



CR355 CONNECTIONS

Revision number: 02.09

Please, advise us of any errors or omissions in this manual to enable us to improve our service to you.

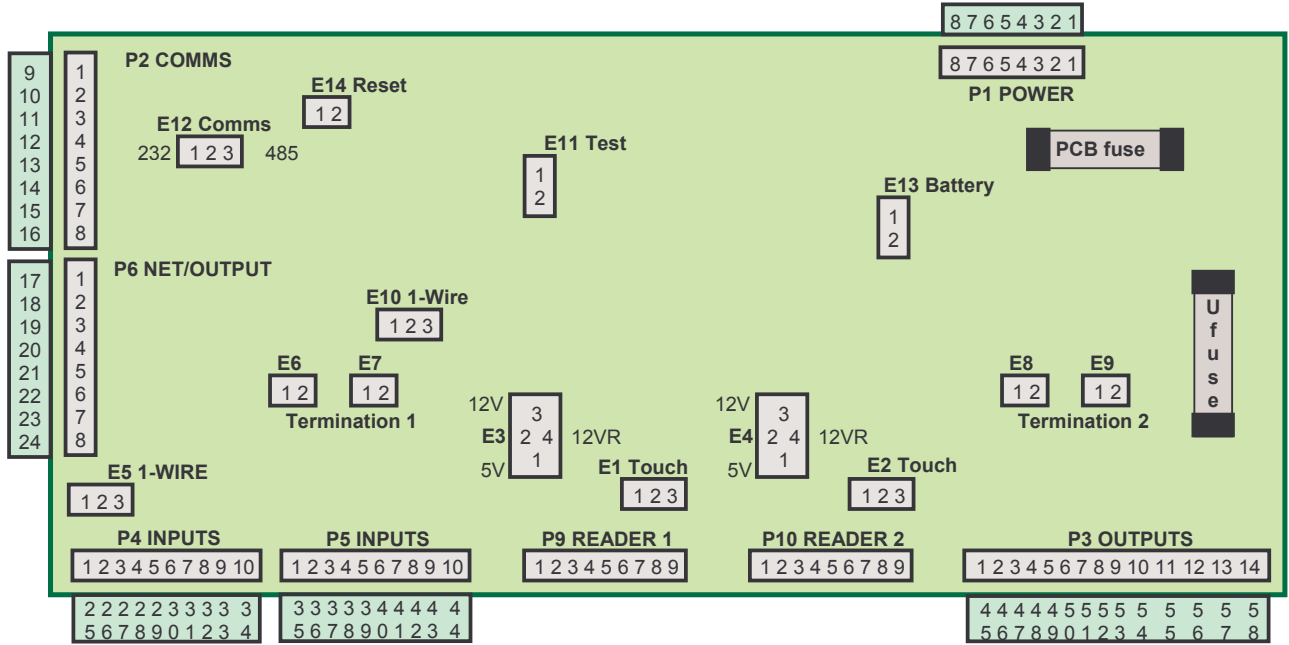
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1. GENERAL INFORMATION



For touch readers, E1 (reader 1) and E2 (reader 2) linked 1-2, for all other reader link 2-3. E3 and E4 provide 12V (link 2-3), 12V via 90 ohm (2-4) or 5V (link 1-2) to readers 1 and 2 respectively. For touch, remove ICs OPT1 and OPT2, R13 and R19=4k7.

Termination links E6, E7 and E8, E9 provide 10k ohm pull-up and down and 120 ohm termination resistors required in RS485 comms for reader 1 and reader 2 respectively.

E11 enables the hand programmer (plugged in at P9). Power-up or reset with E11 in, enables the serial test mode (LAN will not function). E12 selects RS232 (1-2) or RS485 (2-3) serial interface.

Link E13 must be linked for the controller to function and is only removed when stored or when the RAM is to be cleared.

Shorting the pins of E14 for more than 2 seconds, resets the controller.
1-wire options available in future versions.

T	P1	POWER
1	1	5V from regulator.
2	2	Ground.
3	3	12V to regulator.
4	4	AC 12V.
5	5	AC 12V.
6	6	AC 9.7V.
7	7	AC 9.7V.
8	8	Ground.

