PERIDECT

Perimeter Detection System – System Configuration

The description is related to the following version of the PERIDECT system: 2.0.4.0

Updated: 14/12/2016

Table of Contents

1   REQUIREMENTS

The Peridect+ configuration program is an application written in Java and requires the respective runtime environment support software to function correctly. The current version can always be downloaded at **www.java.com**.

The application was tested and its correct functionality verified within following OS versions: Win7, Win8.1, Win10.

It may work with Windows XP, but its correct function is not always guaranteed.

2   PROGRAM INSTALLATION

The installation is performed by running the installer, which is an executable file called

„sieza-peridect-gui-installer-2.x.y.z.exe" – where the number in the file name is the version of the file.

The current version of this program is always located on the SD card that comes with the CUP unit (for more information, see the Web Interface chapter).

The installation is conducted in several steps. After running the installation file, the following procedure follows:
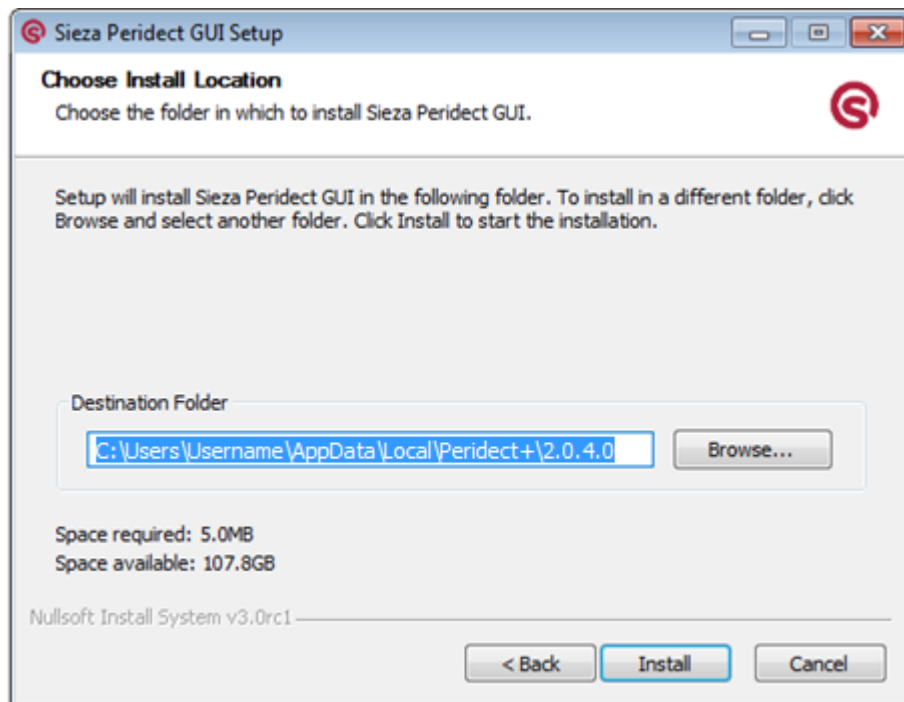
The target directory is the standard user directory of the currently logged user.

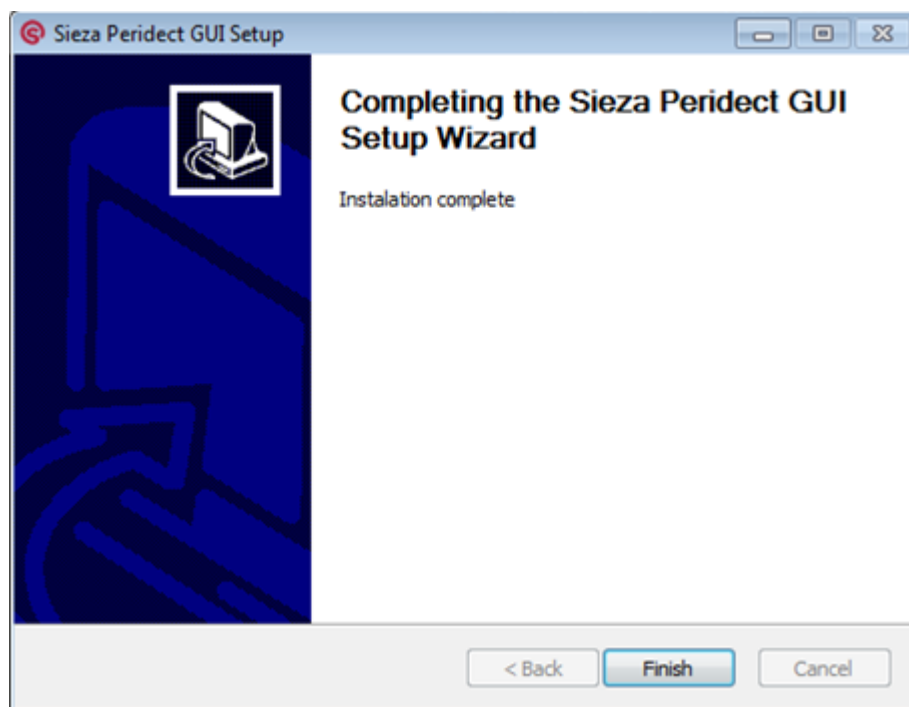After a successful installation, a shortcut is created on the desktop that can be used to launch the configuration program.

Peridect+ 2.0.4.0
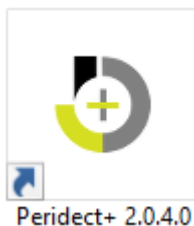
After the program has been installed, two directories are created:
c:\Users\"name"\AppData\Local\Sieza\peridect\2.x.y.z containing application system files and
c:\Users\"name"\SiezaPeridect for configuration data files, logs, exports etc.

3   LAUNCHING THE CONFIGURATION PROGRAM

The program is launched via the desktop shortcut or the program's system directory.

After launching the program, the following window is displayed

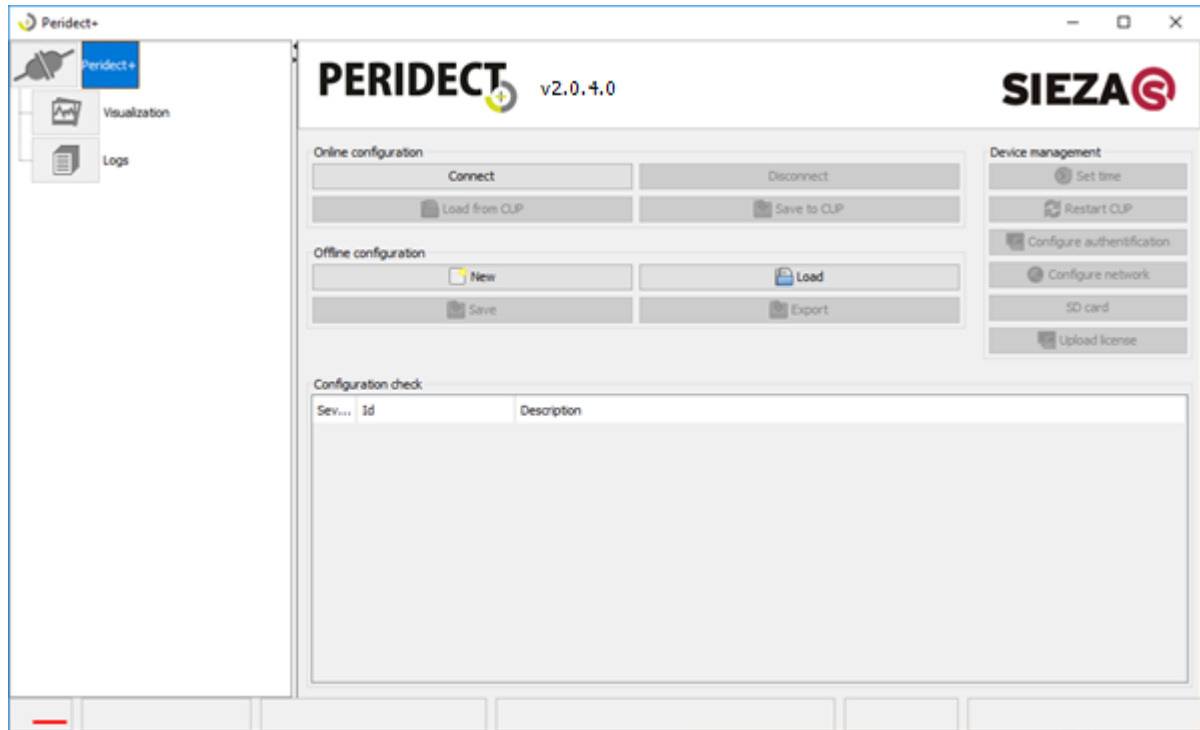Search for CUP units available within the network can be started by clicking connect button.

Note:

The CUP units respond at port 30303 as soon as a datagram is received with just one byte of value 'D' in the message body, the unit responds back at the same port of the device that sent the information. It is therefore necessary that the network element setup allows submitting this query in order to successfully locate the CUP. As long as you know the IP address of the CUP, it is possible to input it into the "address" field and connect to the unit without searching.

