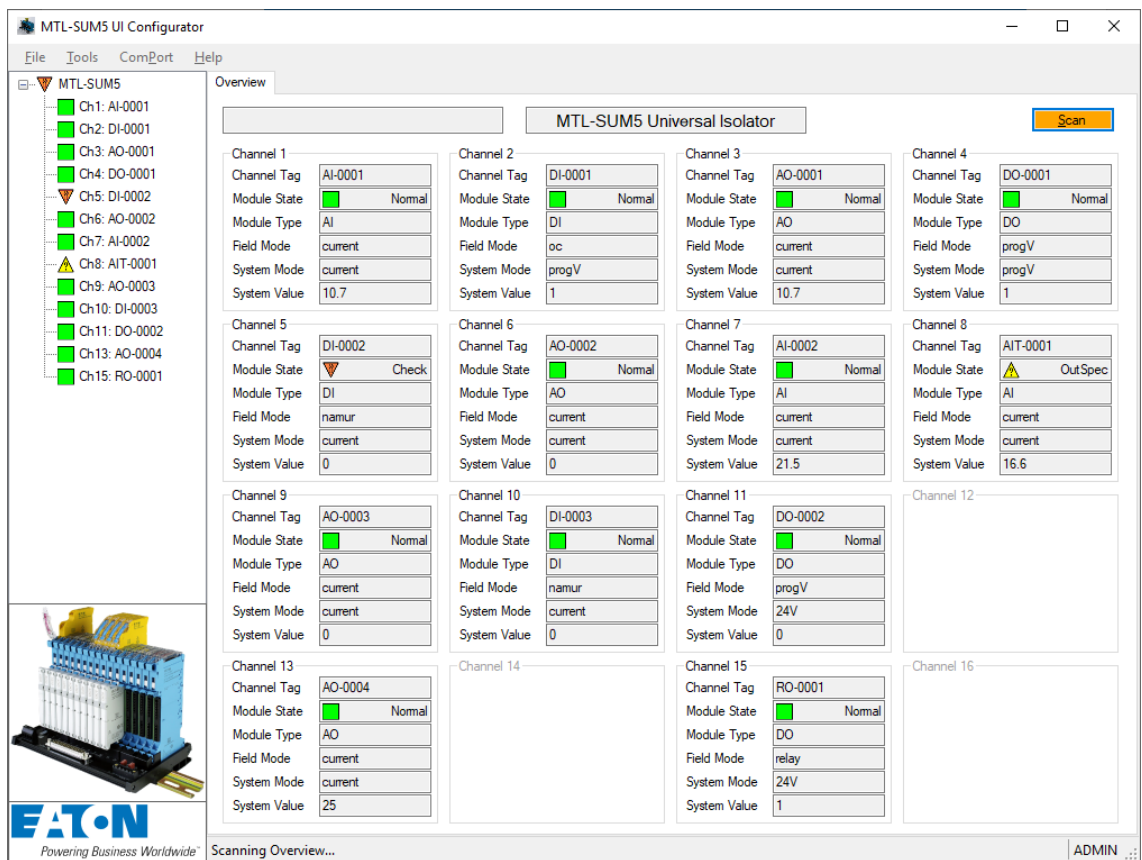


MTL SUM5 series

MTL4-PCS SUM5 programming software



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IMPORTANT NOTE

This manual describes the installation and use of:

- MTL SUM5 range of universal interfaces and accessories.

The MTL SUM5 products are designed to provide, intrinsically safe signal isolation and signal conversion between control systems and equipment in areas of a process plant.

	WARNING! This equipment must be installed, operated and maintained only by trained competent personnel and in accordance with all appropriate international, national and local standard codes of practice and site regulations for process connected apparatus and in accordance with the instructions contained here.
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The following methods are used on the product and in this manual to alert the user to important information:-



Caution – read the instructions

1 INTRODUCTION

1.1 General

This instruction manual describes the procedures for connecting and programming MTL SUM5 Series interfaces. The MTL SUM5 products are designed to provide signal isolation and signal conversion between equipment and areas of a process plant. The MTL4-PCS software provides the user interface between a PC and the MTL4-DMA/DMR interface module to programme these functions.

