

Specialty Products 7

In This Chapter

- ✓ Mantrap
- ✓ HID Time & Text Reader

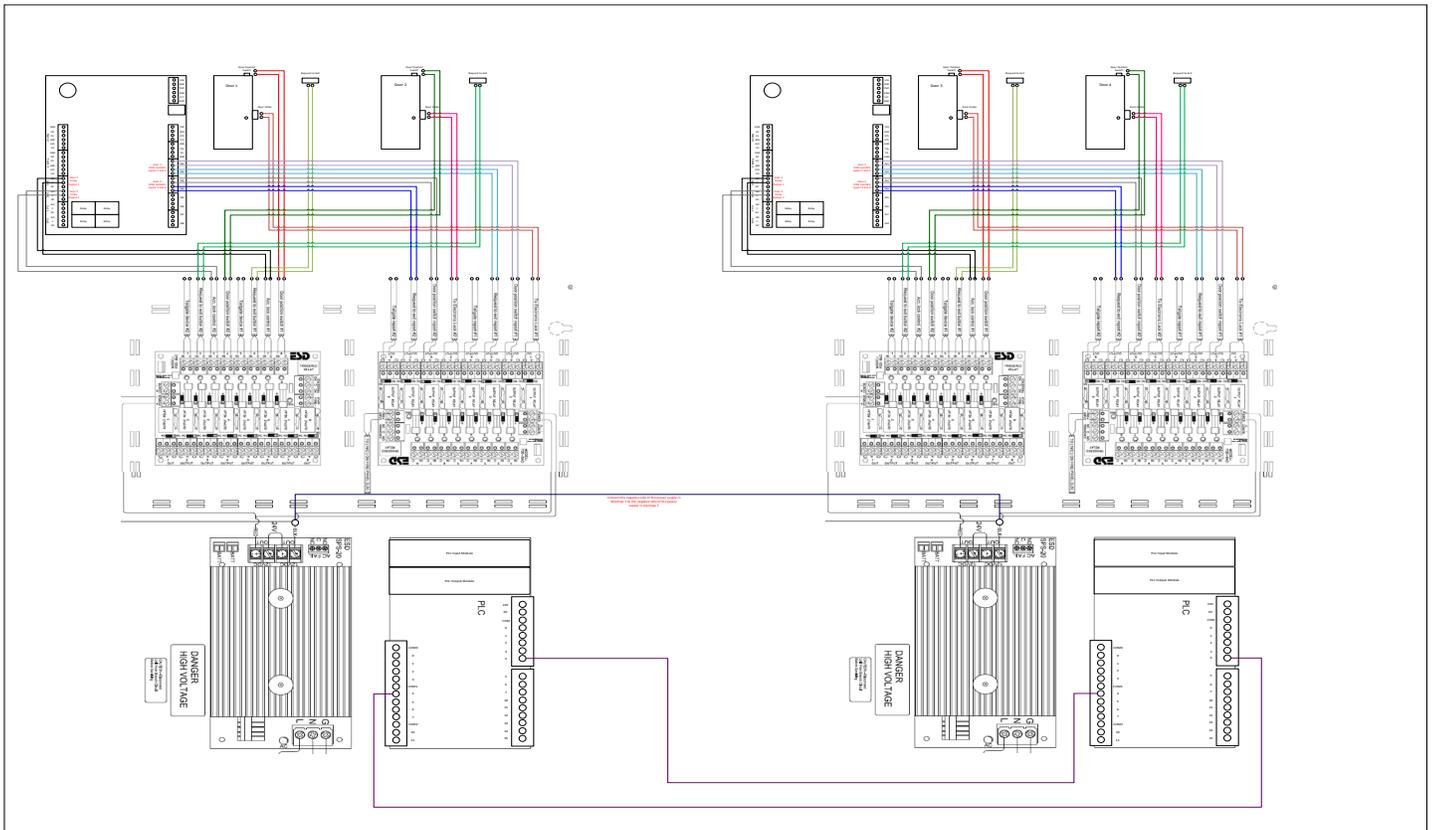
Open Options Mantrap

The Open Options mantrap, which is based on reliable, industry-standard PLC technology, provides a secure holding area between a set of interconnected doors by allowing only one connected door to be open at a time. Data from door hardware as well as status information is reported back to the access control system. The mantrap is pre-programmed to simplify installation; once the hardware and power are connected, the unit is ready to go.

