* Startup page
M*View* 1	M*Link* 1 or M*Link* 2 or M*Link* 3
M*View* 2	M*Link 4*

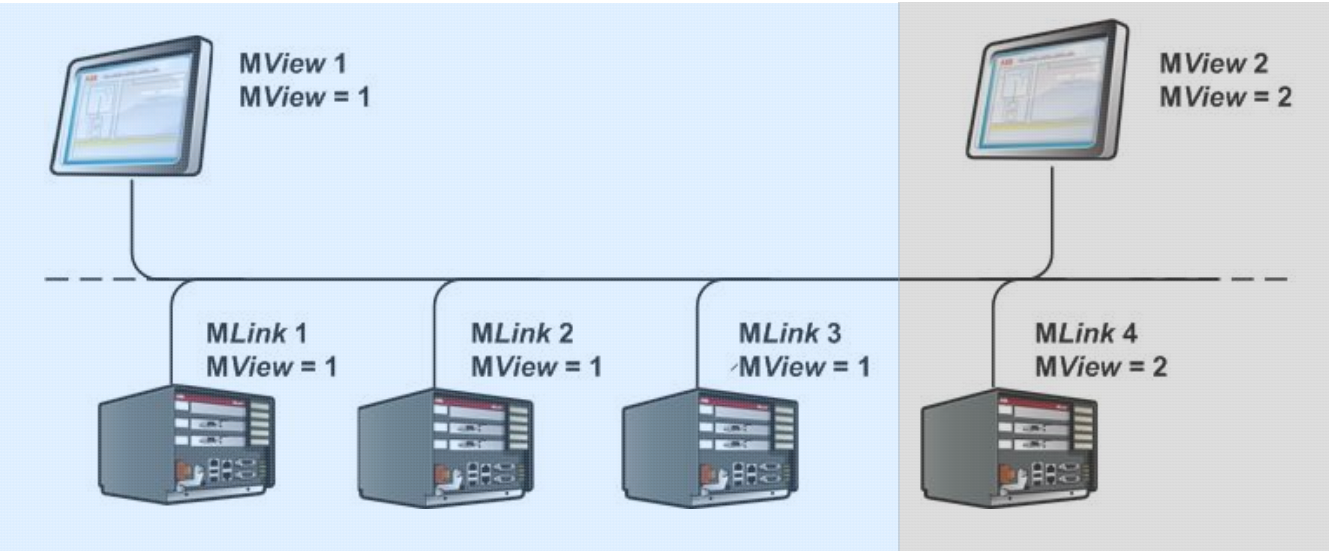


Figure 46 MView ID – Ethernet network segmentation

M*Links* having no MLinkId support (previous to V5.3) are available / visible in all logical network segments.

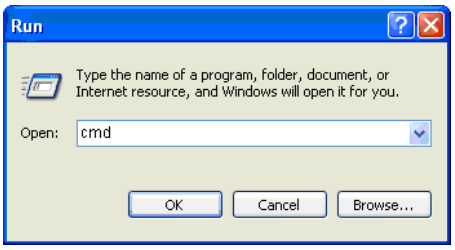
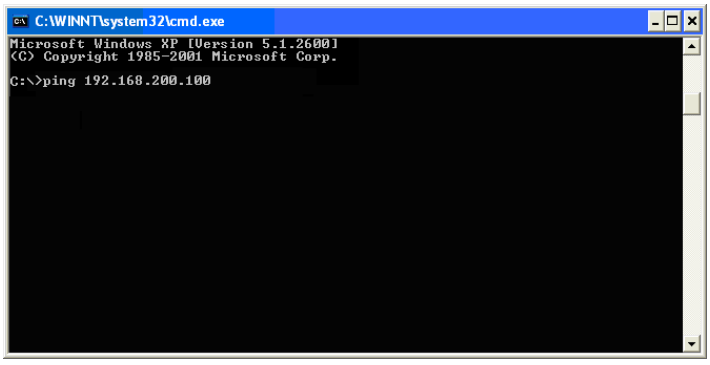
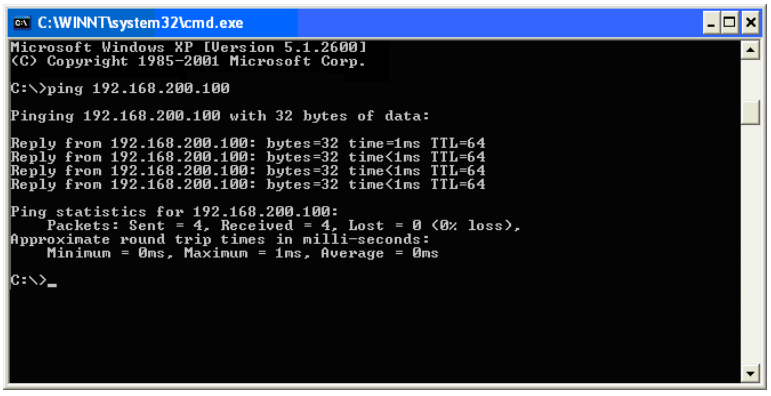
WEB Server Interface settings