T	P2	COMMS
9	1	RTS (RS232).
10	2	Ground.
11	3	Data (RS485).
12	4	/Data.
13	5	RX (RS232).
14	6	TX (RS232).
15	7	RTS (RS485).
16	8	/RTS (RS485).

T	P3	PORT	OUTPUTS**
45	1	4	Relay 4 NC (Capture).
46	2		Relay 4.
47	3	3	Relay 3 NC (Aux output 1).
48	4		Relay 3.
49	5	2*	Relay 2 NO (Latch 2).
50	6		Relay 2.
51	7	1*	Relay 1 NO (Latch 1).
52	8		Relay 1.
53	9		12VAC (user).
54	10		12VAC (user).
55	11		12V (user).
56	12		Ground (user).
57	13		Ground (user).
58	14		12V (user).

T	P6	NETWORK
17	1	SCL.
18	2	SDA.
19	3	Ground.
20	4	1 Wire.
21	5	Ground.
22	6	Aux output 1.
23	7	Aux output 2.
24	8	12V.

E5 1-WIRE (future)

	1	12V.
	2	1 Wire.
	3	Ground

*Note: Levels set-up of output 1=closed, 2=open, 3=open permanently (unlocked), 4=closed permanently (locked).

** Reserved port allocations are for CR351-4 mode. Port allocations are configurable in CR355 mode.

T	P4	PORT	INPUTS(supervised)**
25	1		Ground.
26	2	1	Input 1 (Egress 1).
27	3	2*	Input 2 (Action complete 1).
28	4	3	Input 3 (Egress 2).
29	5	4*	Input 4 (Action complete 2).
30	6		Ground.
31	7		Input 5 (Booth occupied).
32	8		Input 6 (Capture monitor).
33	9		Input 7 (Reader 1 enable).
34	10		Input 8 (Reader 2 enable).

T	P5	PORT	INPUTS(supervised)**
35	1		Ground.
36	2		Input 9 (APB reader 1).
37	3		Input 10 (APB reader 2).
38	4		Input 11 (APB reset).
39	5		Input 12 (Input for CR355 mode).
40	6		Ground.
41	7	5	Input 13 (Aux input 1).
42	8	6	Input 14 (Aux input 2).
43	9	7	Input 15 (Aux input 3).
44	10	8	Input 16 (Aux input 4).

*Note: Levels set-up of input 1=closed, 2=open, 3=illegally open, 4=open too long, 5=door not opened.

CR355 supervised input 1=SS, 2=closed, 3=open, 4=OC, 5=illegally open, 6=open too long, 7=door not opened.

** Reserved port allocations are for CR351-4 mode. Port allocations are configurable in CR355 mode.

P9	READER 1 (programmer*)
1	Power 5V (link E3 1-2), 12VR (2-4) or 12V (2-3).
2	Data/LO/Touch.
3	Clock/HI.
4	Ground.
5	Green LED.
6	Yellow LED.
7	Red LED.
8	Data – TX.
9	/Data – RX.

P10	READER 2
1	Power 5V (link E4 1-2), 12VR (2-4) or 12V (2-3).
2	Data/LO/Touch.
3	Clock/HI.
4	Ground.
5	Green LED.
6	Yellow LED.
7	Red LED.
8	Data – TX.
9	/Data – RX.

*Note: Programmer uses pins 1 (12V), 8 and 9. Requires link E11.

Node address set with programmer.

Front end modules require the setting (with hand programmer) ABCD where:

A=node 2 on P10.