A single mantrap unit is capable of controlling 2 doors, and additional units can be slaved together to control up to 6 doors. Each unit includes the following components:

- 8 buffered inputs and 8 buffered outputs
- A 24-volt power supply capable of supplying power to the door locks controlled by the unit
- Inputs and outputs that can be used on the PLC unit without buffer boards

Manual override inputs unlock or inhibit connected doors with the push of a button. An input for an anti-tailgating device on each door is also included.



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Wiring Connections

The mantrap is connected between the subcontroller on the access control system and the door hardware (lock, REX, and DSM). Only the reader is connected directly to the subcontroller.

When mounted correctly, the PLC (white box) will be located in the upper right corner of the unit. The two boards on the left side of the unit are used to buffer inputs and outputs from the PLC. The board at the top left of the unit is for outputs, while the board at the bottom left of the unit is for inputs. The input board is inverted compared to the output board (placing input 1 on bottom and input 8 on top); use caution when wiring the inputs.

Some connections must be wired directly to the PLC. Inputs on the PLC body are located on the side closest to the power supply or on the PLC add-on module labeled DC. IN. Outputs on the PLC body are located on the top or side farthest from the power supply or on the PLC add-on module labeled RY. OUT.

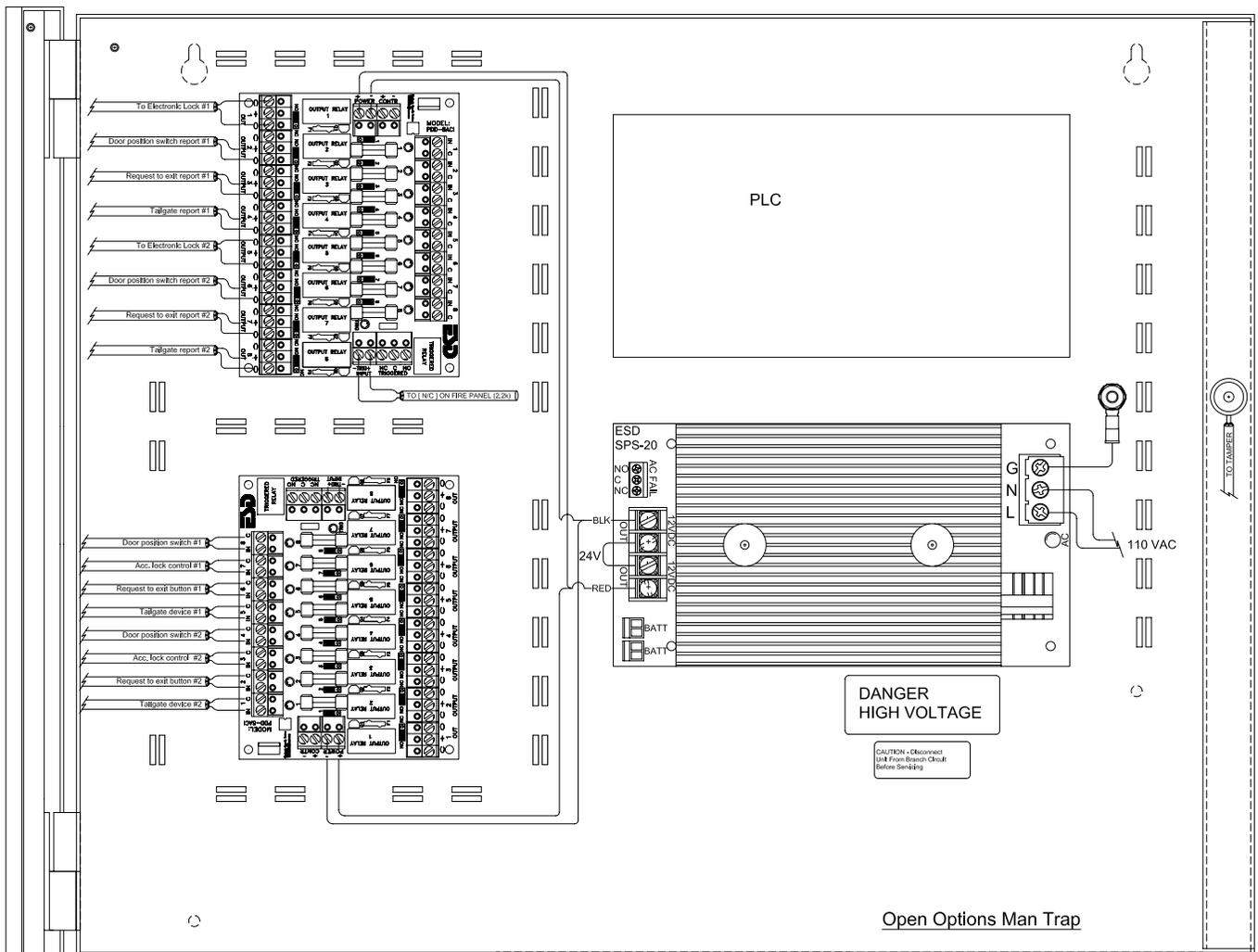


Wiring connections should be made with twisted-pair cables unless specified otherwise. All connections should be made while the unit is de-energized.

