

MD780 GAS DETECTION

PROGRAMMING GUIDE



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2. INTRODUCTION

Using the MD780 configuration software, the factory settings of the MD780 gas detection control panel can be adjusted.

An overview of the factory settings can be found in the installation instructions (HI0780E01E).

The Md780 configuration software is a Windows-compatible software package released via the “MD780A.lic” license file.

To request a license file and to install the software package, please refer to our technical note “HNSOFTWE01A”. This technical note can be consulted on our website at www.limotec.be.

Once the software is installed, it is listed under the format “<MD780> space <version number>”.

3. COMMUNICATION CABLE

The connection between the MD780 gas detection control panel and the PC is made using a standard serial cable.

4. MD780 CONFIGURATION SOFTWARE

4.1 FILE

The drawer menu “**File**” allows you to perform the most important standard functions, such as creating a new file, opening an existing file, saving a new file, saving an existing file, printing a file and closing a file. The listed functions can also be activated via the corresponding icons on the toolbar.

The MD780 configuration software is a standalone package that allows you to perform the necessary data programming for your system.

After programming, connect the PC to the MD780 gas detection control panel using a standard serial cable. Using the “**Send**” function in the “Parameters/Dossier” drawer menu, the file can be sent to the control panel. Loading the existing file can be done via the “**Receive**” menu in the “Parameters/Dossier” drawer menu. The functions “Receive” and “Send” can also be activated via the corresponding icons in the toolbar.

There is no data file in the internal memory of the PC when starting the MD780 configuration software and the screen of the configuration software is blank. As soon as a file is loaded, the full contents of an MD780 data file is displayed on the screen. This can be done in three different ways:

Loading the factory settings via the menu “**New**” in the drawer menu “File” or via the icon “**New**” in the toolbar.

Opening an existing file on the hard disk via the menu “**Open**” in the drawer menu “File” or via the icon “Open” in the toolbar.

Reading in the current file in the MD780 gas detection control panel via the menu “**Receive**” in the drawer menu “Parameters” or via the icon “Receive” in the toolbar.

The data programming can be changed via the menu “**Change**” in the drawer menu “Parameters/Dossier” or via the icon “Change” in the toolbar. With the help of the menu “Change” the window “Settings” is opened and then all parameters can be adjusted via the tabs “Zones”, “Controls”, “Common controls”, “Outputs” and “Common”.

The “**Settings**” window is closed with the “OK” button. After completion, the adjusted data is transferred to the data screen of the MD780 configuration software.

You can send the loaded data to the MD780 gas detection control panel via the menu “**Send**” in the drawer menu “Parameters/Dossier” or via the icon “Send” in the toolbar.

The loaded data can be printed out using the menu “Print” in the drawer menu “File” or via the icon “Print” in the toolbar.

4.2 PARAMETERS

4.2.1 ZONES

The screenshot shows the 'Settings zones' window with the following fields and values:

- Zone: Zone1 (dropdown)
- Name: Zone 1 (text input)
- Type: Gas (dropdown)
- Active:
- Calibratie 0%: 78 (ADC Waarde)
- Open: 59 (ADC Value)
- Alarm 1: 10 LFL (%)
- Alarm 2: 20 LFL (%)
- Alarm 3: 30 LFL (%)
- Alarm 4: 40 LFL (%)
- Short: 410 (ADC value)
- Calibratie 100%: 391 (ADC Waarde)

Buttons: Previous, Next, Reset kalibratie zone, cancel, OK.

- “ZONES”**

The zone for which you want to modify the data is selected.
- “NAME”**

Each zone can be given a specific name. The name of a zone can contain a maximum of 20 characters.
- “TYPE”**

Gas and carbon monoxide detectors can be combined on the MD780 gas detection control panel. A choice is made between “GAS” and “CO”.
- “ACTIVE”**