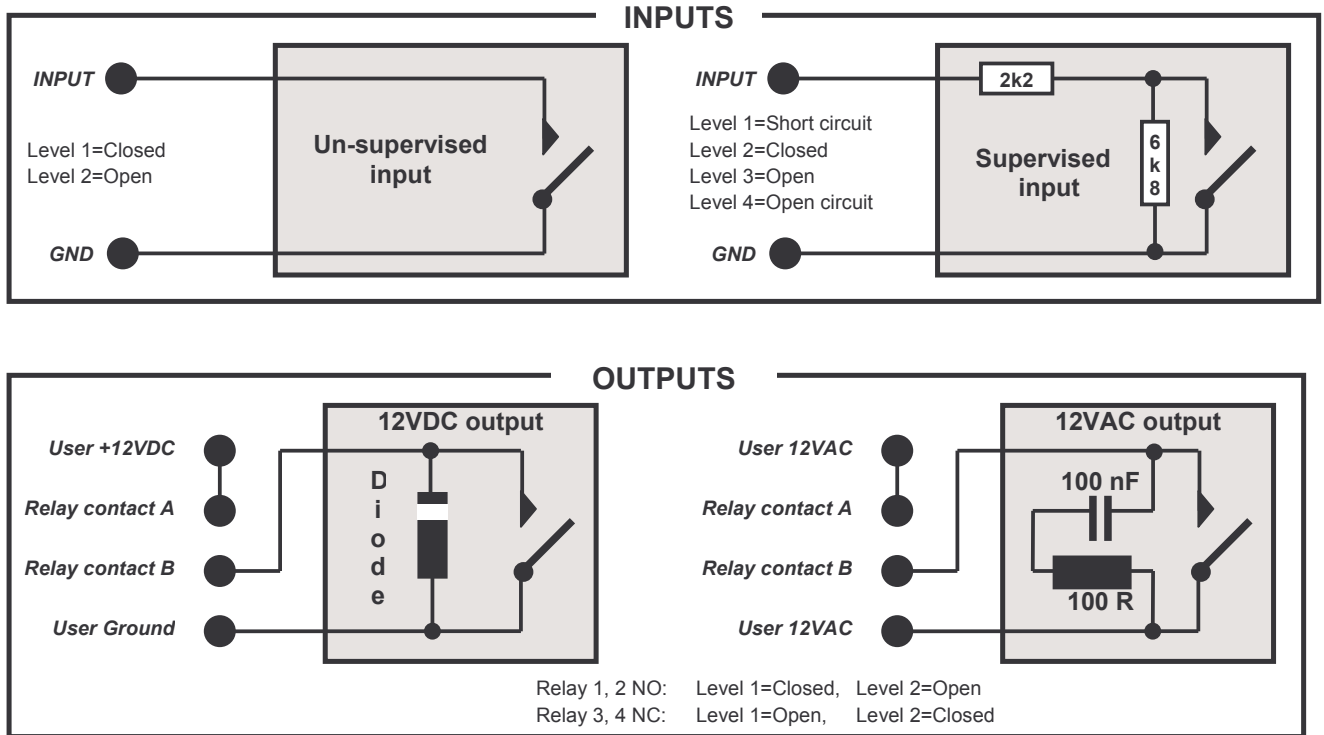
B=node 1 on P10 (currently not possible).

C=node 2 on P9.

D=node 1 on P9.

