ACE-Converter

Installation Guide

General

The CS Technologies ACE-CONVERTER controller is a small, low-cost interface between the CS Technologies 'Silicon Key' and a wide range of security equipment. It produces either a 'Wiegand' or 'Clock and Data' output.

Inside each Silicon Key is a unique serial number – laser-engraved on a silicon chip, and guaranteed to be unique world-wide. The ACE-Converter transmits this unique number as either

- a 10-digit BCD-format ABA-encoded clock and data string (magstripe format)
- a 34-bit Wiegand string (data 1/data 0)

The converter can be used to interface to CS Technologies mag-stripe or Wiegand controllers, as well as other access control systems. Note that there is no 'site code' transmitted; the number used is the unique serial number engraved on the key. CS Technologies also manufactures a version of the key which is programmed with a site code and card number, and which transmits a 26-bit Wiegand format string; this may be more suitable for for applications where a site code is required.

Features

- Dedicated single-purpose controller; no programming necessary.
- Easy installation
- On-board link selects either wiegand or clock-and-data output
- Operates from 12VDC or 5VDC supplied by security panel; no additional power supply required
- Allows the durable Silicon key and reader to be used with other security panels
- Extremely reliable operation
- 100% Australian made and designed

Specifications

Power supply	12VDC or 5VDC
Current Consumption:	50mA max (controller only)
Temperature range:	0°C to 70°C
Humidity range:	0 to 95% relative non-condensing
Dimensions:	Box: 86x66x30mm Board: 80x60x28mm
Shipping weight:	300g
Housing:	High impact ABS plastic box with bulkhead mounting lugs
Reader interface	Silicon Key (one-wire) interface
Output	Link-selectable a) 10-digit clock and data ABA format data (link OFF) Start sentinel, 10-digit number, end sentinel and LRC b) 34-bit wiegand data (link ON) Start bit, 32-bit unique ID, end bit

27 Bank Street Meadowbank NSW 2114 Australia
Tel: +61 2 9809 0588 Fax: +61 2 9809 2446 email: sales@cs-technologies.com.au

Cable Types

Function	Cable
Silicon Key reader to converter	4-core UTP (Cat 5 preferred). Up to 100m
Converter to security panel	7/0.20 6-core screened cable. Up to 150m

Installation Procedure

Mounting the converter:

The ACE-converter should be mounted in a convenient location. Removing the base of the box will release the circuit board which can be terminated. To mount the box, make all connections first then replace the base of the box and mount the box using the two 'bulkhead' mounting tabs on the top and bottom of the box.

Connecting the Silicon Key reader:

The reader has four wires. Two are for the touch probe, and connect to the converter (black wire = GND, white wire = IN1). The other two wires are for the LED. Normally the reader LED is controlled by the host security panel and these wires connect directly to the panel, not to the converter.

If connecting to a CS Technologies panel, the red LED wire (+) connects to +5V and the other LED wire (-) connects to OUTn.

Connecting to the security panel:

The output from the converter is either clock and data or Wiegand format. Ensure that the security panel and the converter have a common reference by connecting GND on the converter to 0V on the panel. Connect the converter +5V to the reader power out +5V on the panel.

For a clock and data format output, IN3 = CLK and IN4 = DATA.
For a wiegand format output, IN3 = DATA0 and IN4 = DATA1.

Configuring the converter:

The converter has a small link labelled LK5. This link should be OFF to transmit in Clock and Data format, or ON to transmit in Wiegand format.

Configuring a CS Controller:

If using the converter with a CS controller, the firmware in the controller should be either Magstripe or Wiegand firmware.

- ❑ With magstripe firmware, set the card options to be Magstripe, with site code start = 0, site code length= 0, card number start = 1, card number length = 10. Ensure you are running PC3 for Windows version 33 or greater. Set the controller type to KEY.
- ❑ With Wiegand firmware, set the card options to be wiegand. Set the controller type to KEY.

With this setup the silicon key information will come from this controller in exactly the same format as though it was a key controller.

Before powering up the converter board:

- ❑ Unit installed in dry, secure location
- ❑ Field wiring installed
- ❑ Connections to security panel verified
- ❑ Connections to Silicon Key reader verified
- ❑ No short to earth on any input or output

After powering up the controller:

- ❑ Controller beeps twice
- ❑ LED1 (Power) on
- ❑ LED2 (Heartbeat) flashing slowly

Operational check:

- ❑ Present a silicon key at the reader. The serial number should be transmitted in the format selected by the link. Verify that a read has occurred on the security panel.

Troubleshooting:

- ❑ Check power connection to controller polarity and voltage
- ❑ Check reader cabling.
- ❑ Check link setting is correct
- ❑ Check for wiegand that IN3 is connected to the DATA0 input on the panel, and IN4 is connected to the DATA1 input on the panel.

Signing Off

ACE-Converter installed and all checks completed: _____ Date: _____

Location: _____

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CS Controller and Software Configuration

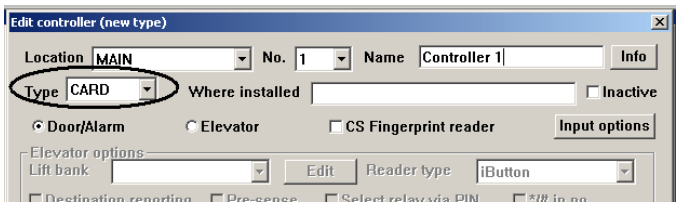
Wiegand Format:

CONTROLLER:
Set appropriate controller links

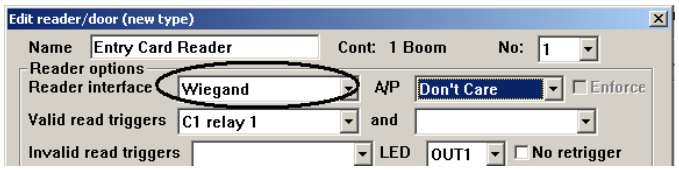
LK19, LK18, LK17, LK8, LK20 – OFF
LK21 – DOWN, LK22 – UP (+V = 5 volts)

Reader on Port 1: LK20 ON
Reader on Port 2: LK19, LK18 - ON
Reader on Port 3 &/or 4: LK17, LK8 – ON

SOFTWARE:
Set the controller type as 'CARD'.