The MTL SUM5 offers a great deal of flexibility to the user so it can be implemented with both universal and standard IO systems and many of the signal types they use.

2 MTL4-PCS DESCRIPTION

The MTL4-PCS is installed on a Windows PC and used with the MTL4-PCL USB serial link that connects with the MTL4-DMA or MTL4-DMR diagnostic and alarm module which are located on the MTL SUM5 carrier. The MTL4-DMA/DMR provide the communications link between the PC and the universal isolator modules on the carrier. Up to 16 SUM5 channels can be accessed through this link.



Warning: configuration via the serial link must not be performed in a hazardous-area without a gas clearance certificate being issued.

2.1 Modules and accessories

MTL4-PCS	Configuration software
MTL4-PCL	USB to serial communications link
MTL4-DMA	Diagnostics and alarm module with group diagnostic and channel alarms
MTL4-DMR	Diagnostics and alarm module with group diagnostic, channel alarms and 16 channel alarm relay outputs

For full details of the MTL4-DMA / DMR operation please refer to the SUM5 instruction manual INM MTL SUM5

3 INSTALLATION – PRECAUTIONS

3.1 General

Make sure all installation work is carried out in accordance with all relevant local standards, codes of practice and site regulations.

3.2 Installation

3.2.1 MTL4-DMA / MTL4-DMR diagnostics and alarm module

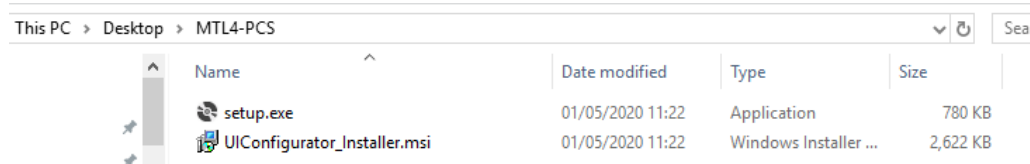
To communicate with the MTL SUM5 isolator modules the diagnostics and alarm module must be installed on the carrier. This may be installed or removed at any time without disturbing the operation of the SUM5 isolators. The MTL4-DMA/DMR only needs to be permanently installed if the common diagnostic and process alarm relays on the SUM5 carriers are being used or process alarms are connected. Otherwise it may be installed as required when configuration work is necessary.

The MTL4-DMx module has 16 LED indicators on the top of the module to indicate the status of the 16 isolator channels.

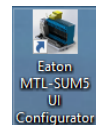
LED	Description
Off	No module fitted
Green	No alarm conditions
Yellow	Process alarm active
Red	Line fault alarm present / IO module failure (Check Mode and status LEDs on associated isolator channel)

3.2.2 MTL4-PCS software

The MTL4-PCS software is available to download free of charge from the MTL website www.mtl-inst.com. The files are downloaded in a .ZIP format and will need to be saved on the target PC in a folder location defined by the user. The files must be unzipped to give access to the executable setup.exe file used to install the software. Administrator rights are not required to install this software.



Double click setup.exe and follow the installation process. The licence agreement must be ticked to complete the installation. Once installed, the MTL SUM5 configuration icon will appear on the PC desktop

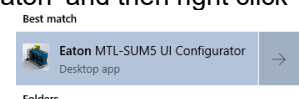


The software may be upgraded without uninstalling the application.

To uninstall, find the application press the  button, type 'Eaton' and then right click on the application and select 'uninstall'



When uninstalling MTL4-PCS software the programme must be closed before the uninstall process is started.



