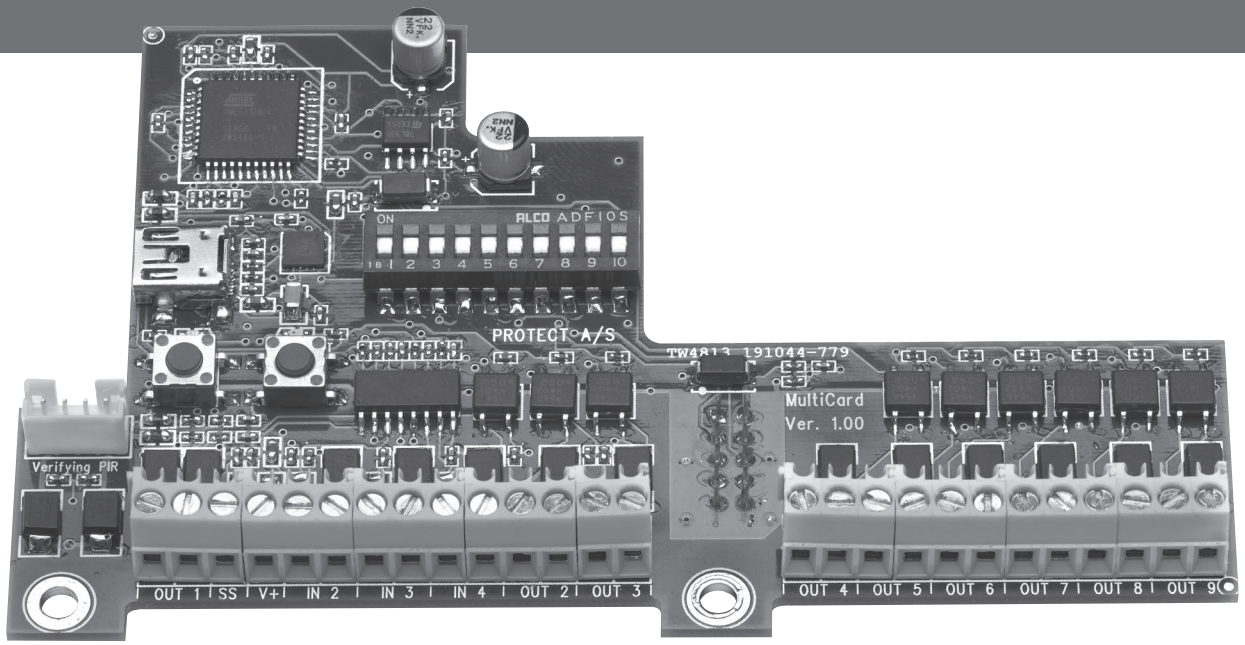
MultiCard™

Installation Manual



Version 1.2

PROTECT® | SECURED IN SECONDS

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1. Introduction to PROTECT MultiCard

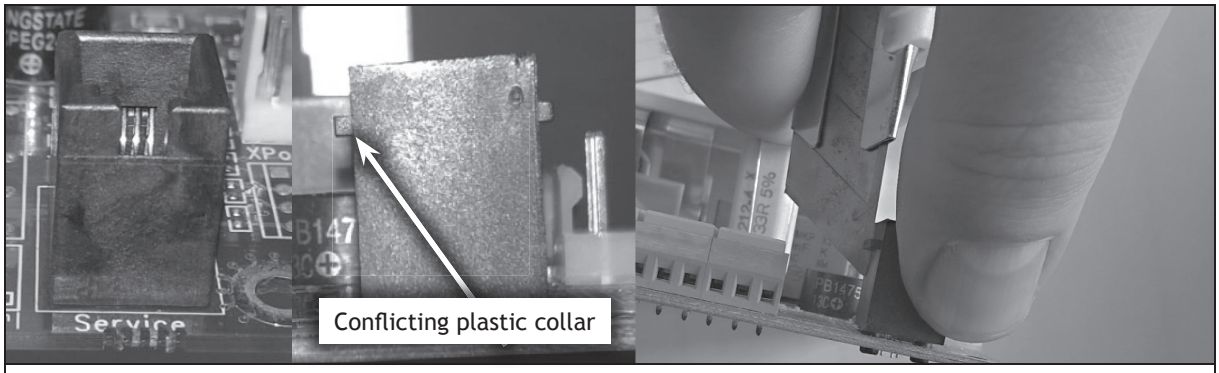
This manual refers to PROTECT MultiCard **hardware version 1.0 and software version 1.04.**