A window opens, displaying names and addresses of the available CUP units, as well as a history of previously connected units (light grey items).
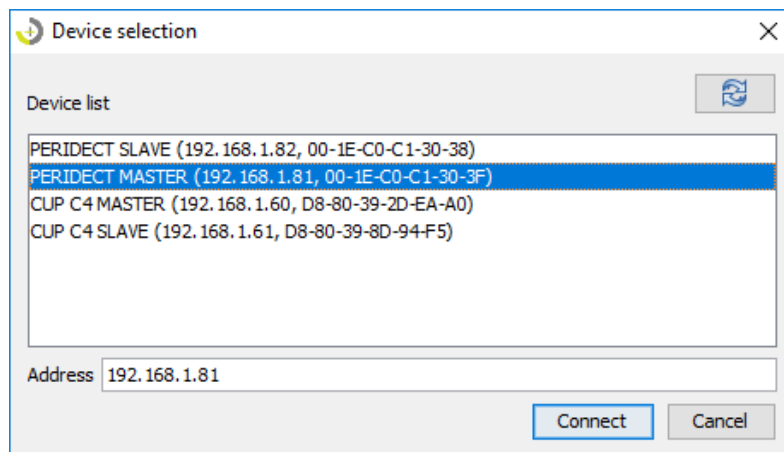
After selecting a CUP, RTU Key for each unit is needed. You can find this key next to GUI installer on SD Card or by writing to SIEZA support. We recommend deleting this key file after copying to your computer. This key should not be given to end user. After inserting the key, connection is established and the current CUP configuration is loaded into the configuration program. The access to the unit can be password-protected. If the unit is set up in such way, it is necessary to log in prior to downloading the configuration.
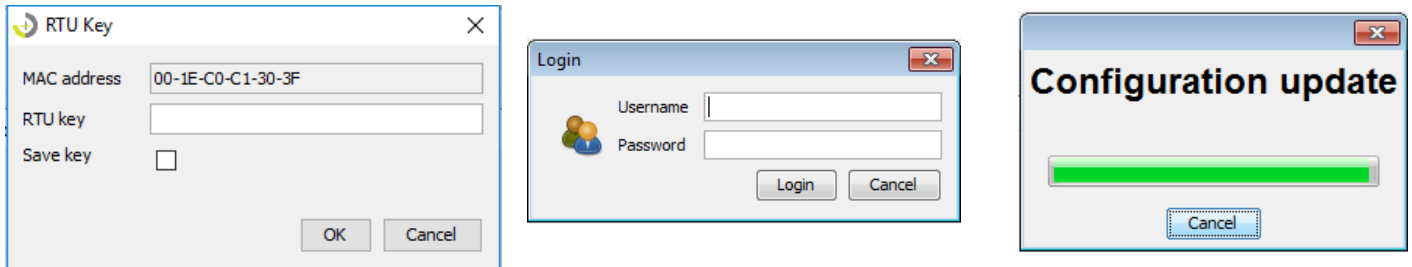
After this step, it is possible to start adjusting the CUP configuration.
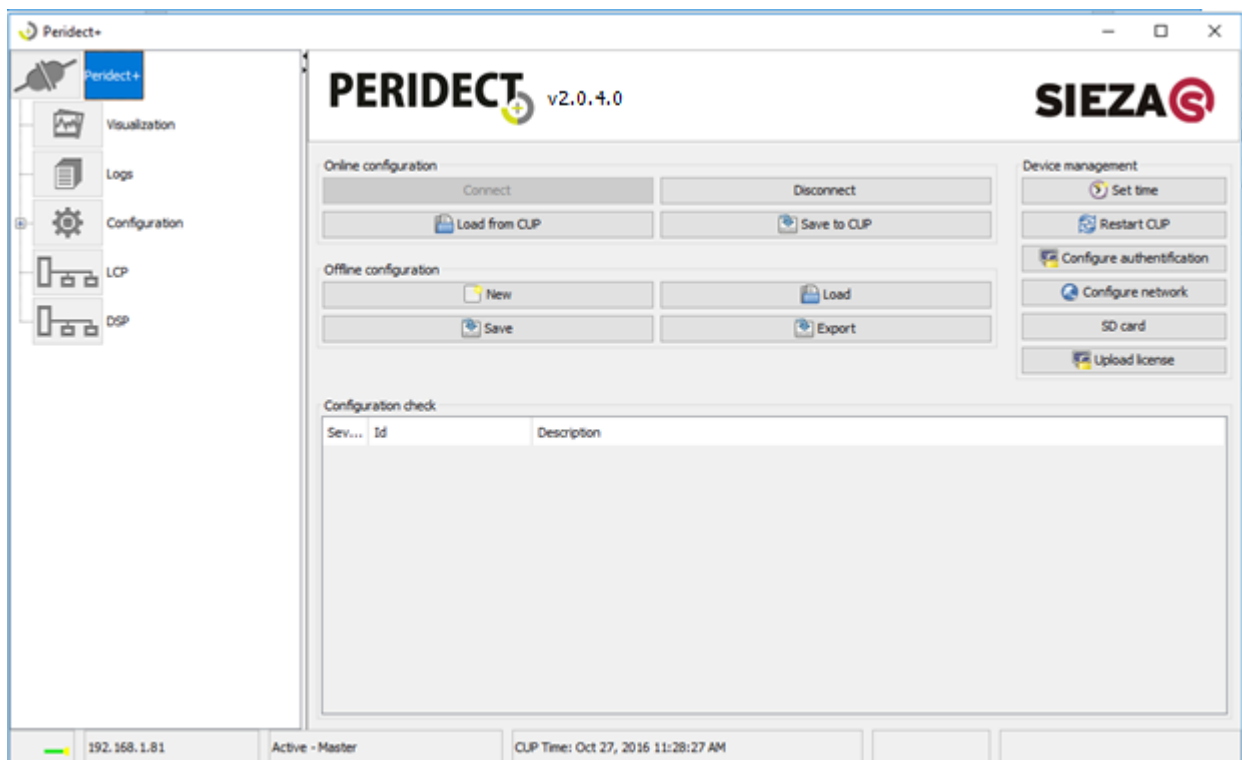
Status line – placed in the bottom part of the main window. The running cardiograph indicates proper communication with CUP at the listed IP address. The actual unit mode and its internal time are also displayed.
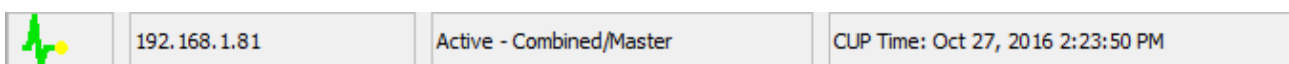
⚠️ *Because of the integrated ONVIF-S protocol it is necessary to synchronize all devices (CUP, IP Camera, Server, Visualisation, etc.) to correct time. Time difference between all those units should not be more than 5 seconds.*

4   EQUIPMENT MANAGEMENT

Basic CUP configuration functions
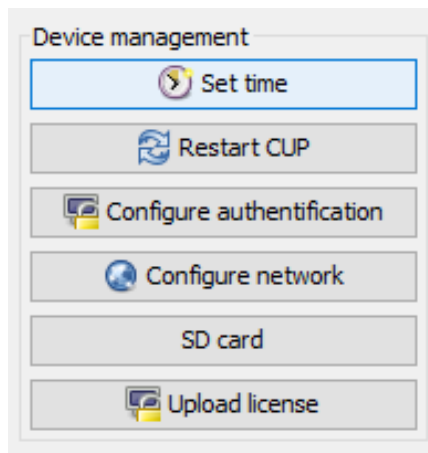
Set time – click this button to open an editing window that allows you to manually set the CUP time or use the time of the configuration PC. The time setting is performed immediately after closing this window by clicking OK.
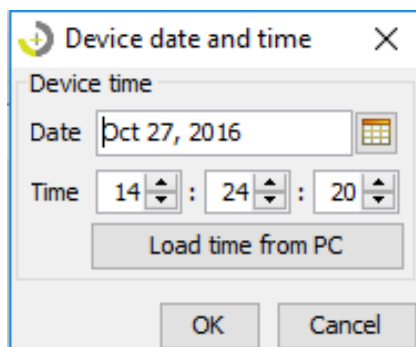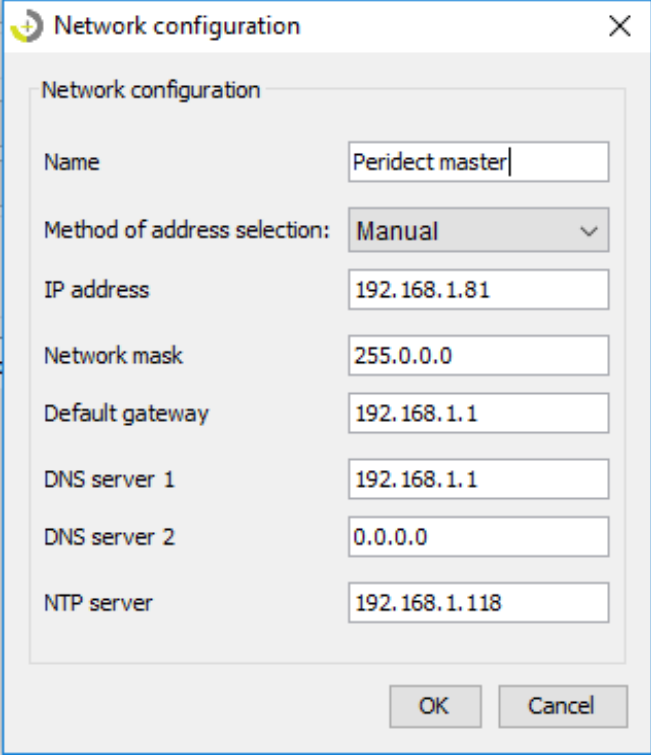
Restart CUP – a command to restart the CUP.
Configure authentification – the CUP can be accessed using a login password, which can be set using this window.
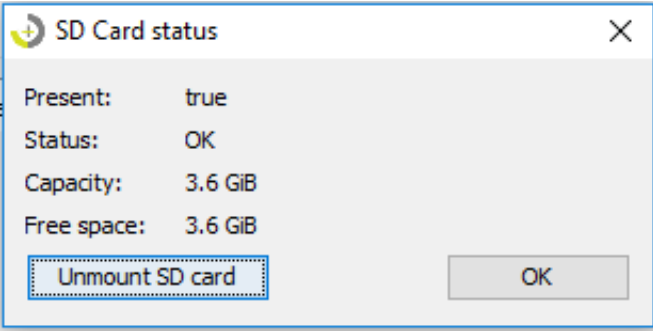
Configure network – this window is used to edit the CUP network configuration.
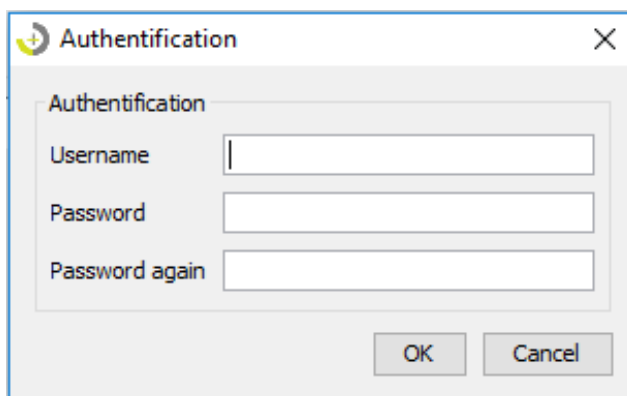"Name" is an optional item. If skipped, the unit is displayed within the network under the same name as its IP address.

SD card – SD card is used to save the CUP configuration and save all events. CUP does not record history as long as the SD card is not put in. If you need to remove the SD card during operation (e.g. to list the history), it is necessary to either shut the unit down or unmount the card.

Unmount SD card – after unmounting you can disconnect SD card from CUP and put it to your PC (for example to back-up GUI or RTU key). After connecting the SD card back, it is necessary to restart the CUP.

- CUP cannot operate without SD card
- You can set NTP server even on the web page of the CUP (it is recommended to set NTP through web)

5   MAIN APPLICATION WINDOW

5.1   Basic Subdivision

The application is visually divided into 4 parts.