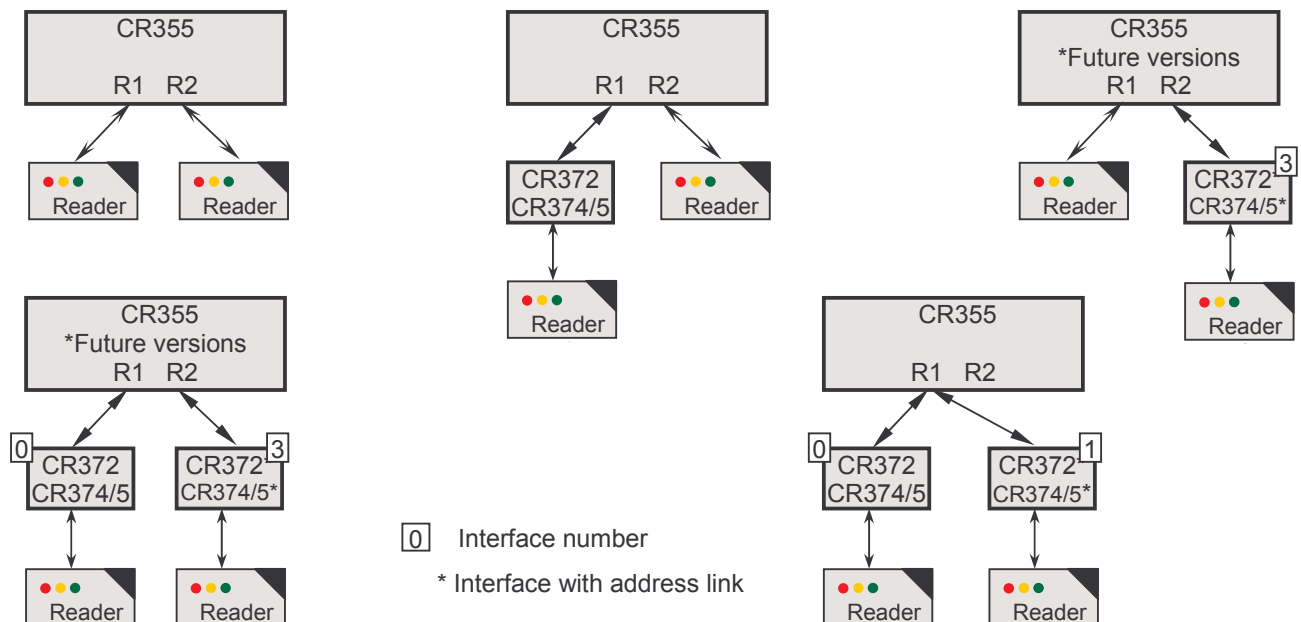
0=none, 1=installed

2. INSTALLATION OPTIONS

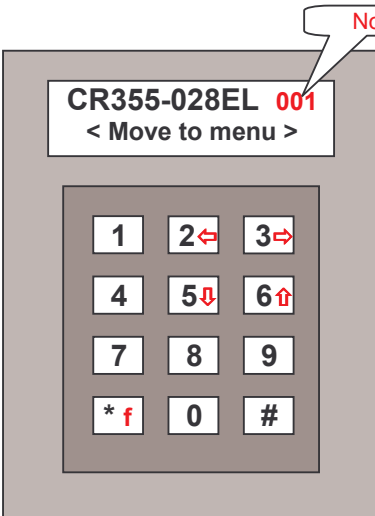


Current versions of the CR355 connect 2 readers with linked egress (push-button), action complete and reader enable inputs and latch output. The readers and input/output (I/O) are connected directly to the controller or via remote interfaces the CR374/5 (with PIN and LCD) or the CR372 interfaces. These interfaces connect via RS485 serial lines. Any combination of connection is possible, e.g. connect the reader and the action complete to the interface, with the egress and latch connected to the CR355 directly, i.e. the reader and I/O are read and controlled directly and on the interfaces.

Presently the ports are reserved (future options will be configurable), with reader 1 being connected to reader 1 (P9) on the controller or on an interface without an address link connected to the RS485 port on P9. Reader 2 is connected to reader 2 (P10) on the controller or on an interface with an address link, connected to the RS485 port on P9. Reader port 1 (P9) can multi-drop to a remote reader 1 and reader 2.



3. Softcon CR374/5 Hand Held Terminal



Introduction

The CR374/5 hand held terminal provides the means to program the CR355 Controller as stand-alone units and to check of temporary change set-up. Note that in LAN installations, the PC set-up overwrites the set-up done by the programmer. Editing / adding cards for random databases, could cause unknown results (when database locations differ in PC and in controller). The controller should be reset from the PC when cards have been entered via the CR374/5.

The CR374/5 is plugged it into the Reader 1 (P9 8,9) connector on the controller for serial communication and to P9 (1,4) or P4 (1,3) for power, connections are given above. Pressing the CLEAR button enables the programmer; the display should appear as shown below. The link E11 on the controller must be in for the programmer to work. The address link E3 of the CR374/5 must be removed. FrontP enable for the interface 0 need not be set to 1. When the main serial port is set to HH, the CR374/5 is connected to data /data on the main comms port, linked as RS485.

key is Enter

* key is Clear or a **function** key, and when kept in, the arrow keys **2**, **3**, **5** and **6** move the cursor as indicated. Function 9 toggles between two ACK comms modes (if HH display is slow, select function 9).