The MultiCard adds the following functionality to the PROTECT Fog Cannon:

- Panic release functionality
- Service Disable functionality (Blocking) by pushbutton or dedicated input
- Pump test/priming by pushbutton
- Separation of various fault conditions on dedicated outputs
- ATM protection mode on PROTECT 600i, PROTECT 1100i and PROTECT 2200i

IMPORTANT NOTICE!
The MultiCard will not operate with fog cannon units using software versions before version 2.50. Different software features are available, depending on the software version of the fog cannon and the software version of the MultiCard. See notes on this for each individual program function listed in this document.

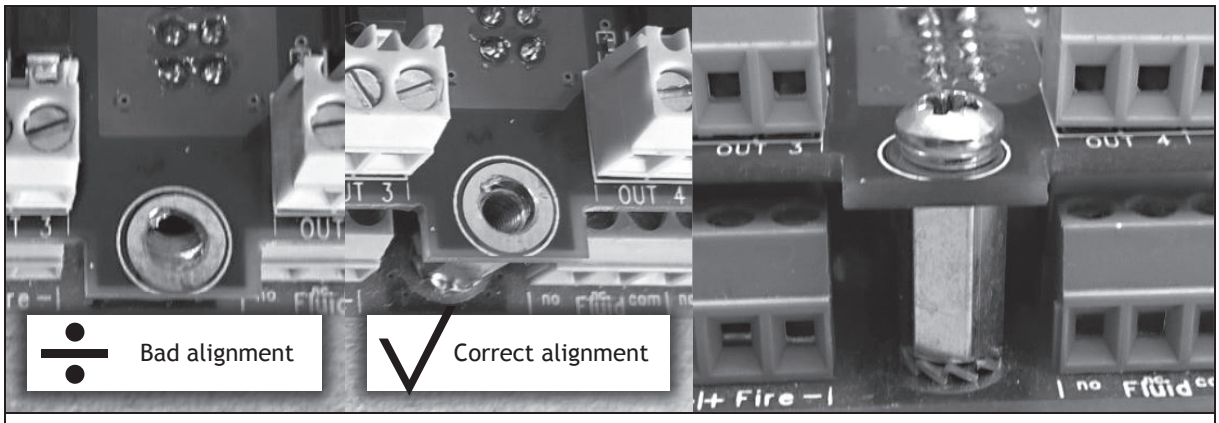
2. Prepare main PCB



On some fog cannon units a service connector on the main PCB may have to be modified to give space enough to install the MultiCard

If this is the case use a work knife to remove the conflicting plastic collar.

3. Make sure to install the MultiCard securely using supplied washers, spacers and screws



The connector on the MultiCard MUST align properly with the connector on the main board, and mounting holes in the MultiCard must align with spacers before attempting to install the screws.

4. Common features

Inputs:

Type	Optically isolated Bidirectional DC input
Activation level (guaranteed ON)	7 – 30VDC (Max)
Not activated (guaranteed OFF)	0 – 1VDC
Current	2mA@12V, 4mA@24V

Outputs:

Type	Optically isolated Bidirectional output
Overload protected solid state relay	
Max Rating	120mA continuous / 30VDC (20VAC)
ON resistance	Typical 28 Ohm (Max 35 Ohm)

Buttons:

Service	Toggles Blocking mode (service mode)
Test	For priming/testing pump at very low flow and for 3 seconds at a time max