- Left – Main menu of the application
- Top right – Name of the current configuration page
- Right – Configuration panel area
- Down – Status panel for displaying operation-related information
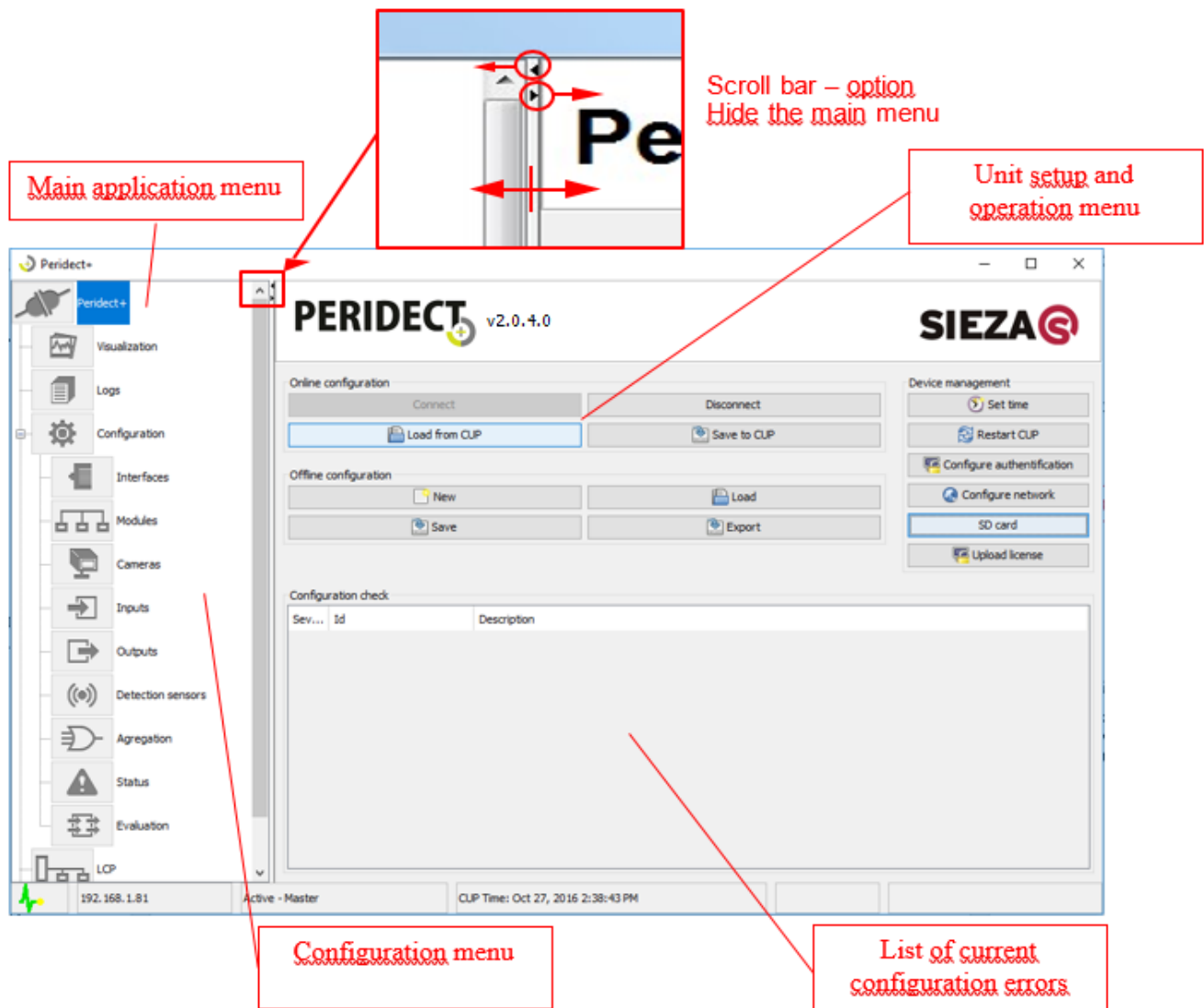
The application menu is separated by a scroll bar that can be hidden if required.

5.2   Title Panel

The title panel contains following parts:

Unit control – allows you to connect or disconnect the unit, load a configuration, set time for the unit, work offline with the configuration, force unit restart and configure the access to the unit and its network configuration.

- Configuration file management – allows you to load and save the configuration in XML format and export it into the SIPB binary format used by the unit. These files can be loaded without the configuration file – see below.

- Information table containing the errors of the currently loaded configuration displayed in several levels. This table works in dynamic fashion; when settings are changed, it is automatically verified if the set parameters are functionally correct and support the HW configuration.
  - *Critical* – Either the configuration error is so significant that it is impossible to load the configuration into the unit as it would compromise the unit behaviour or the settings are meaningless.
  - *Warning* – Can result in skipping many important parts of the configuration that the system will work without, but may not work as expected.
  - *Informative* – These do not influence the functionality, but it is still good to keep track of them.

6   VISUALIZATION

6.1   Selecting a Visualization Mode

The visualization is subdivided into two functional parts.

- Online mode – process data from the connected unit
- Offline mode – view loaded data from a file

6.2   Visualization Panel

The visualization panel consists of several panes. These can be moved and resized.
The basic displayed panels include progressions of inputs, outputs and sensors.
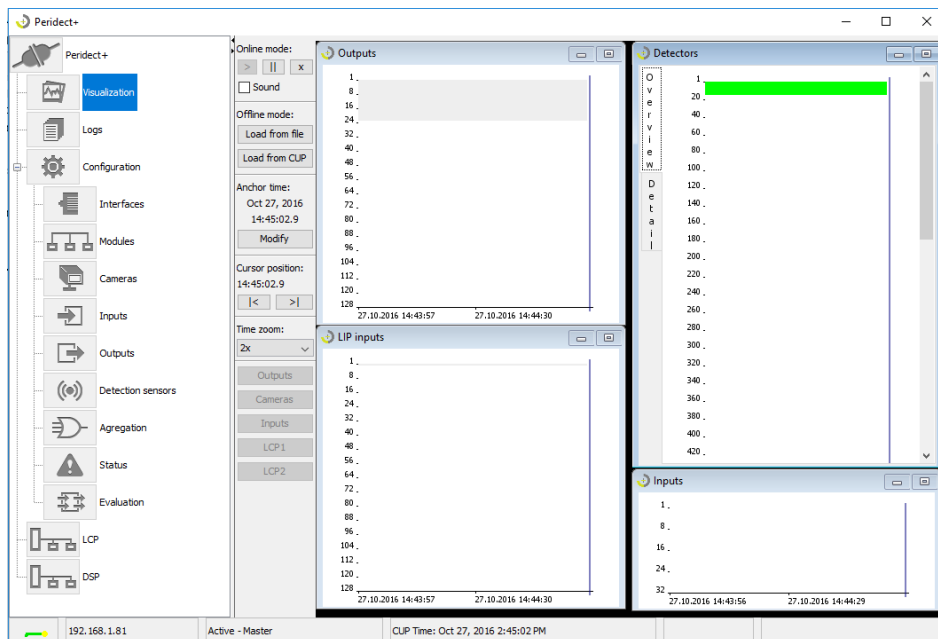
The visualization control panel is used for cursor movement and setup of the displayed part during offline viewing. For cursor movement within the record, it is possible to directly set the desired time in "Anchor time", move the cursor with your mouse or using the "Cursor position" buttons.

In certain modes, it is also possible to enable the output and camera setup testing panels (combined mode and slave mode), as well as the input and sensor simulation mode (logical ling testing mode). There are two views available in the Detectors panel. The "Overview" tab is used to display all module addresses within the bus. On the "Detail" tab, you can specify addresses of detectors to display in detailed view. The field size adjusts to the number of detectors. It is also possible to adjust the display with the scrolling tool at the bottom of the window.

The offline display data can be loaded directly from the CUP or using a previously downloaded and saved log.

Online mode – this mode is enabled by clicking the "Play" button, after which all windows display current values of detectors, inputs and outputs. Further control is available in form of the "pause" and "stop" buttons. Using the "sound" feature, it is possible to enable an auxiliary indication – beeping sound – that reacts to a detector experiencing the alarm status. For displaying in the detector window, same principles apply as in the offline mode.

7   RECORDS

Event window

Event detail window selected in the upper window

Available event filters

This item is used to view the CUP unit log. The log can be loaded online from a unit or by opening a previously downloaded file. To locate the desired event more easily, filters can be used to only display the events of selected types. Click "Add a filter" to open a menu of filters that can be used. The filters can be combined with each other.
The log can be saved in full, unfiltered form or filtered to save only certain events.

This is how the filter windows look like after being selected from the menu.

You can also search the list of internal status changes recorded in the event log using the text filter.

Id	Description
W 1	LCP 1 Error
W 2	LCP 2 Error
W 3	IOP/485 Error
W 4	IOP/LAN Error
W 5	Ethernet Error
W 6	Onvif Error
W 7	Real Time Clock not set
W 8	Temperature over Treshold
W 9	Temperature under Treshold
W 10	DSP on LCP 1 Error
W 11	DSP on LCP 2 Error
W 12	LCP 1 Active
W 13	LCP 2 Active
W 14	LCP 1 Designated Slave
W 15	LCP 2 Designated Slave

8   CONFIGURATION

"Configuration" tab, you can set configuration parameters of connected devices and their interconnection via logical links. All changes made in this section will take effect only after uploading the configuration into the unit and restarting it.

8.1   Basic Concept of Interconnection

The configuration is divided into several parts.