The output board is configured for a 24 V output. To reconfigure for dry contacts, remove the fuses on the output board and set the FT/FTD jumper to FTD for outputs 2, 3, 6, and 7.

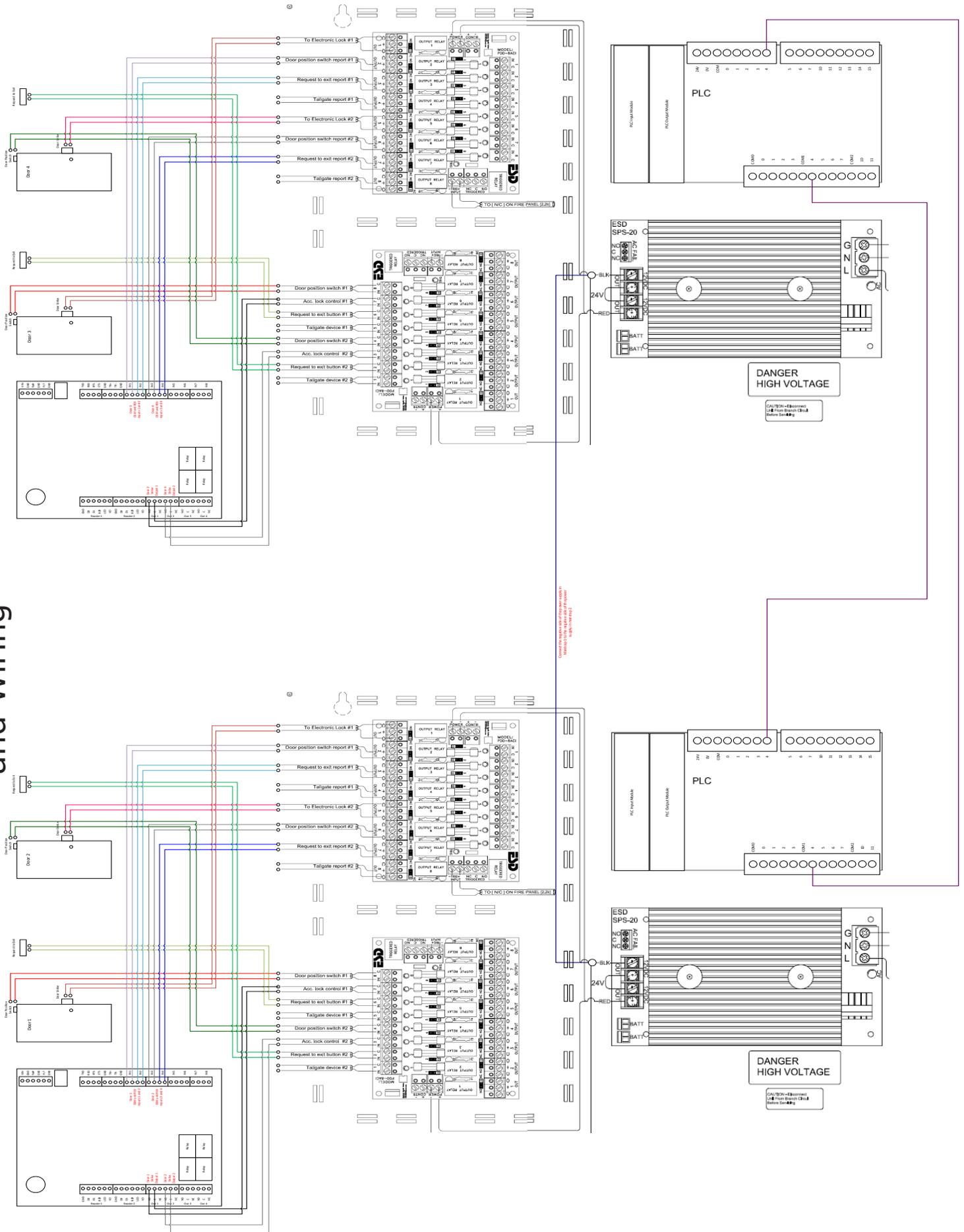
All fuses on the input board must be left in place. Set the FT/FTD jumper to FTD for all inputs. All input points require a closed circuit to activate.