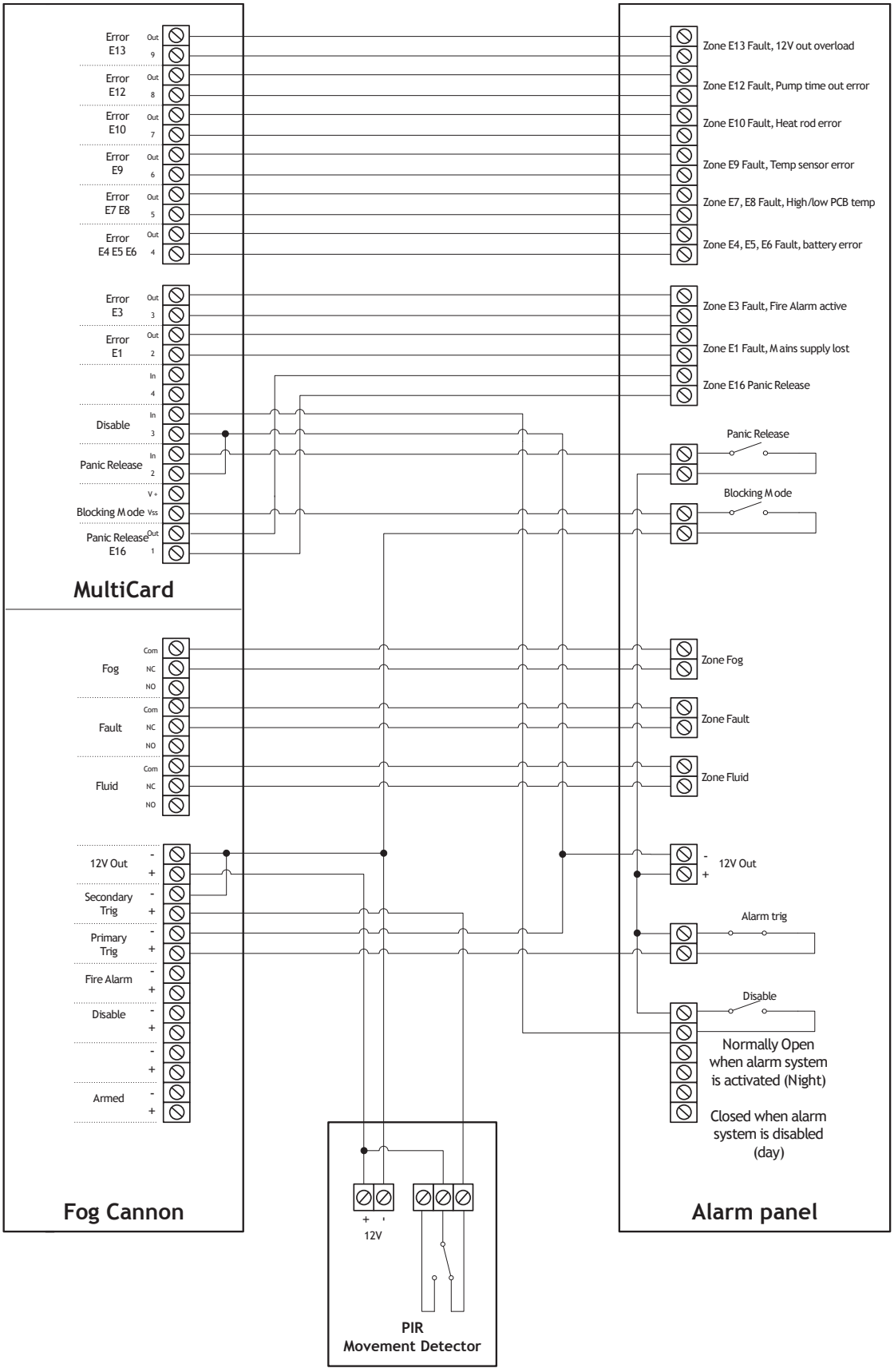
LED's

Green	**Flashing slow:** Not connected – starting up **Constantly on:** Connected to main PCB – Communicating OK **Flashing fast:** Test shot is running
Blue	**Flashing:** Machine is in Blocking mode (service mode)

Under power up the LED's will flash in an alternating pattern (Blue-Green-Blue .... Blue-Green-Blue ....) for approximately 5-10 seconds, and will then start indicating the states as listed above.

