

SF01S
Programmable
Proximity Card
Access Controller



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1. INTRODUCTION

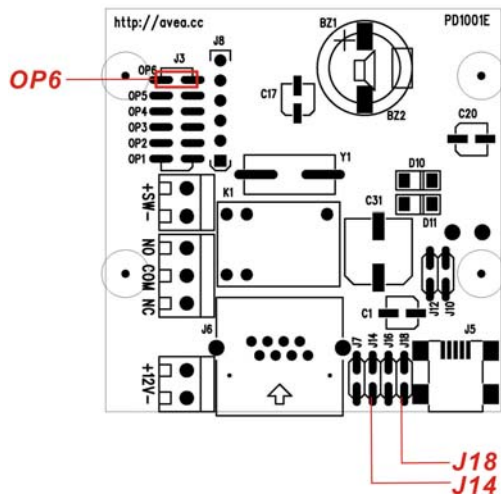
The SF01S proximity card access controller is a cost effective solution for application developers. It embedded with 2730 non-volatile memory storages for authorized ID cards. They can be uploaded through the embedded RS232 or RS485 connection.

The SF01S can be set to operate in master mode or slave mode.

Normally, it is operated as master unit. As illustrated, when the jumper is closed, it will be operated as slave unit.

Dual reader operation can be used with a SF01S is configured as master mode and a SF01S is configured as slave mode. The authorization table is resided in the master unit only.

JUMPER SETTING FOR SLAVE READER ***** OP6, J14 & J18 JUMPER "ON" *****



2. HARDWARE

2.1 POWER SUPPLY

9V to 12V DC supply of current 300mA is required to power a single reader and 600mA is required for power dual reader configurations. And the slave unit's power can be feed from the master unit.

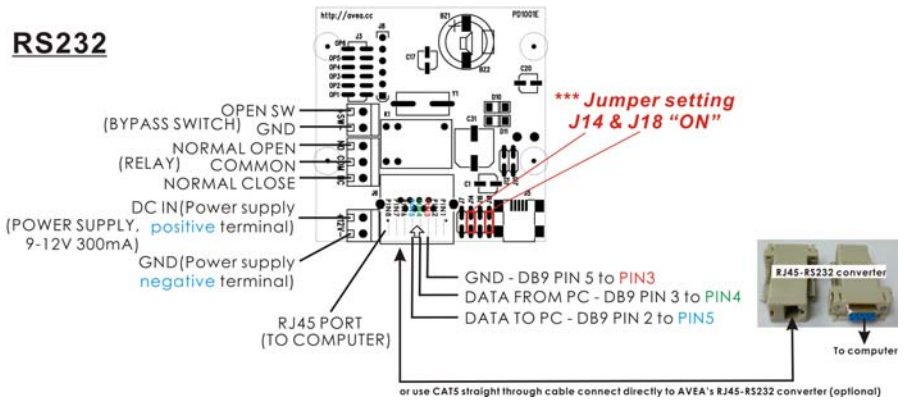
Extra power should be provided for driving the electric strike.

2.2 DIMENSIONS

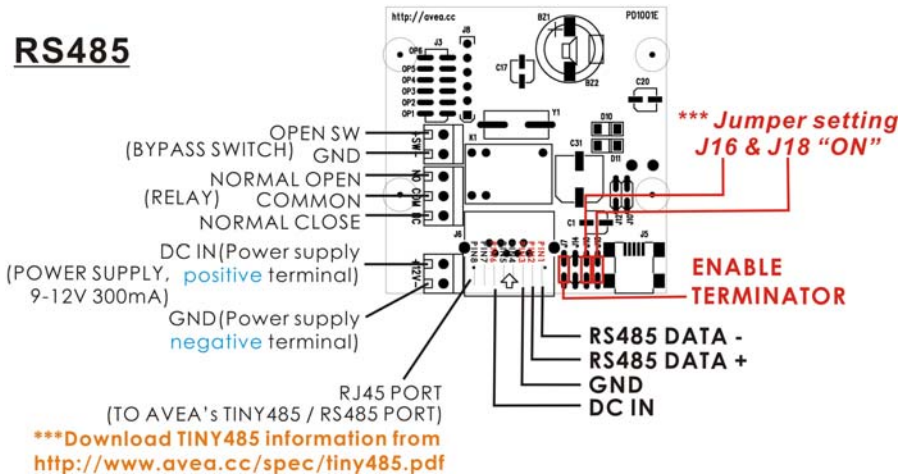


2.3 TERMINALS

RS232



RS485



2.3.1 +12V-

These are the power supply terminals for connection a 9V to 12V DC power supply unit with 300mA capacity for supply the master unit only. For master and slave unit together, 600mA capacity is needed.