- Communication interface settings (speed, addresses)
- Settings of individual modules connected to the unit
- Settings of logical perimeter components
- Settings of input events
- Settings of logical links
- Settings of output events
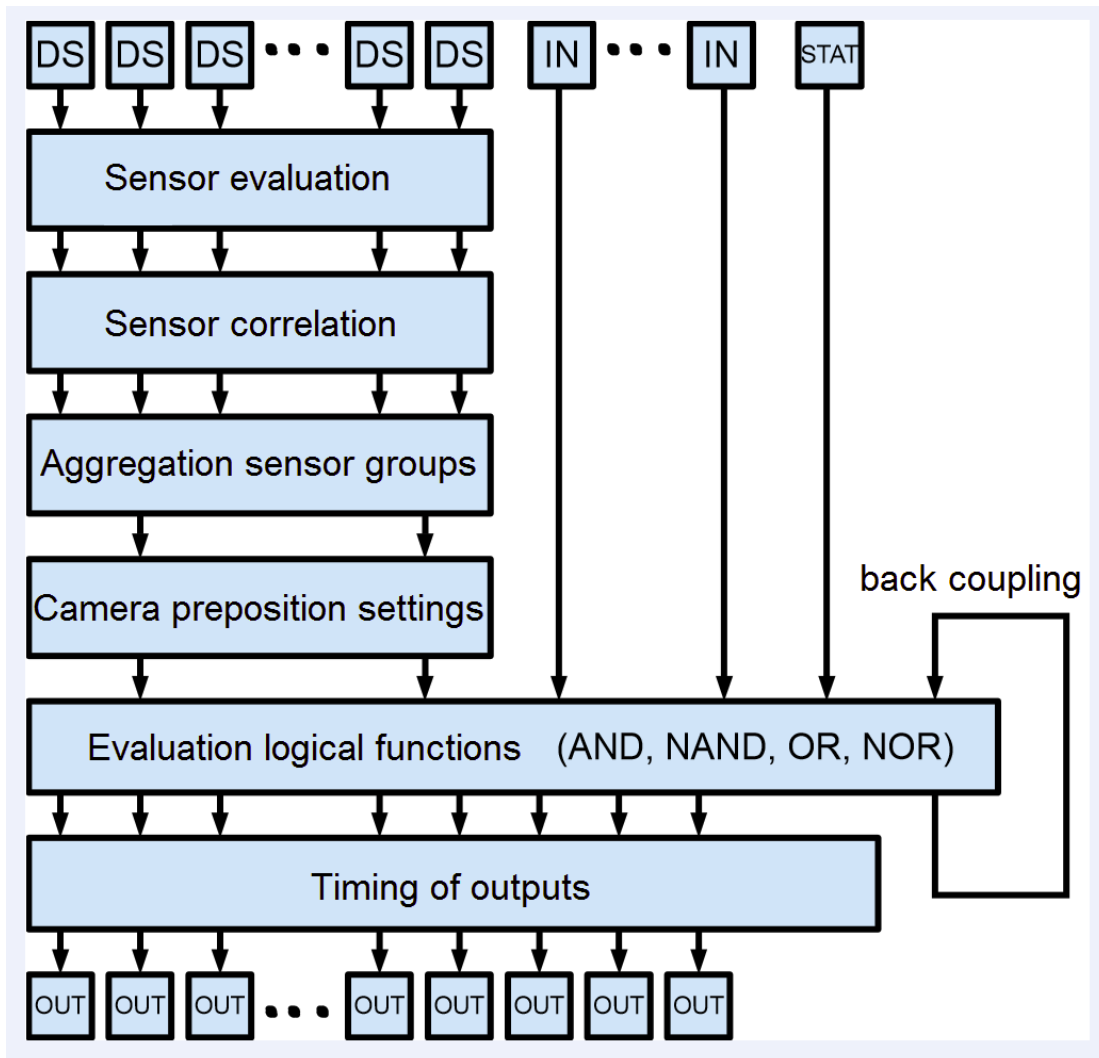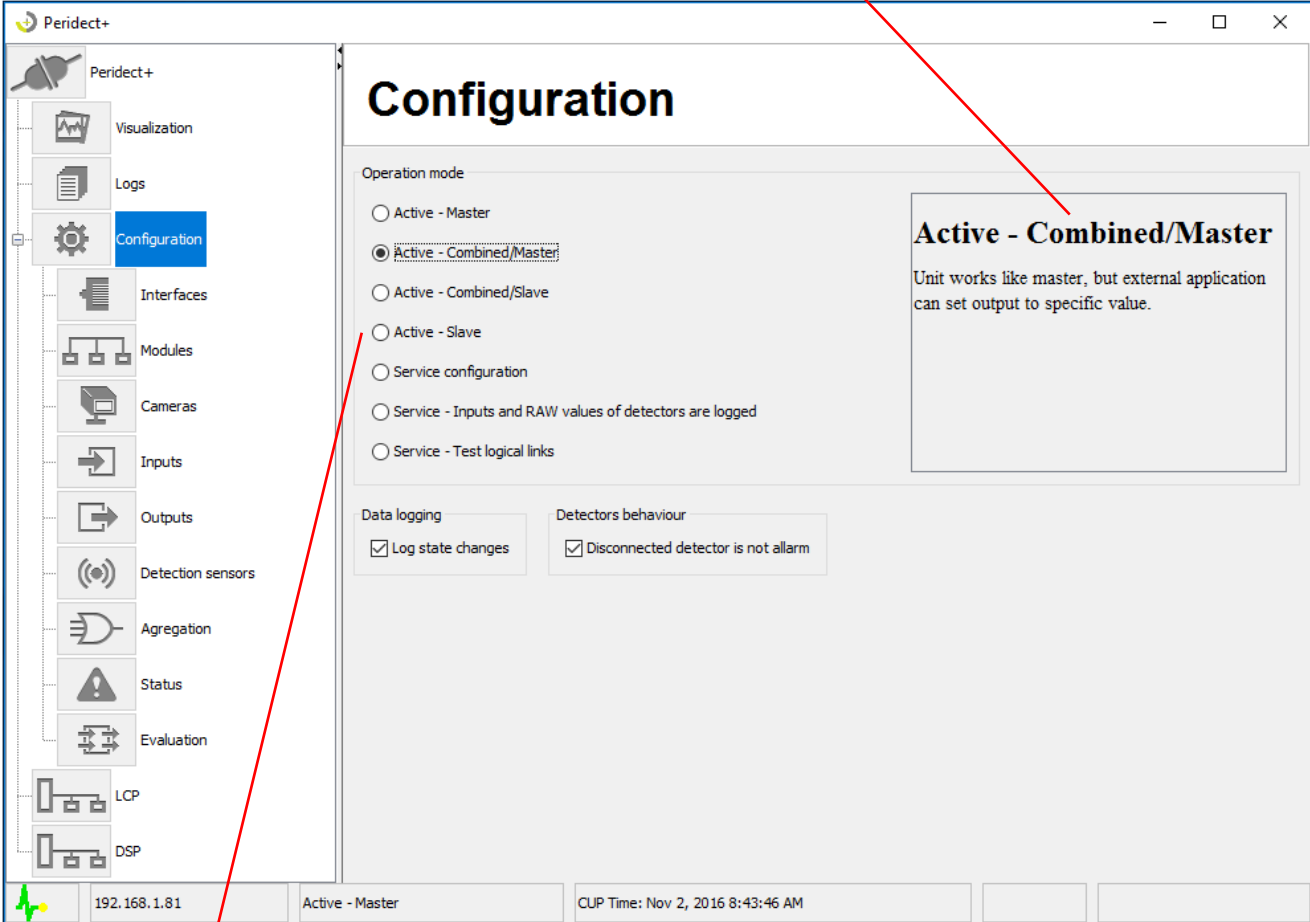
The following picture shows a block view of internal structure of CUP unit evaluation.

8.2   Unit Mode Selection

The unit can be set into one of four operation modes or in several other special testing modes. The testing service modes cannot be used for real operation.

Function description window for the selected operation mode

List of available operation modes

The individual modes differ in terms of output control options. They are equal in terms of input signals.

Master – the CUP unit performs evaluation according to the settings, controls the programmed outputs and these outputs cannot be controlled using external commands.

Slave – the CUP unit performs evaluation according to the settings but does not control the outputs. These can only be controlled externally.

Combined – the CUP unit performs evaluation according to the settings, controls the programmed outputs and these outputs can also be controlled using external commands. The outputs then respond by considering the last command a final status.

Slave/combined – the CUP unit performs evaluation according to the settings. If queried by the superstructure, it behaves like in the "slave" mode. When the CUP stops being queried, it waits for a set time period and then assumes the "master" mode. After the querying has resumed, the unit reverts to the "slave" mode. This way, it is possible to back-up the graphic output of the superstructure SW using the outputs, retaining the signalization in case of an outage.

⚠ All those operation modes are used only for CUP to visualisation purposes. They acctualy do not represent setting of master/slave (redudant or backup) mode.

8.3 Interface Settings

The unit features one ethernet port, two RS-232 serial lines and one RS485 line. The communication speed and other required time parameters can be set for all these lines.
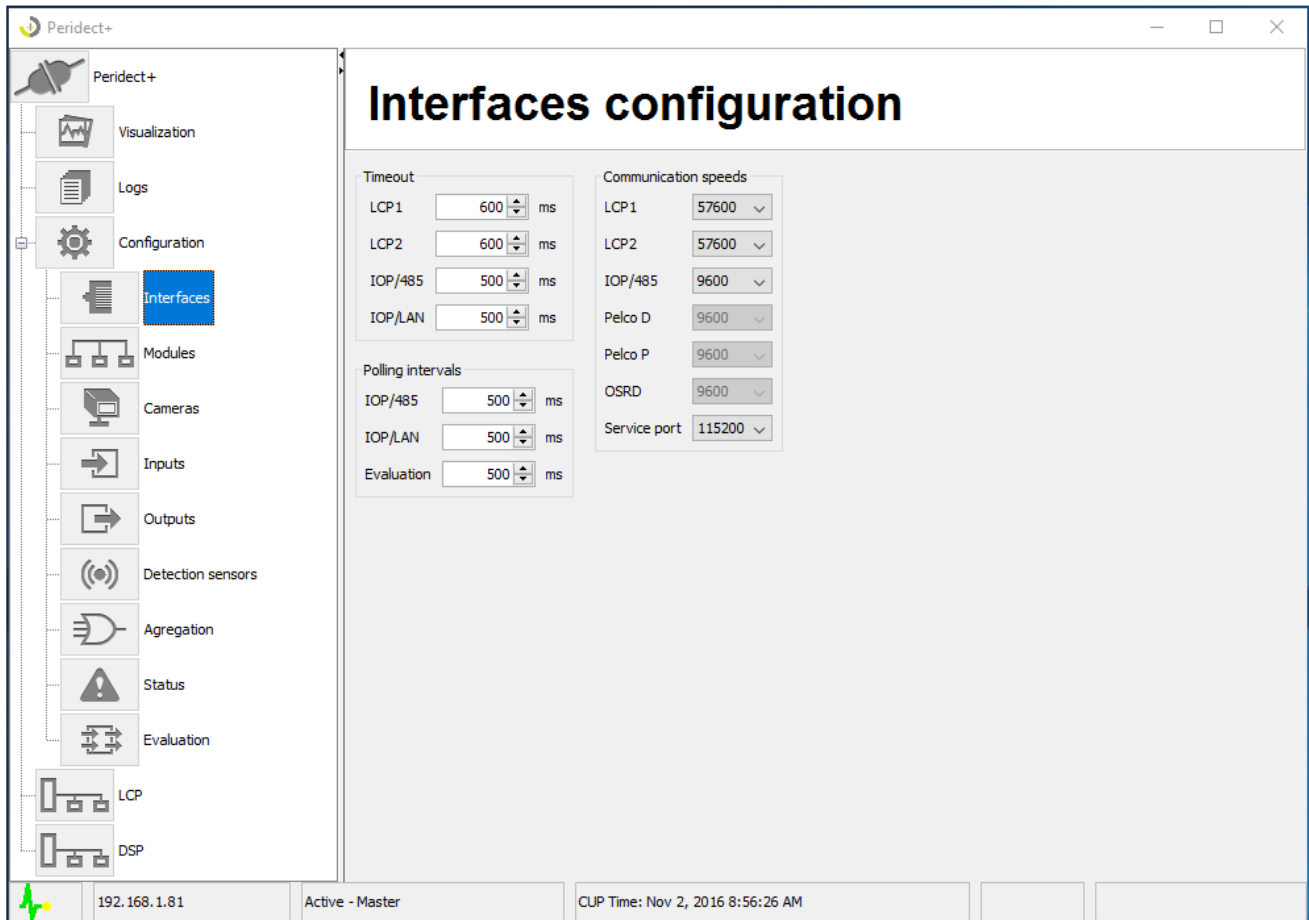
The two serial RS232 lines are used to connect the LCP line modules. The RS-485 is used to communicate via the MODBUS protocol, as well as usage of PELCO and OSRD protocols.

The parameters in the "timeout" window determine the time period the CUP unit waits for the module to respond before it declares a timeout. The "polling intervals" parameters determine the frequency of operation – the specific interface or process.

8.4 Module configuration

Each module connected to the CUP has to be configured within the CUP. The basic parameters include used protocol and module address. Protocol designation is the same as the module designation. The address type is determined according to the used protocol. For ethernet modules, it is the IP address; for serial interface modules, it is a decimal value. In case of ModbusTCP IP, the module address is the IP address, including the port number – „192.168.1.20:502". The default port of ModbusTCP is 502. When using the default port, the port number does not have to be specified. The address is not specified for the CUP unit. For LIP modules, it is necessary to specify and address in range of 1–1000, according to which LCP is the LIP module connected to.

The module ID module is the module's identification number within the CUP, used as a reference number for other functions. It is advisable to create description for individual items in the "popis" (Description) column in order to be able to navigate around the configuration more easily and eliminate configuration errors.

Protocol types:

CUP – has to be used upon input or output usage request within the CUP
LIP – has to be specified an case input modules of the LCP module are to be used
IOP/LAN – settings for communication with ethernet I/O modules, uses the TCP ModBus protocol
IOP/485 – settings for communication with I/O modules of the RS485 interface, uses the ModBus protocol

8.5 Camera Setup

The camera setup is similar to module setup The PELCO and OSRD modules behave in similar fashion as the MODBUS protocols and their address are whole decimal numbers.

The Onvif protocol utilizes ethernet connection and web service within the camera. For this camera, it is also required to specify the login information and camera profile.