Please note that dip switch settings, on the MultiCard, may be manipulated during normal operation. This will however reset program flow on the MultiCard back to its initial stage for that particular setting. Also, precautions should be taken to prevent unwanted fog release that may be caused by Dipswitch manipulation.

5. MultiCard diagram



6. Operational modes

6.1. Panic function mode with separated fault outputs

Software requirement, fog cannon: Software version 2.50 or higher.
Software requirement, MultiCard: Software version 1.02 or higher.
Device requirement: This program will run on any type of PROTECT Fog Cannon.

Dipswitch settings:

1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0

Inputs functionality:

IN-SS	Activates “Blocking mode” when connected to gnd on mainboard
IN-2	Panic button
IN-3	Disable (this Disable input allows Panic to work. Will not turn off heat)
IN-4	No function

Outputs functionality:

OUT-1	Panic release active
OUT-2	E1_MAINS_VOLTAGE_LOST
OUT-3	E3_FIRE_ALARM_ACTIVE or E16_PANNIC_NOT_RELEASED
OUT-4	E4_BATTERY_VOLTAGE_LOW or E5_BAT_CHARGE_TIMEOUT or E6_BAT_LOADTEST_FAIL
OUT-5	E7_BOARD_TEMP_HIGH or E8_BOARD_TEMP_LOW or E14_BAT_TEST_CIRC_FAIL
OUT-6	E9_TEMP_TERM_HIGH
OUT-7	E10_TEMP_TERM_LOW
OUT-8	E12_PUMP_TIMEOUT
OUT-9	E13_AUX_12V_OVERLOAD

Terminal “V+” is currently not used, and should be left unconnected.

For the Panic Release function to work, the following conditions must be met:

- **The Disable input on the fog cannon’ mainboard must be inactive**
  - Use the Disable input on the MultiCard instead, since this input will not influence the Panic signal
- **The Fire Alarm input on the fog cannon’ mainboard must be inactive**
  - The Fire Alarm input IS DESIGNED TO STOP AND BLOCK ALL FOG immediately
  - This is a mandatory function demanded by national and local fire authorities, when used in premises monitored by fire alarm systems, and hence may not and cannot be overruled
  - If service disable functionality is requested, for servicing attached alarm system, please use the SS input on the MultiCard instead. It was designed specifically with this purpose in mind
- **Dipswitch 9 on the fog cannon’ mainboard must be set to ON, to enable Panic functionality**

This input is fixed “normally open” (activates when voltage is applied).

Outputs 2 to 9 signal various fault conditions on separate outputs.
See list above.

Do NOT rely solely on the fault indicating outputs on the MultiCard.
Fault, Fluid and Fog outputs on fog cannon mainboard should still be monitored for activity.

6.2. ATM protection mode on PROTECT 600i with separated fault outputs

Software requirement, fog cannon: Software version 2.60 or higher.
Software requirement, MultiCard: Software version 1.03 or higher.
Device requirements: This program is specially designed for **PROTECT 600i ONLY!**
Attempts to use this feature on other machines may result in unpredicted behavior.

Dipswitch settings:

1	2	3	4	5	6	7	8	9	10
1	0	0	0	0	0	Fog 2	Fog 2	Fog 3	Fog 3

Inputs functionality:

IN-SS	Activates “Blocking mode” when connected to gnd on mainboard
IN-2	ATM shutter manipulation (normally closed)
IN-3	Seismic, glass break and/or gas sensor (normally closed)
IN-4	No function

Outputs functionality:

OUT-1	Fog has been activated (will stay closed until Disable is activated on mainboard)
OUT-2	E1_MAINS_VOLTAGE_LOST
OUT-3	E3_FIRE_ALARM_ACTIVE or E16_PANNIC_NOT_RELEASED
OUT-4	E4_BATTERY_VOLTAGE_LOW or E5_BAT_CHARGE_TIMEOUT or E6_BAT_LOADTEST_FAIL
OUT-5	E7_BOARD_TEMP_HIGH or E8_BOARD_TEMP_LOW or E14_BAT_TEST_CIRC_FAIL
OUT-6	E9_TEMP_TERM_HIGH
OUT-7	E10_TEMP_TERM_LOW
OUT-8	E12_PUMP_TIMEOUT
OUT-9	E13_AUX_12V_OVERLOAD

Terminal “V+” is currently not used, and should be left unconnected.

This program functionality has been specially tailored for protection of ATM machines.
It combines three different trigger methods with individual fog settings.

Input 2 is intended for connection to detectors that detect attempts to manipulate the ATM shutter.
If it is activated, it will fire a preselected **warning shot** to deter anyone from manipulating the shutter mechanism.
A limit of maximum 3 shots is possible. This will be reset by Disable signal on the mainboard.
A minimum break of 5 minutes (blocking timer) between such “warning activations” is required.
This feature is to limit the amount of fog fluid that may be wasted due to this type of manipulation.
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 7 & 8	Shot type	Fog volume
0,0	5s turbo	85 m^3
1,0	10s turbo	170 m^3
0,1	20s normal	290 m^3
1,1	40s normal	540 m^3

Re-trigger blocking is for this input limited to only 5 seconds, following any other fog release.

Input 3 is intended for connection to seismic detectors, glass break, and/or detectors that detect introduction of gas into the ATM machine.
If it is activated, it will fire a preselected protection shot, to deter anyone from breaking the ATM by brute force, or by introduction of air/gas mix to be detonated.
There are no limits to the number of such shots possible (besides limits on fluid content).
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 9 & 10	Shot type	Fog volume
0,0	20s normal	290 m^3
1,0	40s normal	540 m^3
0,1	60s normal	700 m^3
1,1	30s turbo	600 m^3

Re-trigger blocking is for this input limited to only 5 seconds, following any fog release.

The third trigger method is intended for the event that the ATM door is forced open.
In this case a large amount of initial fog may be required to fill the premises, and a series of pulses may be required to keep the premises filled until security personnel arrives.
The third trigger method is controlled entirely by inputs and settings on the mainboard like in any other fog protection application without the use of a MultiCard.

Retrigger blocking is for this input limited to 30 seconds, following any fog release.

Please note that **fluid warning level** will correspond to the fog settings on the mainboard!

Output 1 is in this mode a dedicated “fog has been activated” output, that will activate (close) when the fog is released. It will stay activated (closed) until “Disable” on the mainboard has been activated.
This will indicate to staff weather the fog protection system was activated or not.
Note: the “fog” relay output on the mainboard will still indicate when fog is active, but will release once fog production stops again.

Outputs 2 to 9 signal various fault conditions on separate outputs.
See list above.

Do NOT rely solely on the fault indicating outputs on the MultiCard.
Fault, Fluid and Fog outputs on fog cannon mainboard should still be monitored for activity.

Please note that all trigger **inputs are edge triggered** and that re-triggering after a fog release depends on signals, returning to their normal level (closed) before again being activated (opened).

6.3. ATM protection mode on PROTECT 1100i with separated fault outputs

Software requirement, fog cannon: Software version 2.60 or higher.
Software requirement, MultiCard: Software version 1.04 or higher.
Device requirements: This program is specially designed for **PROTECT 1100i ONLY!**
Attempts to use this feature on other machines may result in unpredicted behavior.