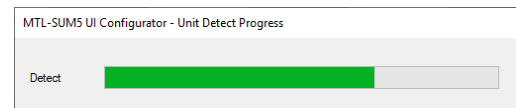
3.2.3 MTL4-PCL serial link

Open the MTL4-PCS programme on the PC. Click on the ComPort tab and note which Com ports are listed. Plug in the MTL4-PCL link into an available USB port on the PC. Click on the ComPort tab again and see which port has been added to the list, this is the port that you will need to use, click on it to select it.

(If the computer does not automatically configure the USB port the driver can be found at https://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip where the current version for Windows 10 is 2.12.28)

Ensure the MTL4-DMA or -DMR interface is installed on the SUM5 carrier and connected via the serial link to the PC.

Click Tools / Detect Unit and the configuration of the installed modules will be downloaded into the configuration tool.



Once complete the 'Overview' status of all 16 channels will be visible

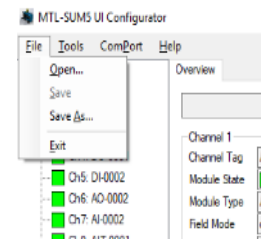
4 Menu options overview

4.1 File tab

Open – to open an existing saved configuration file

Save / Save As – to save the current configuration to a file

Exit – close programme



4.2 Tools tab

Detect Unit – loads a scan of all channel configurations

Send Config - To update channel or channels after changes have been made

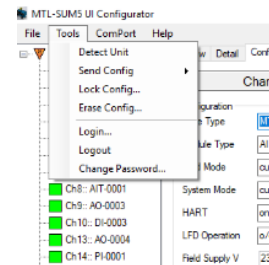
Lock Config- prevents push button configuration

Erase Config – allows selected modules to be erased

Login – login details required if login levels have been configured

Logout – logs out current user

Change Password - to change configured login passwords



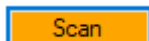
4.3 ComPort

Displays available USB comports on the active PC

4.4 Help tab

Contains licence details, revision status and other useful files

4.5 Scan button



When used with Overview display, or when a specific channel is selected, the system values and alarm conditions are continuously updated. The button is pressed again to come out of Scan mode or if another view is selected. The button is orange when scanning is active.

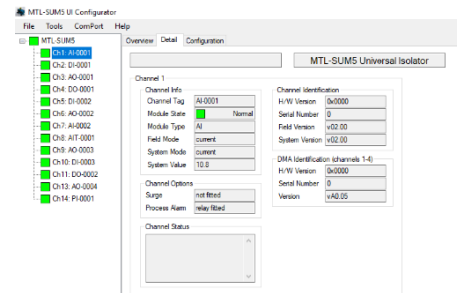
5 Module mode configuration



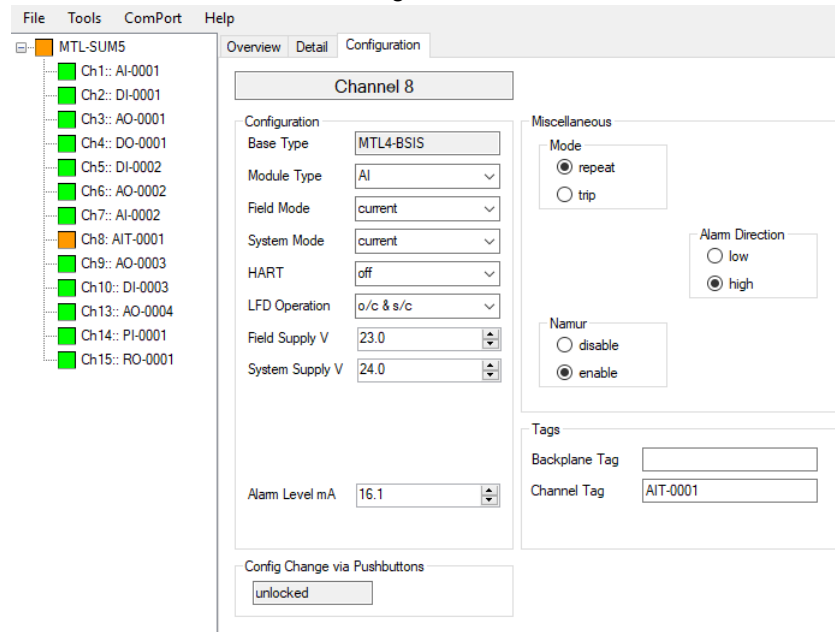
Warning: ensure system and plant operation is safe before making any configuration changes that could cause disruption to the process.