For all cameras, it is also possible to specify a home preposition and time it will take it to return to this position.
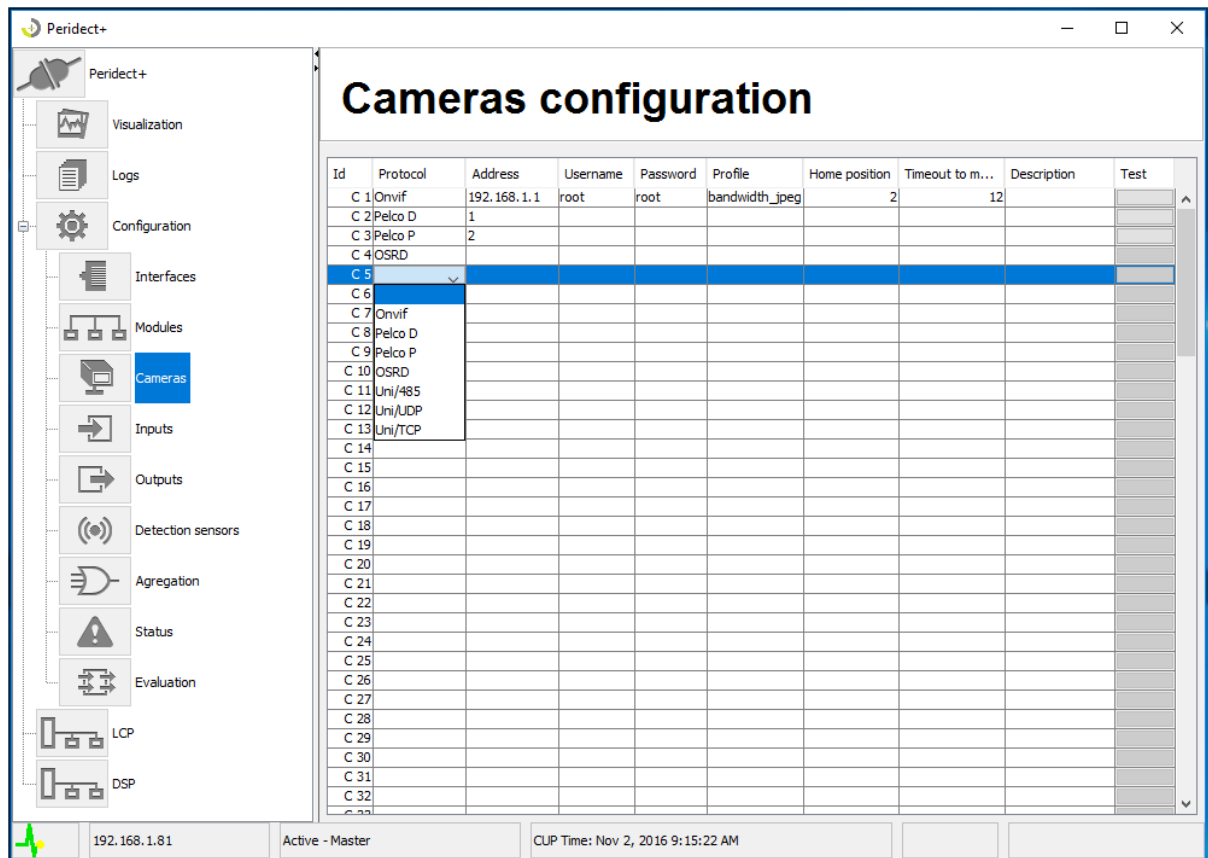
It is possible to test the proposition setting using the test button for analog cameras. For Onvif-based cameras, there is a wizard that can be used to view and test the required information regarding the correct function and settings of the camera.

The auxiliary wizard requires to input the camera's IP address and login information applicable for the Onvif protocol. For correct function of an IP camera and its wizard, it is necessary that its internal time does not differ from the time of the CUP and the configuration PC by more than 5 seconds.
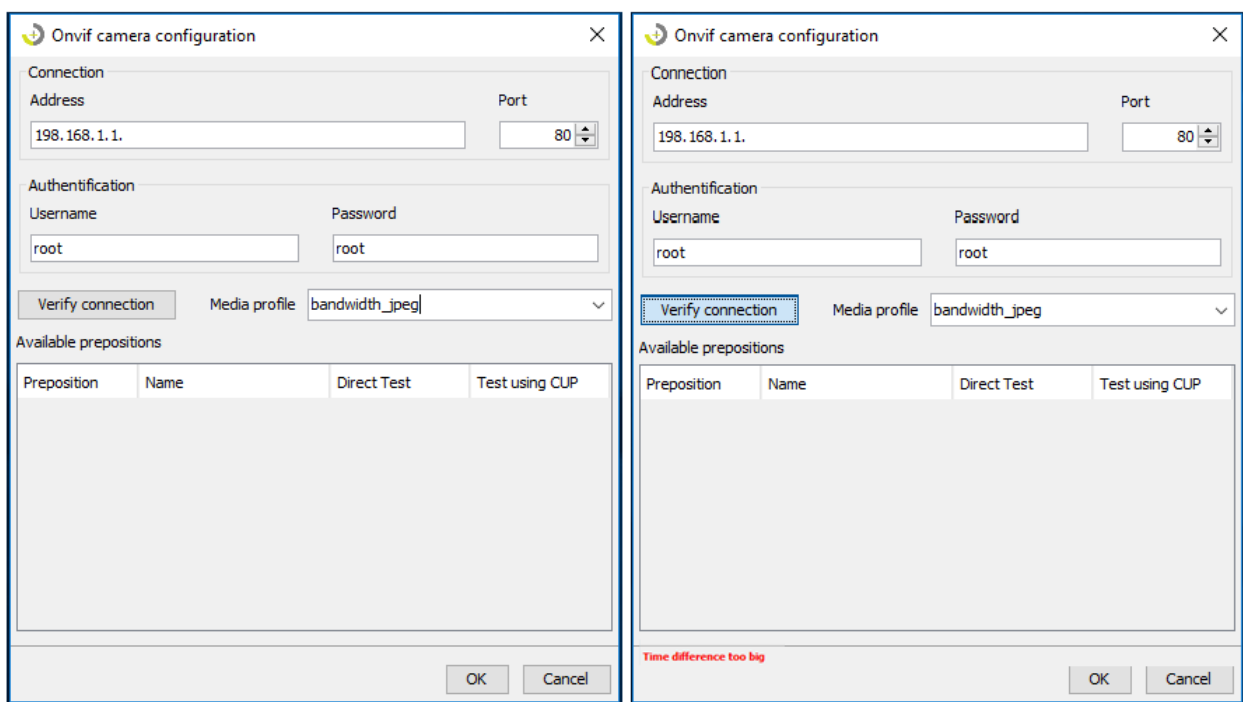
In case of a difference greater than 5 seconds, a warning is displayed regarding the difference and it is no longer possible to receive the required data from the camera.

Tip: The CUP unit is equipped with internal NTP server, meaning it is possible to set the time synchronization in relation to CUP, ensuring unified time within the whole installation.

As long as the time is synchronized, information regarding the used profile and preposition numbers is received from te camera. The preposition numbering may differ from the numbering visible via the camera's web interface.

For further settings that refer to the camera prepositions, it is therefore necessary to use preposition numbers as retrieved using this tool.

It is possible to immediately test the command to turn the camera into the selected preposition using the „Direct test" and „CUP test" buttons. „Direct test" sends a command from GUI to the camera; „CUP test" sends a command via CUP. This also verifies that the CUP – camera connection is correct.

8.6   Input Setup

A pre-set module is selected for each input, as well as a module the input is located at and its input number within the module. Optional description of the input can be added. The selected row can be copied into a selected number of rows below with the "Clone selected row" button. This can speed up the process of defining a higher number of inputs for one module.
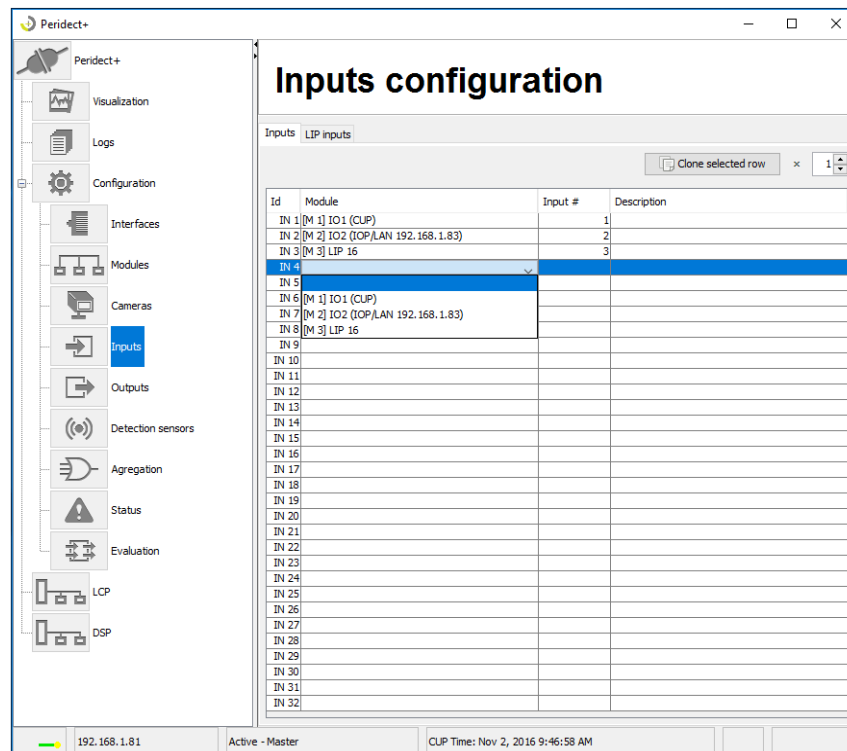
8.7   Output Setup

A module is selected for each output, as well as a module the output is located at and its output number within the module. Optional text description of the output can be added. The selected row can be copied into a selected number of rows below with the "Clone selected row" button. This can speed up the process of creating a higher number of outputs for one module.
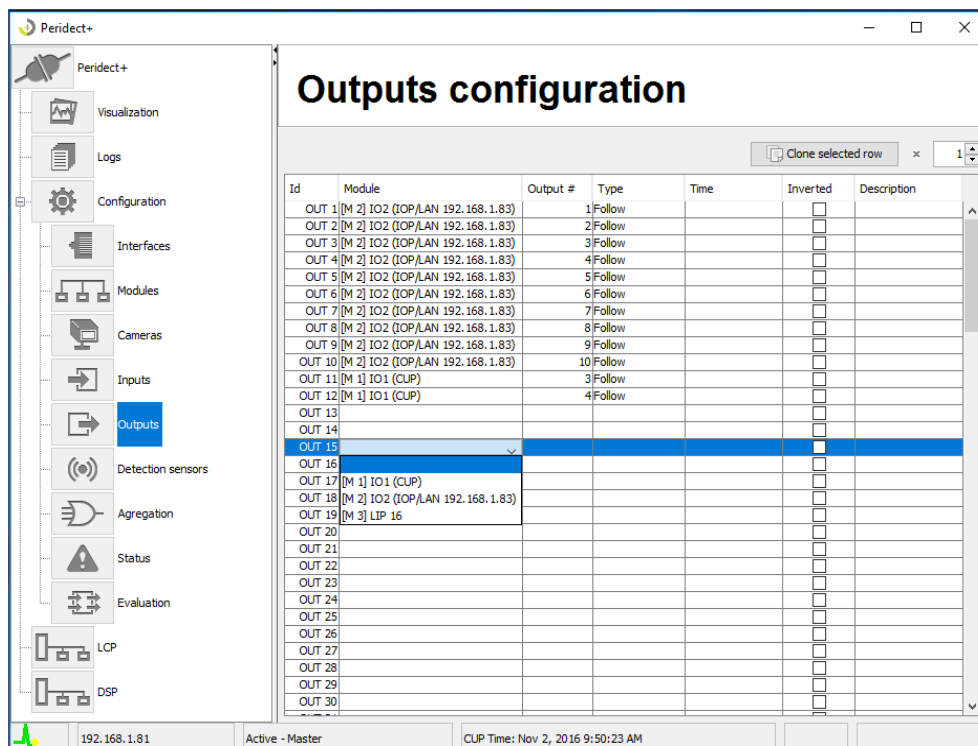
There are more possible and mandatory options for the outputs. In the "Type" item, output setup can be selected that defines its behaviour towards an event that triggers or influences it.