2.3.2 NO-COM-NC

This is the relay output terminal for connecting electric strike. The maximum ratings is 1000mA at 24Vdc.

2.3.3 +SW-

These are the bypass push-button connection terminals. When it is shorted together, the relay will be engaged.

2.3.4 RJ45

This is the communication port for connecting to the PC for programming and also for connecting to a slave unit as well.

For connection to both PC and slave unit at the same time, a splitter device is needed.

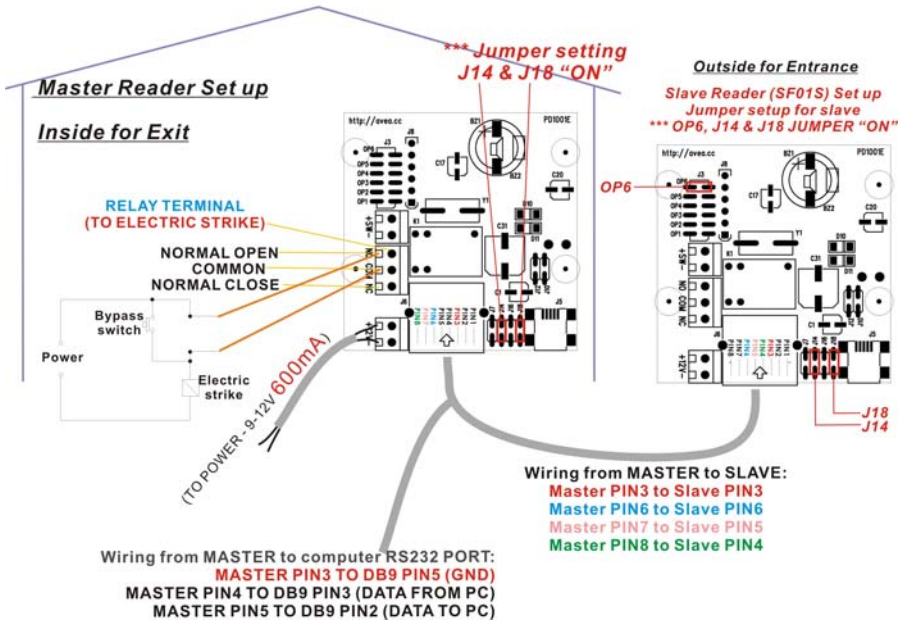
Both RS232 and RS485 is embedded into the unit but only one of

them can be selected.