Keeping down a key, the selection runs, i.e. as if multiple selections are being made.

1.1 FUNCTION KEYS

The left and right arrow keys moves to the required menu.

C355-028 EL 001 < Move to Menu >	Data Base Search Data Base edit Card enter reader 1 Card enter reader 2 Cards batch load Rest APB Set-up Versions
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Selecting the down key moves in to the menu. The arrow keys move the cursor to the data to be edited or to the next/previous page of the option. The clear key moves the display to the top menu.

1.2 MENU'S

1.2.1 Data Base Search

Data base search CardNum 00000008

Search for an individual card. It sets the database pointer to a selected card. The required card number is entered, followed the CLEAR or ENTER key. The CR374/5 returns to the main menu. When selecting "Data base edit" card entered will be displayed. Note that when a card is presented at either reader, the pointer is set to that card (unless in the dB edit mode).

1.2.2 Data Base Edit

Xref e12 T1T2 CP 00001 11 0101 00

Change the status of an individual card.

Xref = card number
e1 = reader one (1 = card valid for reader (enabled), 0 = card not valid)
e2 = reader two (1 = card valid for reader, 0 = card not valid)
Time = **time group** (1-15 or 1-60 for CR355A), T1 for reader and T2 for reader 2 (T1 is also used for reader 2 if set own TG option is not set).
C = **capture** card (1 = capture, 0 = do not capture)
P = **passback** (1 = ignore any programmed anti-passback)

The up arrow moves to the previous card. The down arrow moves to the next card. CLEAR key exits to main menu, having stored the new settings.

The following displays are available for certain database selections.

CardNo	PIN Code
12345678	1234

Databases with PIN code, dB6 or 10.

1.2.3 Card Enter Reader 1/2

Card enter rd 1
Enter card rd 1

Displays the number of the cards as they are presented to the selected reader.

Note: The Controller must be set for the correct card format, client-code and site-code for this function to work. If any of these are wrong then card 65535 is displayed. The card is automatically enabled for both readers and set with time group 1, not capture, not passback.

1.2.4 Cards Batch Load

R1e	R2e	Time	Cap	Pas
1	1	01	1	1

Change the status of a batch of cards, e.g. enable cards 1 to 500 for both readers.

The initial display would be:-

Reader 1 and 2 enabled with 1, disabled with 0. Time group 1 to 15 or 1 to 60 for CR355A. Capture and pass-back enabled with 1, disabled with 0.

Use the right arrow key to move to the second display:-

Cards batch load
00001 to 00500 Enter

Press the ENTER key to store the new settings:

Note: You MUST be on the second page when you press the ENTER key. If not use the right arrow to get back to the second page and then press ENTER.

1.2.5 Reset APB

Clear anti-passback, giving each card one free movement. This is useful where a reader may have been down for a time and people have entered or exited without presenting their cards. Enables the card for both readers if it is enabled for either.

1.2.6 Display Card HEX

The cards presented to the readers are displayed in HEX code. The numbers of bits read are displayed. This option is used for debugging purposes.

1.2.7 Set-up

Configures the CRC Controller. The values displayed below are the default values that are set when the RAM is 'dropped', i.e. the link E13. The arrow keys are used to move the cursor position

and the data is overwritten. The value options are listed below. An illegal value entered prevents the LCD moving to another display and must be corrected to a legal value. Set-up marked with *sw3 only set by SoftWin3 version 0.46 or later.

001 Node address

* Not set by PC

The node address on the RS485 LAN. No two controllers may have the same address on a LAN.

0000 FrontP 3210

*Sw3 Only set by PC when type CR355

As indicated in the installation options, front end RS484 interfaces connected to the reader ports, provide inputs, outputs and readers remotely. Reader 1 and its I/O are connected to the controller reader 1, or on an interface connected to reader 1.

Reader 1 can have interface 0 (no link on the interface address link) and interface 1 (link on the interface address link). Reader 2 can have interfaces 3 (link on the interface address link). Interface 2 to be included in future versions. To enable an interface, set a 1, e.g. interface 0 and 3, set 1001. Although the programmer is an interface 0, interface 0 need not be set for the programmer (the test link E11 acts as an enable for interface 0).