- Follow – the output status copies the event attribute that has caused the output activation.

- Pulse – the output activates upon the entering edge of the event attribute and generates pulse. The output cannot be controlled until the pulse expires.

- Time – a time period starts at the running edge of the event attribute during which the output is set. Each entering edge of the event attribute resets this time to the starting value. If the time expires, the output is set as inactive, regardless of whether the event attribute is still active.

- Delay – delay of the exiting edge of the event attribute. If the event attribute is active, the output is also set. In case the entering edge of the attribute event takes place, the output stays active for the set time.

For pulse, timed and delayed-type outputs, time is a required parameter.

8.8   Sensor Setup

The detection sensor configuration allows you to create logical segments as logical parts of the perimeter.

Each used detector has to be located in some logical segment. Logical segments are intended especially for comparing the events to each other among individual segments. See further chapters. If the comparison is not utilized, all detectors can be put into one segment.

The detector table is used to set an alarm condition individually for each detector. The CUP unit receives processed data from LCP modules in form of alarm statuses for each detector. The alarm condition then defines how many of these alarm statuses (how many times has the alarm been triggered) have to be loaded and in what time frame since the first one (the pre-alarm time window). If the set condition is satisfied, the event is forwarded in order to be processed. The "Alarm time window" has to be set to a non-zero value. In comparison mode, this parameter determines the waiting time for alarm confirmation from the comparison segment.
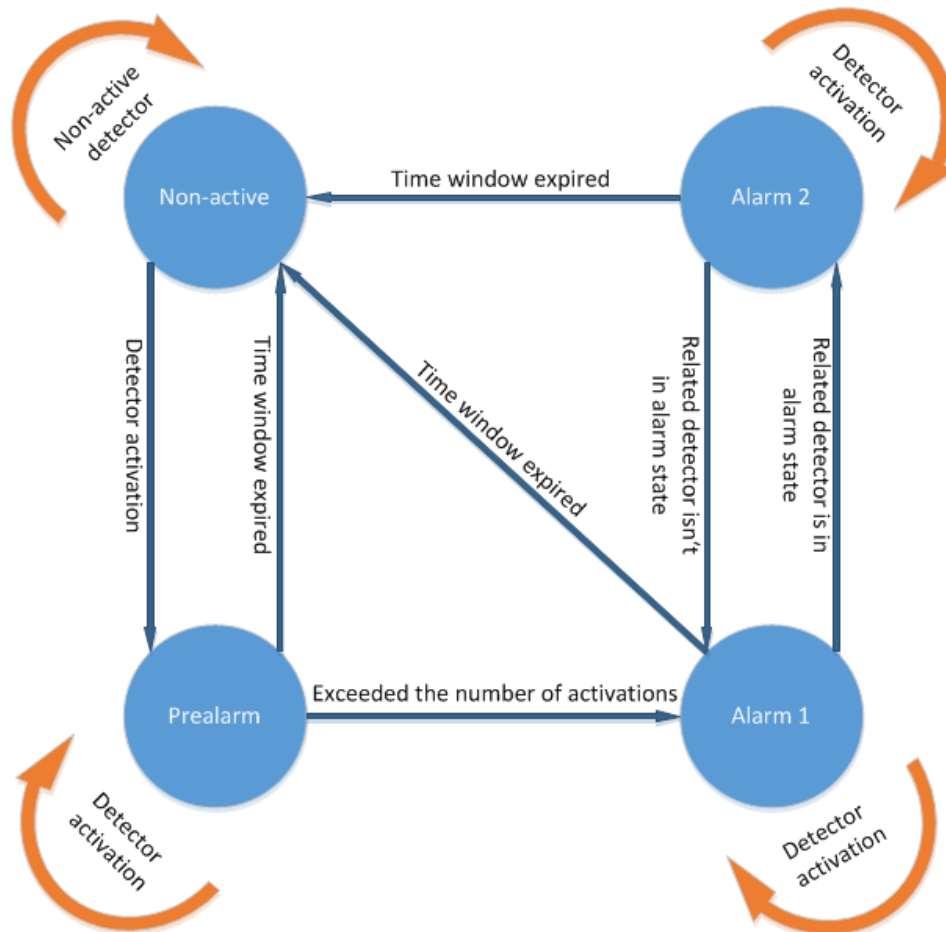
This picture shows the logic of event evaluation (the status automat) and the relation between the segment comparison mode can also be recognized.

9   SEGMENT COMPARISON SETUP

9.1   Zone Setup

Prior sensor segment definition is required for this. The segments can also by cyclical. There has to be at least one set up.

9.2   Comparison Setup

For each sensor, a range of sensors can be assigned within the referential segment that this sensor is to be compared with.

If the segment has the "Compare" attribute, comparison with the referential segment will be performed. The same segment can also be set as a referential segment (the S1 segment can have S1 as a relative segment).

9.3   Linear Segment
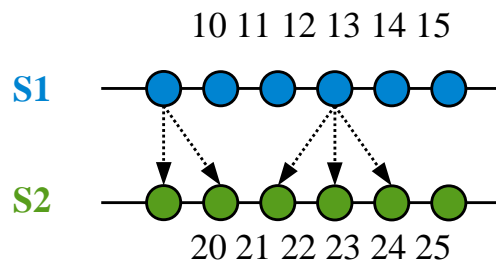
The picture shows an example of detector configuration. Segment S1 consists of detectors 10–15, segment S2 consists of detectors 20–25. Let's say we need to set that the alarm information in S1 is also compared with detectors in S2, but not the other way around. Detectors in S1 can therefore also assume the status of "Alarm to compare – Alarm 2" while detectors in S2 can only assume the standard "Alarm 1" status.

We set the segments according to the table:

Id	From index	To index	Cyclical	Compare	Reference segment
S 1	10	15	NO	YES	S 2
S 2	20	25	NO	NO	

and the individual detectors according to the following table:

Id	Compare start address	Compare stop address
D 10	20	21
D 13	22	24

The „Compare start address" and „Compare stop address" values cannot be set beyond the range of the S2 segment. The "Compare start address" value always has to be lower or equal to the "Compare stop address" value or else the setup is invalid.

During every testing, a status automat activates above each configured detector.

9.4   Cyclical Segment
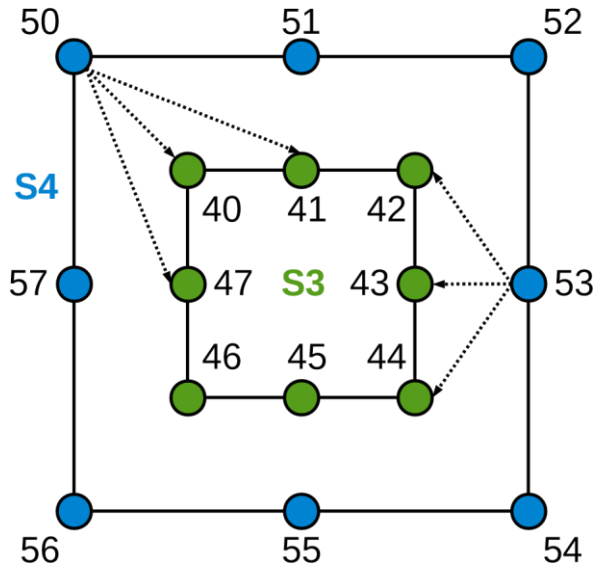
In this case, the S3 segment consists of detectors 40–47 and the S4 segment consists of detectors 50–57. Once again, we can presume that we need to compare the S4 segment to the S3 segment, not the other way around.

The segment setup is done according to the following table:

Id	From index	To index	Cyclical	Compare	Reference segment
S 3	40	47	YES	NO	
S 4	50	57	YES	YES	S 3

and the individual detectors according to the following table:

Id	Compare start address	Compare stop address
D 50	47	41
D 53	42	44

The "Compare stop address" value does not have to always be lower or equal to the "Compare start address". In this case, the cyclical segment is utilized and the beginning and the end of the segment is being compared. In case of D 50, comparison is made to detectors 47, 40 and 41. If the range was switched, the comparison would be made to all detectors except for 40.

9.5   Two-Way Comparison

Just like the S1 segment is compared to S2, S2 can also be set for comparison to S1 or a completely different segment.

9.6   Combination of Linear and Cyclical
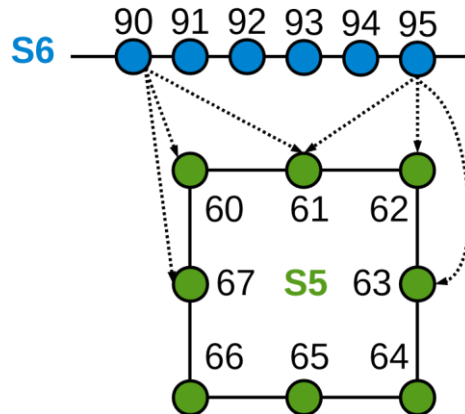
It is possible to combine linear and cyclical segments. It is always important to set the "Cyclic" parameter for the segment that is being compared to (in this case it is S5).

The segment setup is done according to the following table:

Id	From index	To index	Cyclical	Compare	Reference segment
S 5	60	67	YES	NO	
S 6	90	95	NO	YES	S 5

and the individual detectors according to the following table:

Id	Compare start address	Compare stop address
D 90	67	61
D 95	61	63

9.7   Summary

- The subject of comparison (in this case it is S2, S3, S5) has to have the "Cyclic" attribute set correctly.

- The compared segment (in this case it is S1, S4, S6), has to have the "Compare" and "Reference segment" attributes set. In segment set in such way, the detector can assume the "Compared alarm – Alarm 2" status.

10 AGREGATION SETUP

For further evaluation of the sensors, there are too many sensors, which is why they are aggregated into logical aggregates. It is beneficial for situations such as in relation to a camera system, where it is possible to create a detector group related to camera view. A range of sensor is selected for aggregation; it may also be one sensor. A rotary camera can also be assigned to each range, along with the preposition related to this sector. It is possible to control the camera using an independent command for a set event – pre-alarm, alarm or alarm 2. The specific cameras can be set up and reverted to the parking position in the "Cameras" item.

The pictures show an example of aggregation configuration for two statuses with four groups created, each consisting of one detector in this case. For pre-alarm, only groups are defined and the procession is to be used in further setup. For alarm, a camera control function is used where rotary camera commands are defined for two parts.

The "Copy from...” buttons make the logical part editing easier by copying the already defined data among individual tables.

11 STATUS SETUP

The status attributes are internal statuses of variables created by the CUP unit based on the status of the connected devices that adjust their value according to these devices – active-inactive. For attributes W8 and W9, temperature values required for attribute activation can be set. The statuses of these attributes change – they are activated upon passing the set temperature values, i.e. dropping below W9 and exceeding W8. The temperature is measured at the CUP unit circuit, meaning it is a point of reference.

The attributes can be used to link a specific system event to the action at the output – see next chapter.

Configuration of status flags

Id	Description	Value
W 1	LCP 1 Error	
W 2	LCP 2 Error	
W 3	IOP/485 Error	
W 4	IOP/LAN Error	
W 5	Ethernet Error	
W 6	Onvif Error	
W 7	Real Time Clock not set	
W 8	Temperature over Treshold	70
W 9	Temperature under Treshold	5
W 10	DSP on LCP 1 Error	
W 11	DSP on LCP 2 Error	
W 12	LCP 1 Active	
W 13	LCP 2 Active	
W 14	LCP 1 Designated Slave	
W 15	LCP 2 Designated Slave	

LCPx Error – this attribute monitors internal LCP errors and communication outages.