5.1 Configuration tab

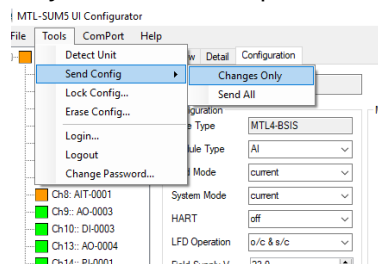
When a single channel is selected (as shown) the data associated with that channel is displayed in the 'Detail' tab. This also activates the 'Configuration tab'



When the Configuration tab is selected the full data set for a given mode is displayed. The data provided is specific to the selected mode. When a parameter is changed the 'Apply' button must be pressed. The channel status turns to 'Orange' showing there is a mismatch between the configuration in the module and the module base.



To download the configuration to make it active select 'Tools/Send Config/Changes Only'. The 'Send All' option downloads configuration data to all 16 channels even if they have not been updated.



The channel status will turn green once the configuration has been updated.

5.2 Configuration Modes

Each of the configuration modes and the parameters that can be set are described below. The values shown are those displayed when the mode is first selected. Other values will be present in modules or bases that have already been configured. The terminal Base Type shown is detected by the configurator. If a Relay Base is fitted the mode is automatically set to Digital Output for a given channel. Non-relay bases can be used with all modes.

MTL4-BSIS - IS base for all signal types

MTL4-BSISR – IS relay output base for digital outputs

MTL4-BSGP - GP base for all signal types

MTL4-BSGPR - GP relay output base for digital outputs and high voltage digital inputs

Module Type - sets the mode for the module, AI, AO, DI or DO

Field Mode - sets the signal type in the Field circuits, ie current or voltage etc

System Mode - sets the signal type between the isolator and the control system

LFD Operation - turns on and off line monitoring

Field Supply V - sets the voltage on Field Terminal 4

System Supply V - sets the voltage on System Terminal A

Backplane Tag - this tag will be the same for all channels once configured

5.2.1 Analogue Input

Configuration

Base Type: MTL4-BSIS

Module Type: AI

Field Mode: current

System Mode: current

HART: on

LFD Operation: off

Field Supply V: 23.0

System Supply V: 24.0

Alarm Level mA: 0.0

Config Change via Pushbuttons: unlocked

Miscellaneous

Mode: ☒ repeat ☐ trip

Alarm Direction: ☒ low ☐ high

Namur: ☒ disable ☐ enable

Tags

Backplane Tag:

Channel Tag: AI-0002

Field Mode - current / 5V / 10V

System Mode - current / 5V / 10V

HART – on or off

LFD Operation - off or o/c & s/c

Field Supply V – settable in 0.5V steps

System Supply V – settable in 0.5V steps

Alarm level – sets alarm level for process or trip

Trip mode selected- output now switches on and off

Alarm direction – alarm activated low or high direction

Namur – limits output range to 3.8 to 20.5mA

Backplane tag – set backplane tag for all channels

Channel Tag – enter tag for specific channel

5.2.2 Analogue Output

Configuration

Base Type: MTL4-BSIS

Module Type: AO

Field Mode: current

System Mode: current

HART: on

LFD Operation: off

Field Supply V: 23.0

System Supply V: 24.0

Config Change via Pushbuttons: unlocked

Miscellaneous

Mode: ☒ repeat

Tags

Backplane Tag:

Channel Tag: AO-0003

Field Mode - current / 1-5V / 10V

System Mode - current / 5V / 10V

HART – on or off

LFD Operation - off or o/c

Field Supply V – settable in 0.5V steps

System Supply V – settable in 0.5V steps

Backplane tag – set backplane tag for all channels

Channel Tag – enter tag for specific channel

5.2.3 Digital Input

Configuration		Miscellaneous	
Base Type	MTL4-BSIS	Mode	☒ repeat ☐ freq
Module Type	DI	Signal Polarity	☒ normal ☐
Field Mode	namur		
System Mode	current		
LFD Operation	off		
Field Supply V	8.5		
System Supply V	22.0		
Input Full Scale	0		
On Threshold mA	1.8		
Off Threshold mA	1.5		
Input Freq Min	0		
Input Freq Max	0		
Config Change via Pushbuttons		Tags	
unlocked		Backplane Tag	
		Channel Tag	DI-0003

Channel Tag – enter tag for specific channel

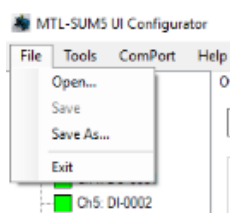
Field Mode – namur/current/5V/10V/progV/oc
 System Mode - current/24V/progV/oc
 LFD Operation - off or o/c & s/c
 Field Supply V – settable in 0.5V steps
 System Supply V – settable in 0.5V steps
 Input Full Scale - sets max voltage for input
 (In progV mode)
 On Threshold V - sets upper ON switching level
 (In progV mode)
 Off Threshold V- sets lower OFF switching level
 (In progV mode)
 Input Freq Min – enter 4mA value when 'freq'
 mode selected
 Input Freq Max - enter 20mA value when 'freq'
 mode selected
 Backplane tag – set backplane tag for all channels

5.2.4 Digital Output

Configuration		Miscellaneous	
Base Type	MTL4-BSIS	Mode	☒ repeat ☐ freq
Module Type	DO	Signal Polarity	☒ normal ☐ reverse
Field Mode	progV		
System Mode	24V		
LFD Operation	off		
Field Supply V	23.0		
System Supply V	24.0		
Input Full Scale	24.0		
On Threshold V	15.0		
Off Threshold V	10.0		
Config Change via Pushbuttons		Tags	
unlocked		Backplane Tag	
		Channel Tag	DO-0001

Field Mode – not configurable
 System Mode - 24V/progV/oc
 LFD Operation - off or o/c & s/c
 Field Supply V – settable in 0.5V steps
 System Supply V – settable in 0.5V steps
 Input Full Scale - sets max voltage for input
 (In progV mode)
 On Threshold V - sets upper ON switching level
 (In progV mode)
 Off Threshold V- sets lower OFF switching level
 (In progV mode)
 Signal Polarity – reverses output phase
 Backplane tag – set backplane tag for all channels
 Channel Tag – enter tag for specific channel
 If a Base MTL4-BSISR or MTL4-BSGPR is fitted
 Field Mode is Relay

6 FILE operation



MTL SUM5 configurations may be saved or uploaded from a Microsoft Excel spreadsheet files in .csv format. The files may also be edited offline in the spreadsheet itself or in the configurator programme and then saved back to the original file or a new file.



WARNING: Incorrect editing will cause failure to load or incorrect operation.

OPEN opens file explorer to select a previously saved file to upload. Once the file is uploaded the Tools/Send Config/Send All may be used to download to unconfigured or configured modules

SAVE saves configuration back to existing file location if opened from File

SAVE AS gives the option to save a configuration under a new name or is used to save a configuration that has been uploaded from existing modules using the Tools/Detect Unit function where a new name will be required.

EXIT closes configurator programme

7 TOOLS

7.1 Detect Unit

When a carrier is first connected selecting this mode uploads the configuration from the channels into the configurator.