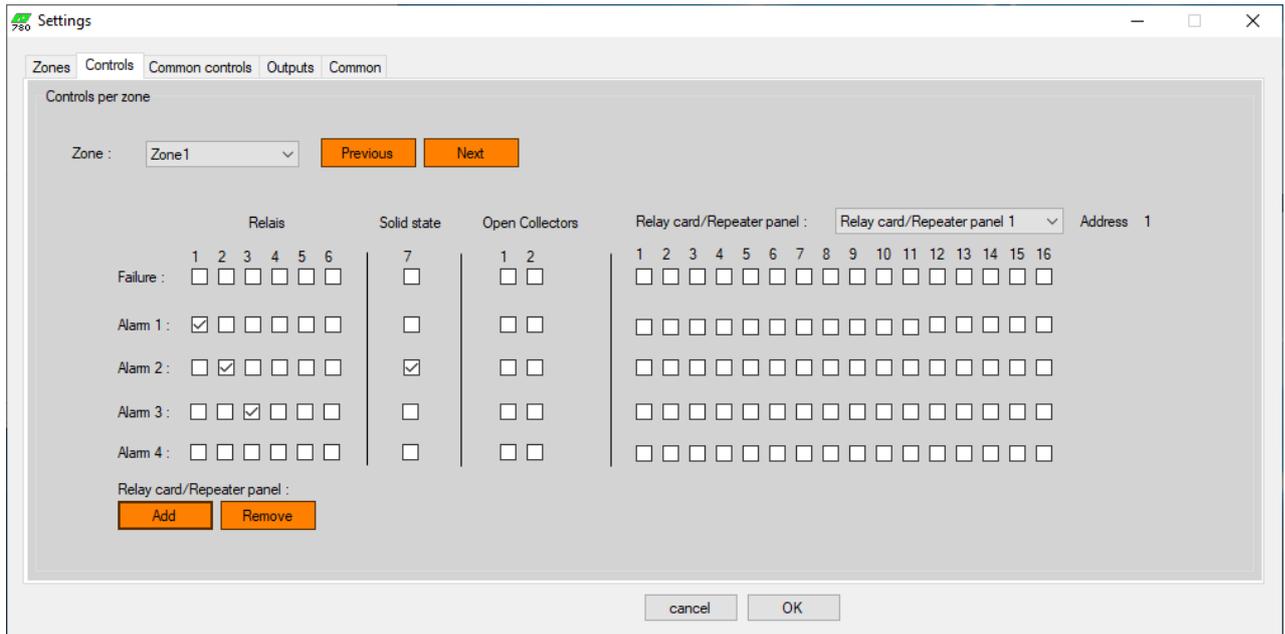
A zone can be completely deactivated by software by unmarking the checkbox. By software disabling a zone, the corresponding zone input is no longer monitored by the microcontroller of the control panel.
- “MAX. PPM”**

The maximum value can only be set if type “CO” is selected. The maximum measuring range of the carbon monoxide sensor can be set. This value is always set to “400PPM” if the zone is used in combination with an MD780 carbon monoxide detector.
- “ALARM 1 / ALARM 2 / ALARM 3 / ALARM 4”**

The different alarm thresholds for gas and carbon monoxide detection are set. The alarm thresholds are set in % LFL (**L**ower **F**lammable **L**imit) for gas detectors and in PPM (**P**arts **P**er **M**illion) for CO detectors. In practice, the thresholds for gas detectors can be set up to 100% LFL. However, it is recommended to use 50% LFL as the absolute maximum programmable threshold. By default, the alarm thresholds are set as follows :

	Gas detection Lower Flammable Limit	CO detection Parts Per Million
“Level 1”	10% LFL	50% PPM
“Level 2”	20% LFL	100% PPM
“Level 3”	30% LFL	150% PPM
“Level 4”	40% LFL	200% PPM