IOP/485 Error – this attribute monitors module outages and errors within the RS485 bus.

IOP/LAN Error – this attribute monitors outages and errors of modules communicating via ethernet.

Ethernet Error – this attribute monitors ethernet outages at the CUP unit.

Onvif Error – this attribute monitors connection losses to Onvif protocol-based cameras.

RTCNS – this attribute monitors losses of system time.

TOT – this attribute monitors the instances of temperature rising beyond the set limit.

TUT – this attribute monitors the instances of temperature dropping below the set limit.

DSP on LCPx Error – this attribute monitors detector or module malfunctions within the LCP module bus.

LCPx Active – this attribute monitors the status of the LCP module sensor line.

LCPx Designated Slave – this attribute monitors the LCP module configuration status when configured as slave.

12 EVALUATION CONFIGURATION

Evaluation is a process where input and internal attributes can be logically linked to each other in order to create specific output. Each output information is actually an output that has previously been defined in output configuration. It is apparent from the description of every output function that it assumes the description of a specific output.

Logical output table, click to expand for editing

List of output functions and used function selected from OR, NOR, AND, NAND

Output numbers and names from the output configuration window

After clicking the logical input table, a list opens, displaying all available logical inputs that can be directed to the selected input by checking the checkbox of the required input. Hover over a checkbox with your mouse cursor to display its tool-tip. For a well-arranged configuration, it is therefore recommended to name all the items from the start of configuration.

It is possible to use multiple logical outputs for one output and use one of the functions from the "function" item menu (Function – OR, NOR, AND or NAND) for their evaluation.

Field with attributes monitoring input statuses

Field with attributes monitoring detector statuses

Field with attributes monitoring logical functions and internal statuses

Logical functions may be used in case a more complex logical link needs to be created. The input functions can be "pre-processed" within these logical functions and then use this result as an input for an output function. The logical function configuration is of the same form and properties as an output function. These are basically feedback logical functions that are linked back to the evaluated input attributes of the output function instead of an output function.

Editing window of an output function

Auxiliary configuration of an auxiliary logical function that becomes an input for an output function

13 LCP SET UP

The LCP setup is subdivided into two parts – global setup and detector setup.

13.1 Global Set Up

LCP Address – possible input 1–16, common input 1.

Number of DSP units – possible options 250 or 500. Use the option according to the actual number of detectors connected to the LCP. Use 250 for numbers up to 250 and 500 for higher numbers. The number of connected detectors influences the speed of information evaluation. It is 4 samples per second for up to 250 and 2 samples per second for 500.

Bus voltage – possible options are 12, 24, 36. The commonly used value is 24. Defines the power supply voltage for detectors within the bus.

Number of samples – possible options of 3 or 5. Defines the number of comparison samples within the evaluation algorithm. The difference is in time lapse of the alarm indication and influence on evaluation in terms of reducing false alarms caused by weather conditions. The value of 5 provides better resilience while the value of 3 provides better response time.

Auxiliary mode – possible options 0 and 1. The value of 0 indicates that the LCP is in Master mode. The value of 1 indicates that the LCP is in Slave mode.
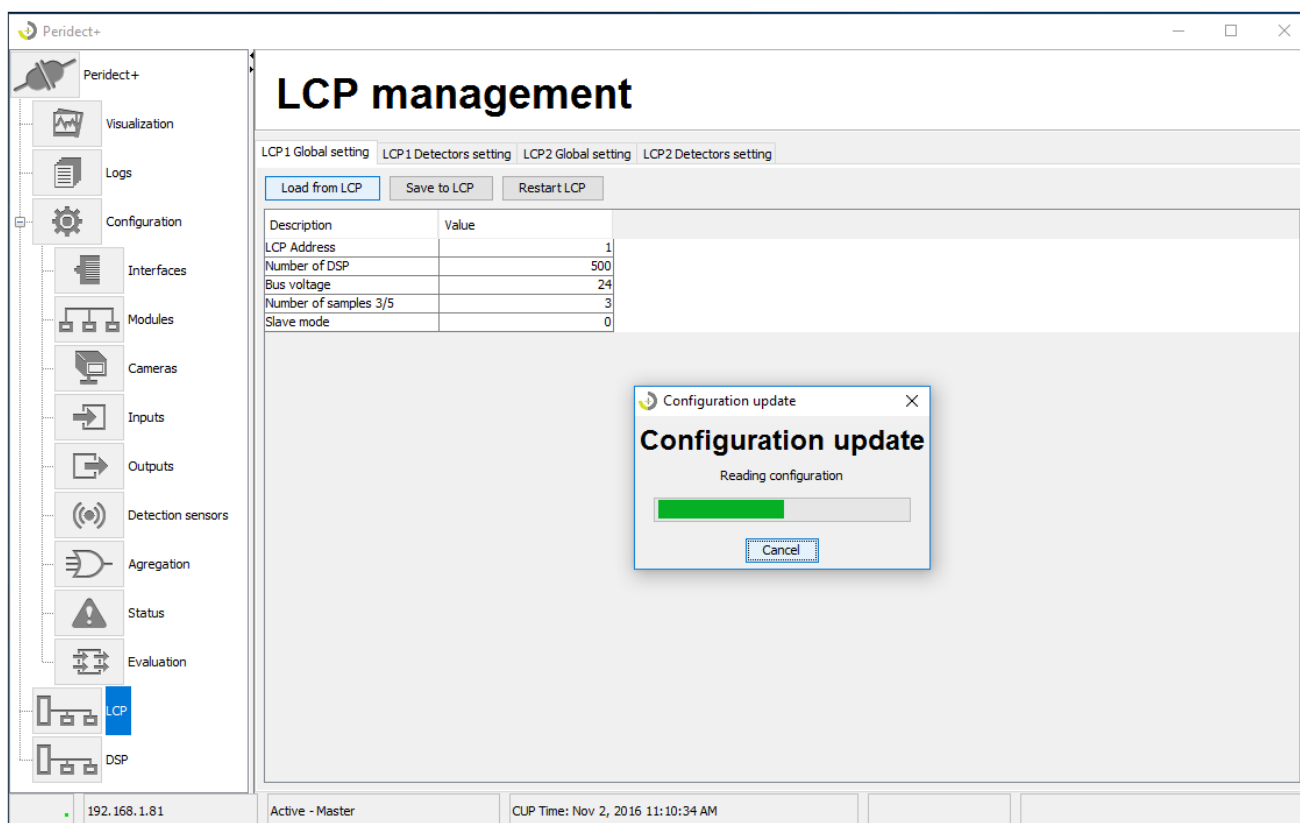
Load from LCPx – a command to load the configuration from the LCP module into the configuration tables. The data is read for both tables of the LCP module.

Save to LCPx – a command to save the configuration into the LCP module from the configuration tables. Both tables of the LCP are saved.

Restart – sends a command into the LCP that triggers its restart. This process does not result in loss of setup or configuration.

13.2   Detector Setup

The main configuration table used to set the sensitivity of individual detectors and their dependence in relation to the "differential logic".

Used parameters

Type – defines the type of a message from a specific address (ID) of a detector or LIP module. When using a detector within a specific address, the value of type is 2. If the address is occupied by an LIP module, the value has to be set to 1.

Dmin, Dmax – differential relative values used to compare the signal to the referential DSP CP1, CP2, CP3 a CP4 and in relation to the magnitude of the detected signal within the current DSP. Sensitivity relation is set for each DSP based on these two values from low signal values up to the maximum values, with the exception of the "MAX" value.

The significance of D_{min}, for the alarm state calculation increases with lower deviation of the evaluated detector. The significance of D_{max} for the alarm state calculation increases for higher deviations. The significance distribution of D_{min} a D_{max} for alarm state calculations is shown on the following graph.
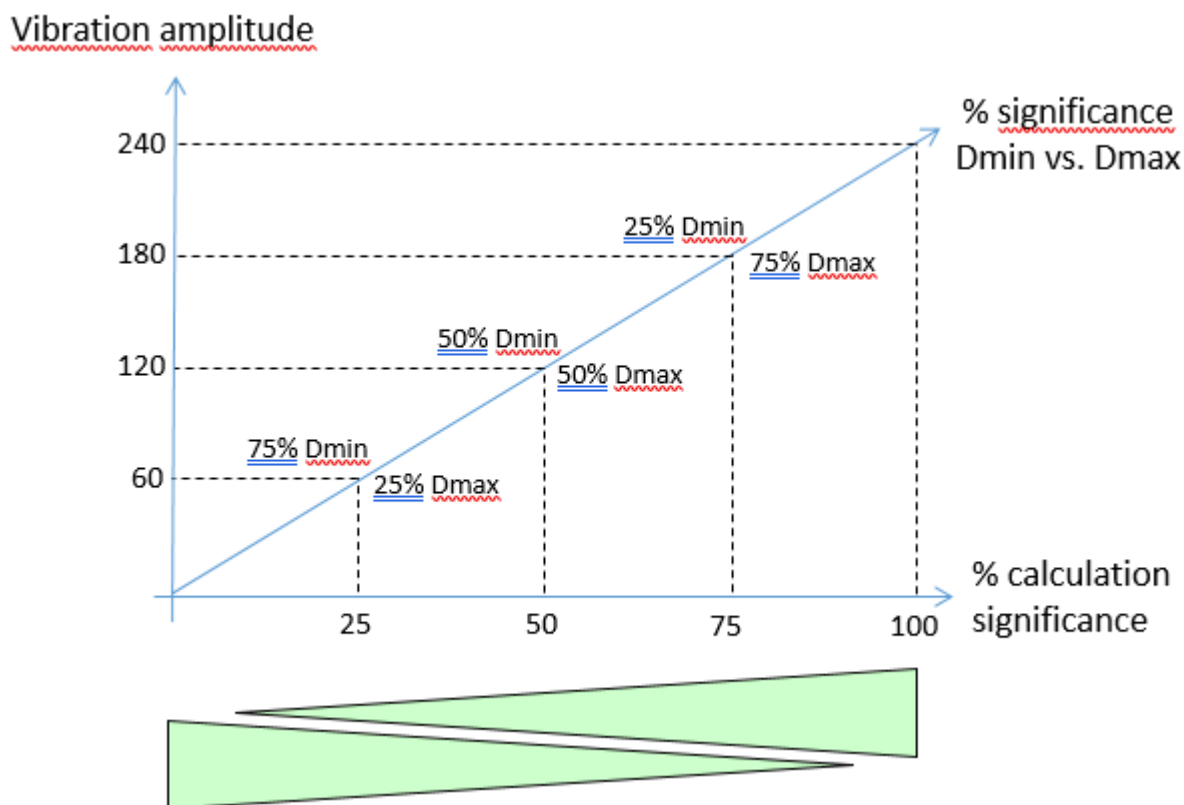
MAX – this value of the DSP signal immediately satisfies the alarm conditions (and e.g. activating the output). You can input the value of 251 to turn this function off.

CP1, CP2, CP3, CP4 – DSP addresses used to compare the values of the signal of the evaluated PDS to the current values of CP1, CP2, CP3 a CP4 within the detection algorithm. If CP1, CP2, CP3 a CP4 are set to 0 then the alarm level for DSP is defined by the value of D_{min}.