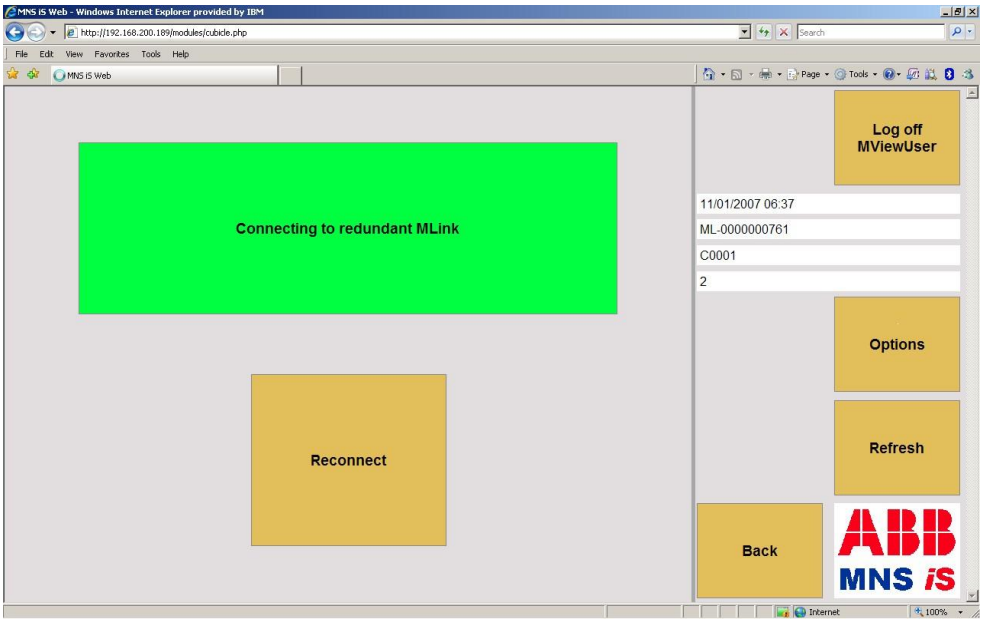
The following WEB interface settings can be customized

- User and user roles
- Language – native languages support
- User colour schemes – Web Color Setting
- Date & Time Format (system menu)
- MView ID
- Time Zone Offset
- Single Trip Reset

For more details refer to the MNS *i*S M*Navigate* Help File.

Troubleshooting and Maintenance

Problem	Solution
No access to M*Link* with the web interface	Check if the correct IP address in the address bar of the web interface has been entered.
	Check if the M*Link* is powered on and no fault indication is on the LED indication of M*Link.*
	Check if the Web Server option is activated. This can be done using M*Navigate* and verification of the settings for the M*Link*.
	Check if the network configuration is correct; use a ping command to verify that the M*Link* is reachable. Open a command window on the PC: • Start / Run, then type in “cmd” and select Enter  • Enter the ping command with the correct IP address: *ping xxx.yyyy.zzz.aaa*  • If no reply is received, check the cable connection of the PC or M*View* and M*Link*. If a reply is received the connection is ok. 

Problem	Solution
	If it is still not possible to reach the M*Link*. Remove the CF card from M*Link*, insert the CF card into a card reader connected to M*Navigate* and write the M*Link* data again to the CF card. Re-insert the card to M*Link*, start M*Link* and check communication.
M*Link* communication problem	In case of the following kind of error please check the Ethernet cable connections (LAN 2 on M*Link* side) and press the **Restart** button. 

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