4.2.2 INDIVIDUAL OUTPUT CONTROLS PER ZONE



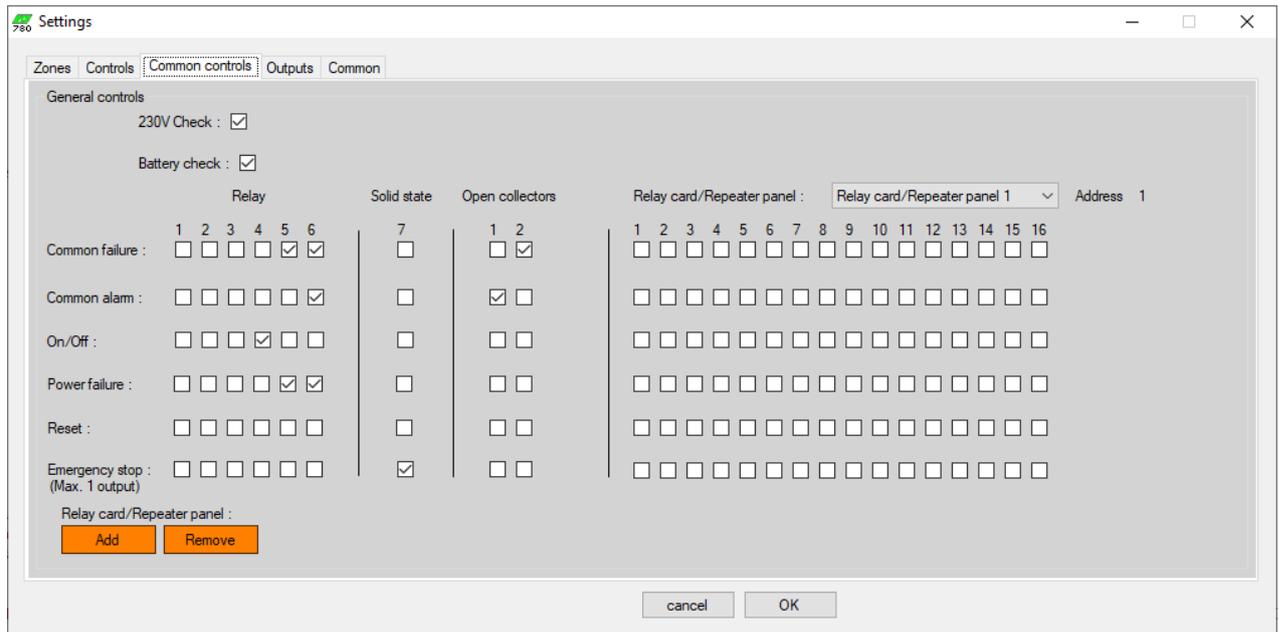
The MD780 gas detection control panel is standard equipped with 6 relay contacts, 2 transistor or open collector outputs and 1 solid state relay.

The individual output controls per zone are programmed in the “**Controls**” tab. One or more relays or open collector outputs can be assigned per zone and per alarm threshold.

The selection of a frame in the matrix means the activation of an output at the selected event.

The MD780 gas detection control panel offers the possibility to add up to 8 additional relay cards to the system. An additional relay card can be added by pressing the corresponding “**Add**” button. The addition of a relay card in the programming automatically results in this relay card being continuously interrogated by the system. Removing a programmed relay card means that this control is permanently removed and that this relay card is no longer controlled by the system.

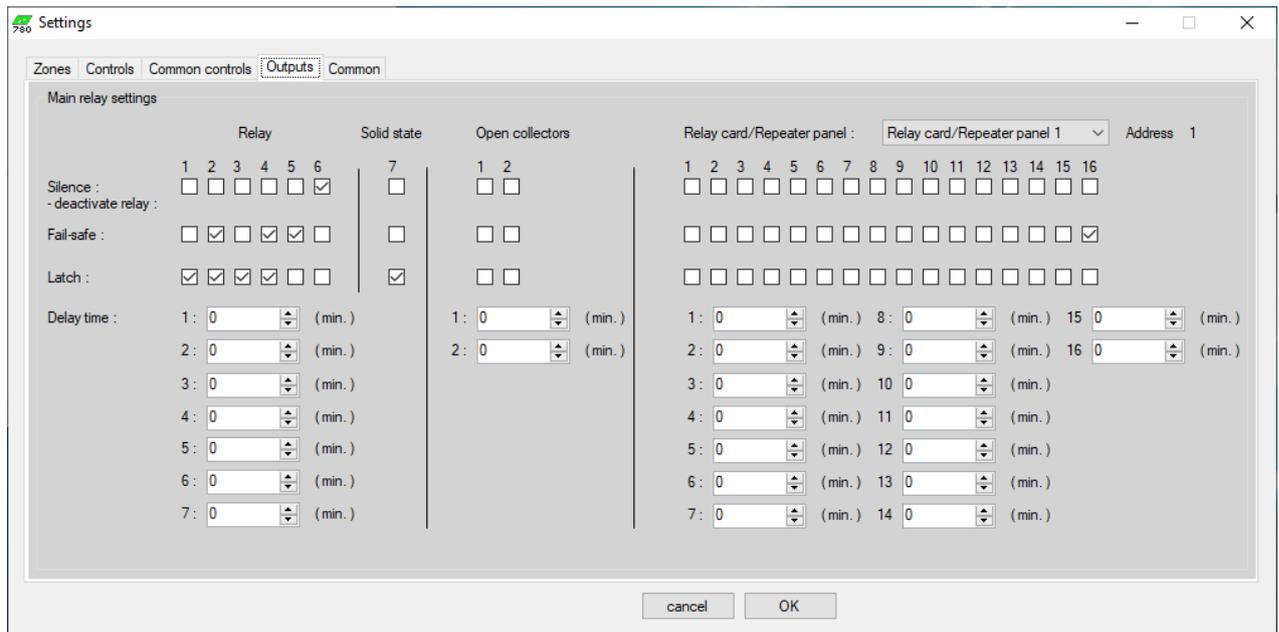
4.2.3 COMMON OUTPUT CONTROLS



In addition to the individual output controls per zone, a number of common output controls can also be programmed in the “**Common controls**” tab. These common output controls refer to the same relay and open collector outputs as the individual outputs.