If connecting multiple units, the 0 Vdc reference must be connected between the units to establish a common reference voltage.



4 Door Mantrap Configuration

and Wiring



Inputs and Outputs

The mantrap unit includes 8 buffered inputs and 8 buffered outputs. The buffered outputs can provide power if the fuse is installed. If the fuses are removed, the buffered outputs become dry contacts.

Buffered Inputs

INPUT #	DESCRIPTION
I8	Door 1 Position Sensor (Door Switch)
I7	Door 1 Unlock Request from Access Control System
I6	Door 1 Request-to-Exit
I5	Door 1 Tailgate Sensor
I4	Door 2 Position Sensor (Door Switch)
I3	Door 2 Unlock Request from Access Control System
I2	Door 2 Request-to-Exit
I1	Door 2 Tailgate Sensor



The input board is inverted, so I8 is located at the top.

Buffered Outputs

OUTPUT #	DESCRIPTION	CONNECTION
O1	Door 1 Lock Control Signal	Use to Control Lock Power
O2	Door 1 Position Signal	To Access Control Input for Door Switch
O3	Door 1 REX Report	To Access Control Input for Request-to-Exit
O4	Door 1 Tailgate Report	To Access Control Input for Tailgate Report
O5	Door 2 Lock Control Signal	Use to Control Lock Power
O6	Door 2 Position Report	To Access Control Input for Door Switch
O7	Door 2 REX Report	To Access Control Input for Request-to-Exit
O8	Door 2 Tailgate Report	To Access Control Input for Tailgate Report / Lock Control for Latch Mode

PLC Inputs

The PLC inputs are located on the side of the PLC main body closest to the power supply.

INPUT #	DESCRIPTION	CONNECTION
I0002	Bypass All Doors	Apply 24 Vdc to Unlock All Connected Doors
I0004	Slave Ready (Unit 1)	Normally Jumpered with +24 Vdc for 2-Door System
I0005	Slave Ready (Unit 2)	Normally Jumpered with +24 Vdc for 2-Door System
I0006	Slave Ready (Unit 3)	Normally Jumpered with +24 Vdc for 2-Door System
I0012	Slave Mode	
I0014	Latch Mode Reset	
I0015	Latch Mode Enable	

PLC Outputs

The PLC Outputs are located on the side of the PLC main body farthest from the power supply.

OUTPUT #	DESCRIPTION	CONNECTION
Q0004	System Ready	Active When System is Ready to Use
Q0005	System Ready	Active When System is Ready to Use
Q0006	System Ready	Active When System is Ready to Use
Q0007	Latch Mode Indicator	Active When Latch Mode is Active
Q0010	Bypass Report	
Q0011	General Alarm	

Latch Mode

Latch Mode prevents Door 1 from opening a second time until one of the following conditions is met:

- Door 2 is opened and closed
- An external reset signal is received (+24 Vdc applied to PLC Input I0014)

To enable Latch Mode, apply +24 Vdc to PLC input I0015. If enabled, opening Door 1 will activate the latch mode; the buffered output O8 and PLC output Q0007 will become active.

Slave Mode

Slave Mode is used when the unit is part of a larger system. It is activated by applying +24 Vdc to PLC input I0012.

Bypass All Doors Mode

When PLC input I0002 is activated, the unit will allow any door to be opened. If client activation of the Bypass All Doors Mode is required, the bypass signal should be connected to an output on the access control system. When the output is activated, it will allow the PLC-assigned doors to be bypassed.

Bypass Report

This output is activated when the unit receives a Bypass All Doors signal on PLC input I0002. The bypass report should be connected to an input on the access control system to log the activation of the Bypass All Doors mode.

General Alarm

The General Alarm output is activated if a tailgate signal is received on buffered inputs I1 or I5.

Rollup Door Units

Rollup door units monitor a rollup door's safety devices (photo beams or vehicle loops) and prevent closure on a person or vehicle. It is critical that the safety device be installed to prevent a vehicle from sitting in the entry/exit without activating the safety device.

The output point on the access control system for the rollup door manual control station readers will directly control the ground for the respective manual controls. In an emergency lockdown scenario, the vend signals for the rollup doors will be blocked.

HID Time & Text Reader

The HID Time & Text Reader includes an LCD screen and function keys for real-time user feedback, further expanding system versatility at the door.

Wiring the Reader

1. **Wire** the reader using the table below.

The P1 terminal block is used for power and reader control, while the P2 terminal block is used for communication.