Set the reader type as 'WIEGAND'.



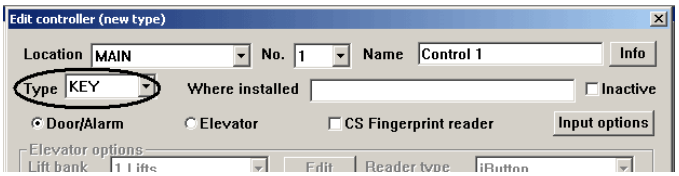
Clock + Data Format:

CONTROLLER:
Set appropriate controller links

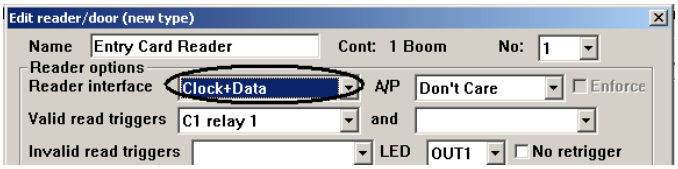
LK19, LK18, LK17, LK8, LK20 – OFF
LK21 – DOWN, LK22 – UP (+V = 5 volts)

Reader on Port 1: no link changes
Reader on Port 2: LK19 - ON
Reader on Port 3 &/or 4: LK17 – ON

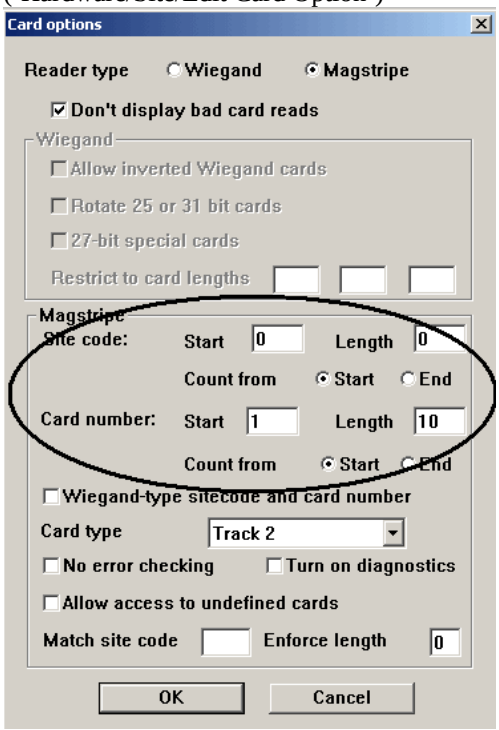
SOFTWARE:
Set the controller type as 'KEY'.



Set the reader type as 'CLOCK + DATA'.



Set the magstipe card parameters as shown below and tick 'Wiegand type sitecode and card number' ('Hardware/Site/Edit Card Option')



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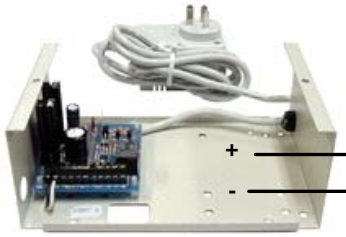
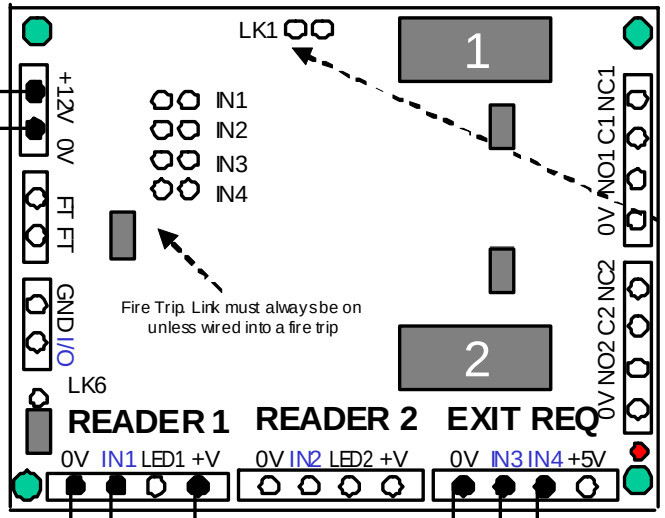


13.8VDC 1 Amp Regulated Power Supply



To select between Wiegand and Clock + Data Output
LK1 ON- Wiegand
LK1 OFF – Clock + Data

Door 1 reader

Black (GND)	GND
White (DATA)	IN1
Blue (Green LED)	LED1
Red (+5V)	+V

Wiegand	**Clock + Data**
DATA1	DATA
DATA 0	CLOCK
LED	LED
GROUND	GROUND

Reader Cabling: Use CAT5 cable. Maximum 50 meters.
If you reverse the relay contact (make the relay normally open), connect the **YELLOW** cable (Red LED) to the controller LED pin instead of the blue cable.