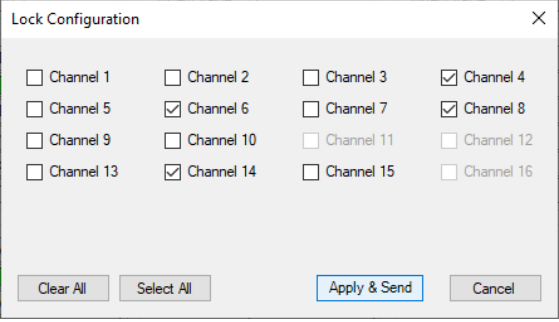
7.2 Send Config

After changes have been applied the Send Config action is required to download the new settings to the channels. This can be to one channel or all 16.

7.3 Lock Config

Locking the configuration inhibits the push button action on the side of the isolator module. Tick the box for the channel that needs to be locked.

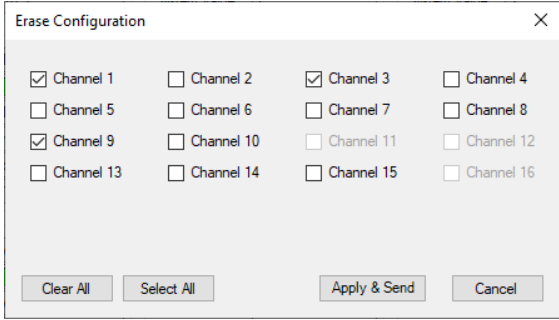
To clear the lock the same action is taken but by unticking the box.



The 'Lock Configuration' dialog box displays a grid of 16 checkboxes for channels 1 through 16. Channels 4, 6, 8, 10, 12, 14, and 16 are currently checked. At the bottom, there are four buttons: 'Clear All', 'Select All', 'Apply & Send' (highlighted with a blue border), and 'Cancel'.

7.4 Erase Config

Ticking the appropriate channel box and clicking Apply and Send will erase the configuration of the channel. The Red Mode light will flash on the channel concerned to indicate it is unconfigured. This also unlocks a channel that has previously locked.



The 'Erase Configuration' dialog box displays a grid of 16 checkboxes for channels 1 through 16. Channels 1, 3, 5, 7, 9, 11, 13, and 15 are currently checked. At the bottom, there are four buttons: 'Clear All', 'Select All', 'Apply & Send' (highlighted with a blue border), and 'Cancel'.

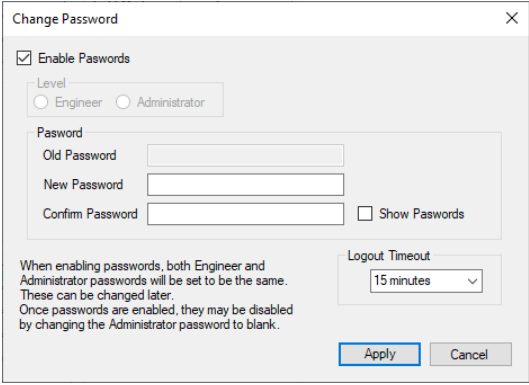
7.5 Login / Logout

Login is activated when passwords are set for the Admin or Engineer levels. Logout can be manually selected or activated by the 'Timeout' setting in the Change Password screen. The timing for this may be set by the user.

7.6 Change Password

Passwords may be set for the Administrator and/or Engineer levels.

Admin level gives access to perform all operations including firmware upgrades. Engineer level allows channel configuration. The lower User level allows data read only access. To clear passwords enter as Admin and enter blank new passwords.



The 'Change Password' dialog box includes an 'Enable Passwords' checkbox (checked), a 'Level' section with radio buttons for 'Engineer' and 'Administrator', and a 'Password' section with fields for 'Old Password', 'New Password', and 'Confirm Password'. A 'Show Passwords' checkbox is also present. Below these fields is a 'Logout Timeout' dropdown menu set to '15 minutes'. A text box at the bottom explains that when enabling passwords, both Engineer and Administrator passwords will be set to be the same and can be changed later. At the bottom right are 'Apply' and 'Cancel' buttons.

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