Special attention needs to be paid to specific parts of the fence such as corner turns, wicket doors, gates, strut poles etc. The vibration transfer among the individual fields is reduced at these spots. It is recommended to perform meticulous setup tests. The typical setup solution on such places is to adjust the configuration so that the last detectors are compared to adjacent detectors (CP1=CP2 and CP3=CP4) or other detectors on the same level, i.e. to avoid comparing to detectors "around the corner". When setting the CPx referential detectors, it is necessary to consider the influence of global wind conditions

on the fence so that the configured detector is influence by the same amount as the referential detectors, typically at the turns of the fence.

Load from file, Save to file – commands used to manage the configuration file for the LCP.

A standard windows form is used to save and open a configuration file.

Each LCP module is saved as a separate file. Since the LCP module configuration is not saved within the CUP configuration, it is recommended to safe these configurations separately as a backup for your settings.

Mass editing tool – used for easier editing of the detector configuration table, the editing tool is located above the table.

How to edit multiple items: Select the items to edit by dragging the mouse over them and enter the value into the left field of „Value for selected cells". This value is then filled into all selected fields. In case it is necessary to create a numeric interval between the fields, it is possible to enter a step value into the right field of the „ Value for selected cells ". This is illustrated on the picture below.

Same value for all items

Value for selected cells: 12 + 0

CP2	CP3	CP4
12	2	3
12	3	4
12	4	5
12	5	6
12	6	7
12	7	8
12	8	9
12	9	10
12	10	11
12	11	12
12	12	13
12	13	14
12	14	15
12	15	16
12	16	17
12	17	18

First item has a specified value and every further is increased by one.

Value for selected cells: 21 + 1

CP1	CP2	CP3	CP4
2	2	2	3
1	3	3	4
2	4	4	5
3	5	5	6
4	6	6	7
5	7	7	8
6	8	8	9
7	9	9	10
8	10	10	11
9	11	11	12
21	12	12	13
22	13	13	14
23	14	14	15
24	15	15	16
25	16	16	17
26	17	17	18
27	15	18	19
28	16	19	20
29	17	20	21
30	18	21	22
31	19	22	23
32	20	23	24
33	21	24	25
34	22	25	26

The first item has a specified value, every increased by five

Value for selected cells: 1 + 5

CP2	CP3	CP4
2	1	3
3	6	4
4	11	5
5	16	6
6	21	7
7	26	8
8	31	9
9	36	10
10	41	11
11	46	12
12	51	13
13	56	14
14	61	15
15	66	16
16	71	17
17	76	18
15	81	19
16	86	20
17	91	21
18	96	22
19	101	23
20	106	24
21	111	25
22	116	26
23	121	27
24	126	28
25	131	29
26	29	30

The first item has a specified value, other is every other is decreased by two.

Value for selected cells: 36 + -2

CP2	CP3	CP4
2	36	3
3	34	4
4	32	5
5	30	6
6	28	7
7	26	8
8	24	9
9	22	10
10	20	11
11	18	12
12	16	13
13	14	14
14	12	15
15	10	16
16	8	17
17	6	18
15	4	19
16	2	20

14 DSP SETTING

DSP setting is divided in two parts with separate configuration tab for each LCP.

The configuration tool serves for changing the detectors address and for setting their parameters. In the case of DSP the input signal gain can be adjusted. This option allows you to adjust detector sensitivity and compensate for variations in the quality of fencing or to adapt the detector sensitivity to various types of fencing.

Adjustment procedure. Firstly you need to retrieve data from the connected DSP by selecting "Load from LCP" (Retrieve from LCP). Once finished these data will be displayed in a configuration table.

SN is a unique serial number for each DSP. This number will help to identify detectors for programming, changing the bus address and changing their adjustment/gain.

In the field address you can enter the required new detector address and in "adjustment" you can insert the given detector gain value.

The inserted address values are checked for duplicity. Duplicate values entered and relevant lines will be highlighted in red.

Such configuration cannot be entered into LCP. If the inserted values are correct, using Save to LCP you can enter this configuration into LCP.

The process of entering data consists of several steps – recording data, LCP restart, loading data and checking – comparison of the recorded data and the result.
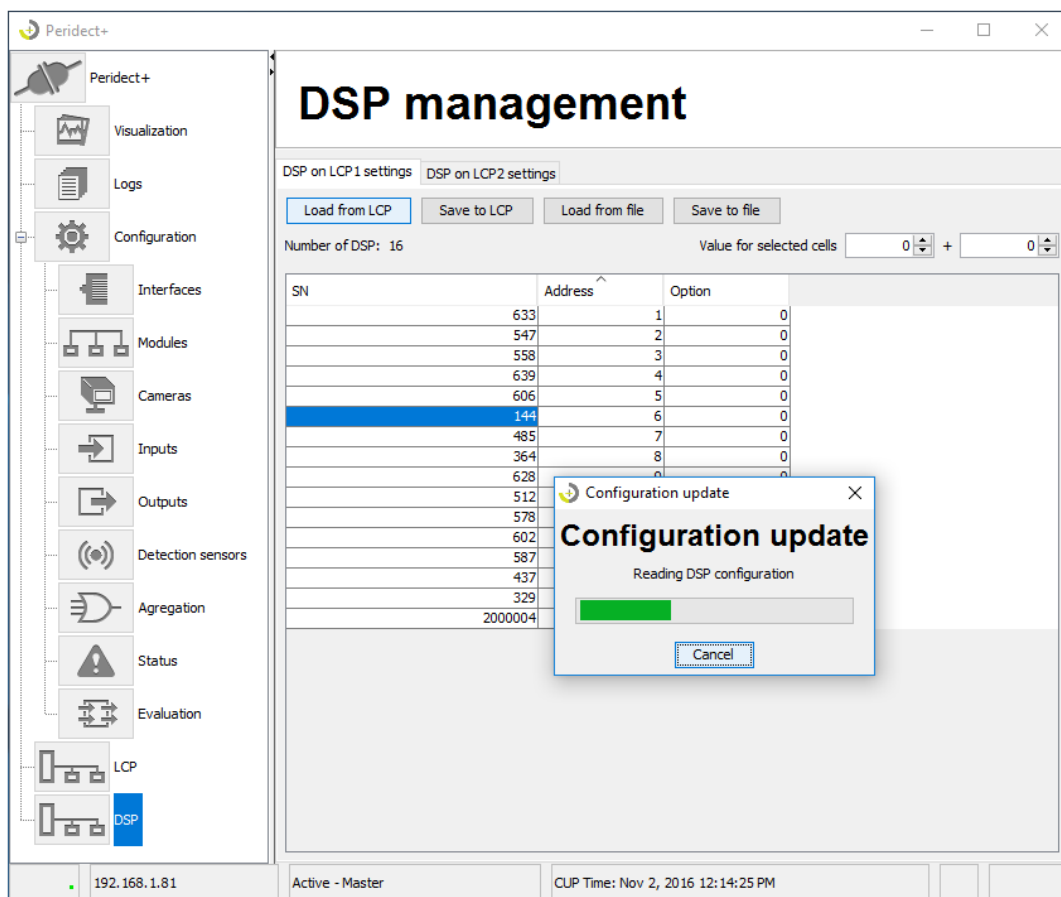
In case some of the required values adjustment fails in some of the detectors, this value will be highlighted in colour.

If some of the detectors then appears or disappears during programming, the relevant line will be again highlighted in colour. In such case we recommend reloading the data and comparing the new results.

Using the load and save buttons the configuration table can be also processed by external software or you can archive the loaded data.

Load from file, Save to file – commands used to manage the LCP configuration file.
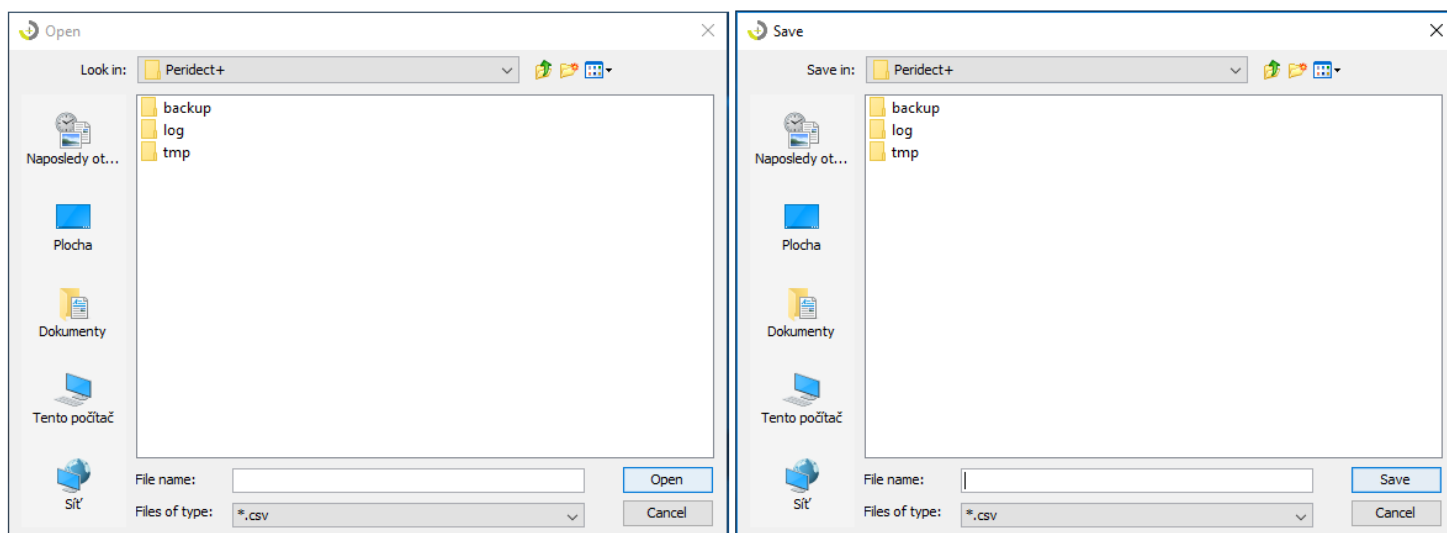
Bulk editing tool– used for easier editing of the detector configuration table, the editing tool is located above the table.

Value for selected cells	1 ▲▼	+	1 ▲▼	Value for selected cells	201 ▲▼	+	1 ▲▼

How to edit multiple items: Select the items to edit by dragging the mouse over them and enter the value into the left field value of selected cells. This value is then filled into all selected fields. In case it is necessary to create a numeric interval between the fields, it is possible to enter a step value into the right field of field value of selected cells This is illustrated by the picture below.

SN	Address	SN	Address
255	1	255	201
8	2	8	202
9	3	9	203
10	4	10	204
11	5	11	205
12	6	12	206
13	7	13	207
14	8	14	208
15	9	15	209
16	10	16	210
17	11	17	211
18	12	18	212
19	13	19	213
20	14	20	214
21	15	21	215
22	16	22	216
23	17	23	217
24	18	24	218
25	19	25	219
26	20	26	220
27	21	27	221
28	22	28	222
29	23	29	223
30	24	30	224
31	25	31	225

Setting options:

This parameter sets the gain of signal from detector sensor. The parameter can have a value of 0 to 127. 0 corresponds to the maximum gain, the minimal gain being 127. The value of this parameter does not indicate the gain value and dependence between this value and the gain is not linear. The following table can give you better idea:

parameter value	sensitivity	Peridect version ID
127-087	low	ca. NO/2-3
088-043	standard	NO
014-011	higher	SE
003	high	ca. 2xSE
000	maximum	ca. 4xSE