- **“230V CHECK”**
The loss of the 230V mains voltage is indicated on the display and the “Power Failure” command is executed. When this option is not selected, the 230V check is no longer performed.
- **“BATTERY CHECK”**
Only if batteries are connected to the system, this option may be selected. Checking this option will require you to perform a number of extensive tests on the batteries. If the battery test fails, the corresponding specific error message will be shown on the display and the “Power Failure” command is executed.
- **“COMMON FAILURE”**
This output function is activated in the event of any error message from a zone or from a system error. This function is not executed in the event of a power failure.
- **“COMMON ALARM”**
This output function is executed with any alarm message (A1, A2, A3 and A4).
- **“ON/OFF”**
This output function becomes active as soon as one or more zone are placed out of service. This function is automatically reset as soon as all zones are in service again.
- **“POWER FAILURE”**
A power failure includes the indication of the loss of the 230V mains voltage and the various battery error messages.
- **“RESET”**
Operating the software “Reset” button ensures that the relays programmed during the reset are switched on for 1 second.
Note: a reset relay can never be programmed together with other events.

4.2.4 OUTPUTS



An output profile can be defined for each output in the **“Outputs”** tab. An output profile determines the behaviour of the output.

- **“SILENCE – DEACTIVATE RELAY”:**

The selected outputs switch to the quiescent position when the software “SILENCE” button on the display is operated. All non-selected outputs switch to the quiescent position when pressing the software “RESET” button.

NOTE : it is not possible to program a silence command on an ON/OFF command.

- **“FAIL-SAFE”:**

A fail-safe output switches according an inverse or negative logic. The coil of a fail-safe relay is permanently under tension at rest, so that the contact is permanently switched on. The coil of a fail-safe relay is voltage free when the event, to which the relay is assigned to, is reported on the gas detection control panel. Attention, the contacts of a fail-safe relay are always mentioned on the wiring diagrams, assuming that the coil is not powered.

- **“LATCH”:**

Latch can be translated as “memory function”. A “latched” output remains active until the command is enabled by pressing the “SILENCE” or “RESET” button.

EXAMPLE : a relay, assigned to alarm level 1 of zone 1 and set to switch back after “RESET”, will remain switched-on until after pressing the “RESET” button, if it has been programmed as “Latch”. Activating the “SILENCE” button or lowering the measured gas concentration in zone 1 below the alarm level 1 threshold will not affect this command.

A “non-latched” output follows the status of the event to which it has been assigned and automatically returns to its quiescent position when the event is no longer fulfilled.

The corresponding message on the display and the LED indicators on the front of the MD780 gas detection control panel also follow the status of the event.

EXAMPLE : a relay, assigned to alarm level 1 of zone 1 and set to switch back after “RESET”, will remain switched-on as long as the measured gas concentration exceeds the programmed threshold of alarm level 1, if it has been programmed as “non-latched”. If the measured gas concentration falls below the set alarm level 1 threshold, the relay output will return to its quiescent state. The message disappears from the display and the corresponding LED indication also disappears.

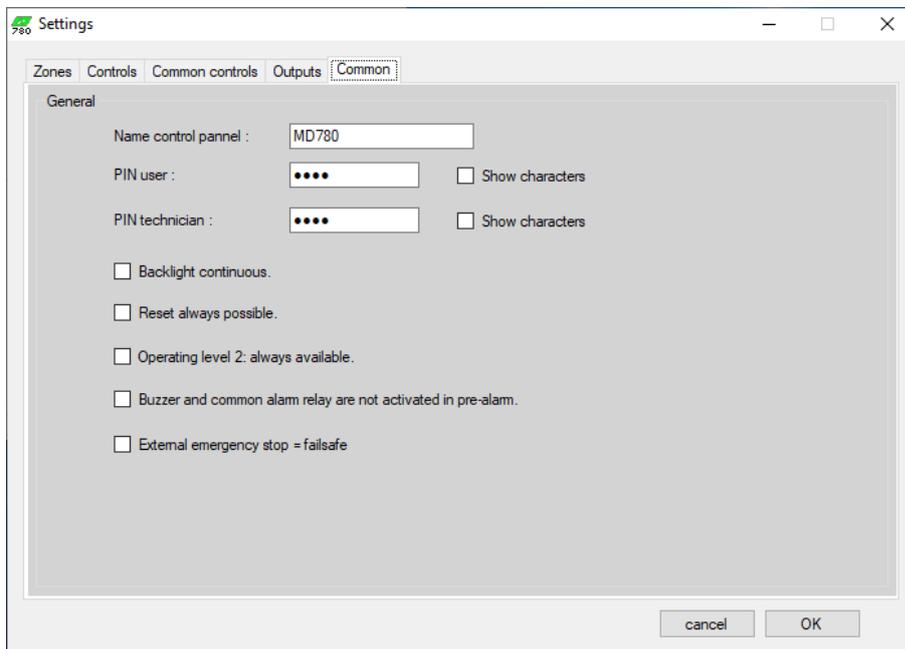
NOTES:

- If a “latched” and a “non-latched” relay are linked to the same event, the two relays will remain activated and the message will remain on the display until the “RESET” button is pressed.
- Reaching an alarm level with a “latched” relay automatically implies that all relays linked to the underlying alarm levels will also remain activated until the “RESET” button is pressed.
- A “common alarm relay” and a “common fault relay” cannot be programmed as “latched”. They always follow the current state of the system.

• **“DELAY TIME”:**

For each relay, transistor and solid state output, a delay time between 1 and 9 minutes can be set (programmable per minute).

4.2.5 COMMON



• **“NAME CONTROL PANEL”:**

The name of the control panel is continuously displayed in the control panel’s monitoring screen.

• **“PIN USER”:**

The access code, to access operating level 2 – user is set to “1234” by default. If desired, this code can be changed.

• **“PIN TECHNICIAN”:**

The access code, to access operating level 3 – technician, is set to “4321” by default. If desired, this code can be changed.

• **“OPERATING LEVEL 2 - ALWAYS AVAILABLE”:**

The user PIN code is disabled. Operating level 1 and 2 are accessible without entering a code.

• **“BUZZER AND COMMON ALARM RELAY ARE NOT ACTIVATED IN PRE-ALARM”:**

The buzzer and common alarm relay will not activate in case of a pre-alarm.

• **“EXTERNAL EMERGENCY STOP - FAILSAFE”:**

If this option is enabled the external emergency stop becomes failsafe. The emergency stop procedure will be started in case of in interruption in the wiring to the external emergency stop button.

4.3 FUNCTIONS

A number of online utilities can be executed in the **“Functions”** drawer menu:

- **“ANALOGUE VALUES”:**
Gives an overview of the different zones with their measured concentrations. There is an indication if the zone is active, out of service or in test. The choice can be made to show the current status or the measured current values of the detector.
- **“DETECTOR TEST”:**
During the detector test, the highest measured value achieved for each gas detector shall be memorized. In this way, all detectors can be tested, one after the other. The current status of the detector is displayed next to the measured concentration, to avoid leaving the detector test while there are still detectors in alarm condition.
- **“LOG”:**
The latest events of the control panel can be consulted. They are stored in the non-volatile memory of the control panel. The event are sorted by date and time.
- **“PERIFERY”:**
You can check if the optional relay cards are properly connected and if the address is set correctly. If they are green, everything is okay. The software version of each periphery can also be consulted.
- **“IN/OUT OF SERVICE”:**
The zones can be placed in or out of service.
- **“IN/OUT OF TEST”:**
The zones can be placed in or out of test.
- **“SILENCE”:**
Identical to pressing the software **“SILENCE”** button on the display of the MD780 gas detection control panel.
- **“RESET CONTROL PANEL”:**
Identical to pressing the software **“RESET”** button on the display of the MD780 gas detection control panel.

4.4 SETTINGS

- **“COMMUNICATION”:**
Here you set the correct port number to establish the serial connection.
- **“DATE/TIME”:**
Setting the correct time can be done via the software **“Current date and time”** button. The configuration software then takes over the time from your PC. If the date and time are set correctly, it can be sent to the gas detection control panel.
- **“LANGUAGE”:**
Language selection of the configuration software.
- **“LANGUAGE CONTROL PANEL”:**
Language selection of the control panel’s user interface.

4.5 HELP

The version of the gas detection control panel and PC-CONFIG can be consulted in the **“Help”** drawer menu. It is also possible to check the validity of the licence of the configuration software.