2.4 WIRING ILLUSTRATION

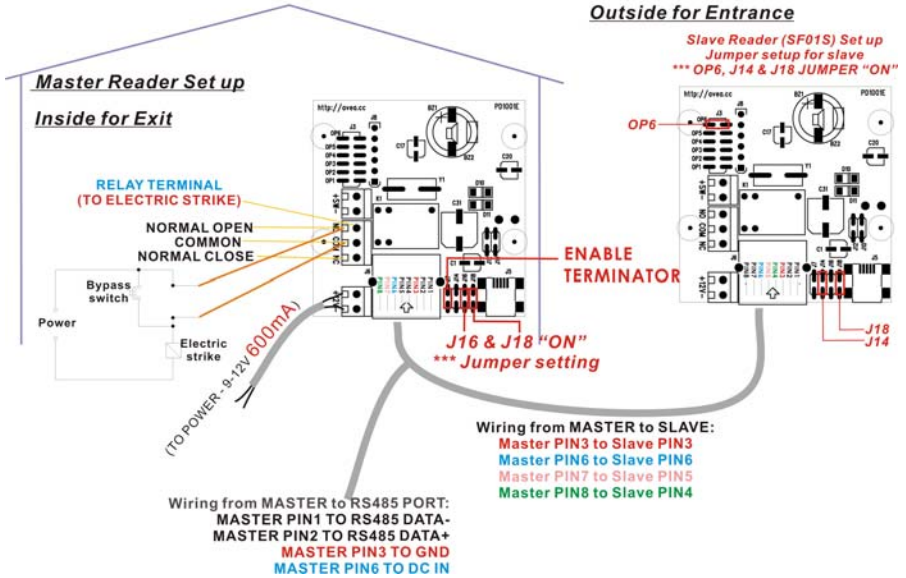
2.4.1 RS232 HOST CONNECTION

RS232 WIRING ILLUSTRATION



2.4.2 RS485 HOST CONNECTION

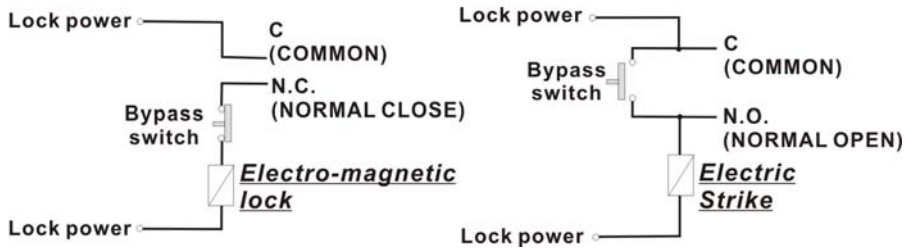
RS485 WIRING ILLUSTRATION



2.5 LOCK CONNECTION

The internal bypass switch can be connected to the terminals (-SW+) or using the following hardwired method.

LOCK CONNECTION



3. CONTROL PROTOCOL

The communication format of the RS232 interface is 115Kbit/s, N, 8, 1. The communication is packet based with flags and checksum in order to secure the correctness of the communication.

The frame structure is as follows:

START FLAG	LENGTH	COMMAND / RESPONSE	DATA AREA	CHECKSUM	END FLAG
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Where:

START FLAG = 0xA5

END FLAG = 0xA5

LENGTH = 1 byte to indicate the length of the packet excluding the start flag and end flag.

COMMAND / RESPONSE = 1 byte command

DATA AREA = it is variable size of data range from 0 to 252 bytes

CHECKSUM = 1 byte value which make the lower 8-bit of the packet's sum is zero (excluding the start flag and end flag).

Examples:

START FLAG	LENGTH	COMMAND	DATA AREA			CHECKSUM	END FLAG
0xA5	0x06	0x02	0x12	0xD6	0x87	0x89	0xA5
This command to the controller will add a card (1234567 decimal value) to the access table							

START FLAG	LENGTH	RESPONSE	DATA AREA				CHECKSUM	END FLAG
0xA5	0x07	0x01	0x00	0x12	0xD6	0x87	0x89	0xA5
This response is sent out from the controller when the master controller read a card (1234567)								

3.1 COMMANDS

The commands available from PC to control the reader:

COMMAND	DATA AREA	DESCRIPTION
0x01	N.A.	Clear access table
0x02	Card no (3 bytes, higher order first)	Add card to access table
0x03	Card no (3 bytes, higher order first)	Remove card from access table
0x04	1 to 9 (1 byte)	Set relay on time
0x05	0 – off; 1 – on; (1 byte)	Set the state of relay
0x06	N.A.	Pulse relay on
0x07	1 st byte: master, 0 – sync; 1 – independent 2 nd byte: slave, 0 – sync; 1 – independent	Synchronize the switch with the relay
0x08	0 – short; 1 – long; (1 byte)	Make a beep sound
0x09	N.A.	Query the maximum capacity of access table in the controller
0x0A	Size (2 bytes, higher order first)	Set the size of access table. If size is 0, the local access table is disabled.
0x0B	N.A.	Query the usage of access table

3.2 RESPONSES

The responses available from the reader to PC:

RESPONSE	DATA AREA	DESCRIPTION
0x01	5 bytes response 1 st byte: 0 – master; 1 - slave; 2 nd byte: 0 – denied; 1 – granted; 3,4,5th byte: Card no (higher order first)	Card present on the reader, just sent once only
0x02	3 byte response 1 st byte: 0 – master; 1 – slave; 2 nd byte: 0 – closed; 1 – opened; 3 rd byte: 0 – denied; 1 – granted;	Report the state of the switch
0x03	N.A.	Access table is cleared
0x04	Card no (3 bytes, higher order first)	Card is added
0x05	Card no (3 bytes, higher order first)	Card is removed
0x06	0 to 65535 (2 bytes, higher order first)	Maximum capacity of access table in the controller
0x07	4 bytes (higher order first) - first 2 bytes is the size of access table - second 2 bytes is the usage of access table	The usage of the access table

Note:

1. Card number 0x000000 and 0xfffff are reserved and cannot be used.
2. Since COMMAND 1, 2 and 3 will take time in order to complete the command.

So application should check for the response before issuing other commands. The time taken will depends on the size of access table. So the smaller the size, the shorter time is required.

3. This document is a preliminary edition and subject to change without notes. For the latest edition, please contact AVEA INTERNATIONAL COMPANY LIMITED.

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