Dipswitch settings:

1	2	3	4	5	6	7	8	9	10
0	1	0	0	0	0	Fog 2	Fog 2	Fog 3	Fog 3

Inputs functionality:

IN-SS	Activates “Blocking mode” when connected to gnd on mainboard.
IN-2	ATM shutter manipulation (normally closed)
IN-3	Seismic, glass break and/or gas sensor (normally closed)
IN-4	No function

Outputs functionality:

OUT-1	Fog has been activated (will stay closed until Disable is activated on mainboard)
OUT-2	E1_MAINS_VOLTAGE_LOST
OUT-3	E3_FIRE_ALARM_ACTIVE or E16_PANNIC_NOT_RELEASED
OUT-4	E4_BATTERY_VOLTAGE_LOW or E5_BAT_CHARGE_TIMEOUT or E6_BAT_LOADTEST_FAIL
OUT-5	E7_BOARD_TEMP_HIGH or E8_BOARD_TEMP_LOW or E14_BAT_TEST_CIRC_FAIL
OUT-6	E9_TEMP_TERM_HIGH
OUT-7	E10_TEMP_TERM_LOW
OUT-8	E12_PUMP_TIMEOUT
OUT-9	E13_AUX_12V_OVERLOAD

Terminal “V+” is currently not used, and should be left unconnected.

This program functionality has been specially tailored for protection of ATM machines.
It combines three different trigger methods, with individual fog settings.

Input 2 is intended for connection to detectors that detect attempts to manipulate the ATM shutter.
If it is activated, it will fire a preselected **warning shot** to deter anyone from manipulating the shutter mechanism.
A limit of maximum 3 shots is possible. This will be reset by Disable signal on the mainboard.
A minimum break of 5 minutes (blocking timer) between such “warning activations” is required.
This feature is to limit the amount of Fog Fluid that may be wasted due to this type of manipulation.
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 7 & 8	Shot type	Fog volume*
0,0	7s	250 m^3
1,0	15s	500 m^3
0,1	20s	687 m^3
1,1	30s	875 m^3

*Please note that numbers on fog settings and fog volumes may differ slightly on low voltage models (115V/127V).

Re-trigger blocking is for this input limited to only 5 seconds, following any other fog release.
The short fog times indicated are minimum guide lines only. Actual fog volume may be larger than indicated.

Input 3 is intended for connection to seismic detectors, glass break, and/or detectors that detect introduction of gas into the ATM machine.
If it is activated, it will fire a preselected protection shot to deter anyone from breaking the ATM by brute force, or by introduction of air/gas mix to be detonated.
There are no limits to the number of such shots possible (besides limits on fluid content).
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 9 & 10	Shot type	Fog volume*
0,0	30s	875 m^3
1,0	45s	1200 m^3
0,1	60s	1300 m^3
1,1	60s + 4 min.	1700 m^3

*Please note that numbers on fog settings and fog volumes may differ slightly on low voltage models (115V/127V).

Retrigger blocking is for this input limited to only 5 seconds, following any fog release.

The third trigger method is intended for the event that the ATM door is forced open.
In this case a large amount of initial fog may be required to fill the premises, and a series of pulses may be required to keep the premises filled until security personnel arrives.
The third trigger method is controlled entirely by inputs and settings on the mainboard like in any other Fog protection application without the use of a MultiCard.

Re-trigger blocking is for this input limited to 30 seconds, following any fog release.

Please note that **fluid warning level** will correspond to the fog settings on the mainboard!

Outputs 2 to 9 signal various fault conditions on separate outputs.
See list above.

Do NOT rely solely on the fault indicating outputs on the MultiCard.
Fault, Fluid and Fog outputs on fog cannon mainboard should still be monitored for activity.

Please note that all trigger **inputs are edge triggered** and that re-triggering after a fog release depends on signals, returning to their normal level (closed) before again being activated (opened).

6.4. ATM protection mode on PROTECT 2200i with separated fault outputs

Software requirement, fog cannon: Software version 2.91 or higher.
Software requirement, MultiCard: Software version 1.05 or higher.
Device requirements: This program is specially designed for **PROTECT 2200i ONLY!**
Attempts to use this feature on other machines may result in unpredicted behavior.