TERMINAL	PIN #	DESCRIPTION
P1 (Power/Reader Control)	1	Beeper Input
	2	Green (GRN) LED Input
	3	Ground (RTN)
	4	+VDC
	5	Shield*
	6	Red LED Input
	7	Hold Input
P2 (Communication)	7	General Purpose Input/Output 1 (RS232-T/RS485-A/HADP-OSDP-A/USB-5V/UART-T)
	6	General Purpose Input/Output 2 (RS232-R/RS485-B/HADP-OSDP-B/USB-D+/UART-R)
	5	Open Collector Output**
	4	Wiegand Data 1 / Clock
	3	Wiegand Data 0 / Data
	2	General Purpose Input/Output 3 (RS485-Z/USB-D-)
	1	General Purpose Input/Output 4 (RS485-Y)

*Drain wire can be the "data return" line when a separate power supply is used.

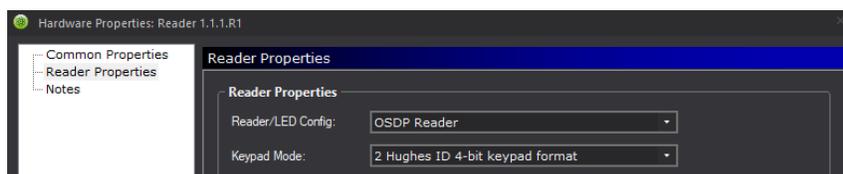
**Tamper output; when activated, the output syncs to ground (default).

2. **Wire** P2-7 (GPIO1) to Data 0 on the SIO board.
3. **Wire** P2-6 (GPIO2) to Data 1 on the SIO board.

Configuring the Reader in DNA Fusion

To set up the HID Reader in DNA Fusion:

1. From the Hardware Browser, **create** a new door.
See 3-21 in the Technical Installation Manual for more information.
2. **Expand** the Door object and **double-click** on the desired Reader.
The Reader Properties dialog opens.
3. **Select** Reader Properties from the dialog menu.
4. In the Reader Properties section, **select** OSDP Reader from the Reader/LED Config drop-down.



5. **Click** OK.
For information on sending text to the reader, see page 7-8.

Sending Text to the Reader

1. From the Standard Toolbar, **click** the Triggers & Macros button.
The Triggers & Macros Browser appears.
2. **Expand** the Macros header to the desired Controller object.
3. **Right-click** on the desired Controller and **select** Add Macro.
The Macros Editor dialog opens.
4. **Enter** a Description and **click** OK.
5. **Right-click** on the newly created Macro and **select** Add Command.
The Macros Editor dialog opens.



*Alternatively, **click** the Add button in the Macros Editor from Step 3 to complete this step.*

6. From the Command drop-down, **select** Door: Display TEXT on LCD Reader.
A list of Macro Properties menus appears in the dialog.

The screenshot shows the 'dnaFusion-Macros Editor' dialog box. It has several fields for configuration:

- SSP: Site: 1. SSP: 1
- Macro: Front Entrance-SA
- Action Type: 1: Type 1 (Default) | Sequence #: 1
- Command: Door: Display TEXT on LCD Reader
- Doors: ACM 1: Entry D1
- MACRO PROPERTIES (if required):
 - Text Type: Temporary
 - Temp Duration: 3 Seconds
 - Tone: *None*
 - Tone Duration: 1 Seconds
 - Row: Row 0
 - Column: Col 0
 - Text: (empty text box)

 At the bottom right, there are 'Ok' and 'Cancel' buttons.

7. **Select** the ACM that is linked to the HID reader from the Doors drop-down.
8. From the Text Type drop-down, **select** the applicable option.
 - Temporary - Allows the operator to display the defined text for up to 31 seconds. If selected, **set** the Temp Duration time.
 - Permanent - Displays the defined text permanently on the HID reader.
9. **Verify** that the Row and Column fields are set to Row 0 and Col 0, respectively.
This selection will display the defined text in the top row of the reader; the time will display on the bottom row.
10. **Enter** the desired display text in the Text field.
11. **Click** OK to save the Macro.
12. In the Triggers & Macros Browser, **expand** the Triggers header to the desired Controller object.
13. **Right-click** on the Controller and **select** Add Trigger.
The Triggers Editor dialog opens.
14. **Enter** a Description and **select** the desired Trigger Event from the drop-down list.
15. **Configure** the remaining Trigger Detail fields based on the selected Trigger Event.
16. From the Macro ID drop-down, **select** the macro created in Steps 3-11.
17. **Click** OK to save the settings.