Dipswitch settings:

1	2	3	4	5	6	7	8	9	10
1	1	0	0	0	0	Fog 2	Fog 2	Fog 3	Fog 3

Inputs functionality:

IN-SS	Activates “Blocking mode” when connected to gnd on mainboard.
IN-2	ATM shutter manipulation (normally closed)
IN-3	Seismic, glass break and/or gas sensor (normally closed)
IN-4	No function

Outputs functionality:

OUT-1	Fog has been activated (will stay closed until Disable is activated on mainboard)
OUT-2	E1_MAINS_VOLTAGE_LOST
OUT-3	E3_FIRE_ALARM_ACTIVE or E16_PANNIC_NOT_RELEASED
OUT-4	E4_BATTERY_VOLTAGE_LOW or E5_BAT_CHARGE_TIMEOUT or E6_BAT_LOADTEST_FAIL
OUT-5	E7_BOARD_TEMP_HIGH or E8_BOARD_TEMP_LOW or E14_BAT_TEST_CIRC_FAIL
OUT-6	E9_TEMP_TERM_HIGH
OUT-7	E10_TEMP_TERM_LOW
OUT-8	E12_PUMP_TIMEOUT
OUT-9	E13_AUX_12V_OVERLOAD

Terminal “V+” is currently not used, and should be left unconnected.

This program functionality has been specially tailored for protection of ATM machines.
It combines three different trigger methods, with individual fog settings.

Input 2 is intended for connection to detectors that detect attempts to manipulate the ATM shutter.
If it is activated, it will fire a preselected **warning shot** to deter anyone from manipulating the shutter mechanism.
A limit of maximum 3 shots is possible. This will be reset by Disable signal on the mainboard.
A minimum break of 5 minutes (blocking timer) between such “warning activations” is required.
This feature is to limit the amount of Fog Fluid that may be wasted due to this type of manipulation.
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 7 & 8	Shot type	Fog volume*
0,0	5s	225 m^3
1,0	10s	450 m^3
0,1	20s	900 m^3
1,1	40s	1800 m^3

*Please note that numbers on fog settings and fog volumes may differ slightly on low voltage models (115V/127V).

Re-trigger blocking is for this input limited to only 5 seconds, following any other fog release.
The short fog times indicated are minimum guide lines only. Actual fog volume may be larger than indicated.

Input 3 is intended for connection to seismic detectors, glass break, and/or detectors that detect introduction of gas into the ATM machine.
If it is activated, it will fire a preselected protection shot to deter anyone from breaking the ATM by brute force, or by introduction of air/gas mix to be detonated.
There are no limits to the number of such shots possible (besides limits on fluid content).
This input is fixed “normally closed” (activates when NO voltage is applied).

Possible settings are:

Dip setting Dip 9 & 10	Shot type	Fog volume*
0,0	20s	900 m^3
1,0	40s	1800 m^3
0,1	70s	2875 m^3
1,1	60s + 10 min.	3700 m^3

*Please note that numbers on fog settings and fog volumes may differ slightly on low voltage models (115V/127V).

Retrigger blocking is for this input limited to only 5 seconds, following any fog release.

The third trigger method is intended for the event that the ATM door is forced open.
In this case a large amount of initial fog may be required to fill the premises, and a series of pulses may be required to keep the premises filled until security personnel arrives.
The third trigger method is controlled entirely by inputs and settings on the mainboard like in any other Fog protection application without the use of a MultiCard.

Re-trigger blocking is for this input limited to 30 seconds, following any fog release.

Please note that **fluid warning level** will correspond to the fog settings on the mainboard!

Outputs 2 to 9 signal various fault conditions on separate outputs.
See list above.

Do NOT rely solely on the fault indicating outputs on the MultiCard.
Fault, Fluid and Fog outputs on fog cannon mainboard should still be monitored for activity.

Please note that all trigger **inputs are edge triggered** and that re-triggering after a fog release depends on signals, returning to their normal level (closed) before again being activated (opened).

PROTECT A/S is the world's largest supplier and the only producer of Fog Cannon in Scandinavia.
PROTECT is represented worldwide in 50 countries.

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