0 351-4/5/C/kV/aV/5A

*Sw3

The CR355 can function in modes that emulate other Softcon controllers. When set to type 0, CR351/2/4 controllers are emulated (PC type CR351). 1 sets CR355 (PC type CR355), that have configurable inputs and outputs and additional features. Type 2 (PC type Cash) sets cash loader (requires cash EPROM) and type 3 (PC type Vender) sets key Vender, 4 (PC type Access Vend) set Access vender (requires Vend EPROM) and 5 set CR355A (PC type CR355A). Settings 2 to 4 require database mode 10.

0 192/96/48

* Not set by PC

The communication baud rate speed (bits per second) of the main serial port is set at:

0 = 19k2 1 = 9k6 2 = 4k8 3 = 2k4

When the RAM is 'dropped' (power off and battery link removed), the option defaults to 9k6.

0 LA/TE/MO/PC/HH

* Not set by PC

The communication type of the main serial port is set at:

0 = LAN in 9 bit mode (preferred) 1 = Test mode
2 = Dial-up modem 3 = Directly to PC COM port, or LAN in 8 bit mode
4 = Hand programmer

When the RAM is 'dropped' (power off and battery link removed), the option defaults to LAN.

0 Not/ser echo card

0 = None

1 = Echo card entered to serial port R2:

nn r 0123456789 nnn=address, r=reader, 10 card number, CR

0 Not/Display Card

0 = Not Display

1 = Display card number swiped on LCD

1 Latch click en/dis

Causes DC door latches to click, giving the user an audible indication when the latch opens.

0 = Output relay pulses once per second. 1 = Do not pulse.

1 AC O/N/C/Ot/Ct

Action compete is the **Softcon** term for Door Monitoring.

0 = Normally open contact 1 = No door contact - i.e. disable door monitoring
2 = Normally closed contact 3 = Normally open contact with time-out
4 = Normally closed contact with time-out

5 = Normally open contact till closed 6 = Normally closed contact till closed

1 Booth/none/1rd

Booth is **Softcon**'s term for "air-lock", "inter-lock" or mantrap, i.e. if a pair of doors is set for booth then they are inter-locked, only one may be opened at any time.

- 0 = Booth mode 1 = Normal mode (no booth)
- 2 = One reader booth (special for a sliding door booth)
- 3 = Interlock 4 = One reader controller (reader=active reader enable input)

2 Nr.doors 0,1,2

Number of doors controlled by the CRC.

- 0 = No doors (no relay output) 1 = One door (output on latch 1 only)
- 2 = Two doors (output on latch 1 for door 1, latch 2 for door 2)

00 no/Cap/m/mC/Cd,

Cards capture type (Reader 1, reader 2).

- 0 = Normal card reader (not motorized or capture)
- 1 = Reader in conjunction with a capture bin.
- 2 = Motorized reader (not capture)
- 3 = Motorized read (with capture capabilities)
- 4 = Capture reader (disable card after capture)
- 5=if expired, capture & exit (special function)
- 6=if not expire, exit (special function)
- 7=Pulse capture bin to open

000 10ms CapPulse

When capture is pulse, sets the pulse length in 10msec multiples. Max is 255 = 2.55 seconds. 0 or 1 is 10msec, any other setting has a resolution of 10msec (e.g. 10 = 90 to 110msec).

00 NO / NC Latch L12

Latch type.

- 00 = Latch normally open (1st digit = latch 1, 2nd digit = latch 2)
- 11 = Latch normally closed (1st digit = latch 1, 2nd digit = latch 2)

00 LED12 3,f/2,f

Reader LED type.

- 00 = 3-LED normal (1st digit = reader 1, 2nd digit = reader 2)
- 11 = 3_LED flash yellow (1st digit = reader 1, 2nd digit = reader 2)
- 22 = 2-LED normal (1st digit = reader 1, 2nd digit = reader 2)
- 33 = 2_LED flash yellow (1st digit = reader 1, 2nd digit = reader 2)

00 no/HI/P ena. R12

Reader disable option.

- 00 = Disable arming input for reader (1st digit = reader 1, 2nd digit = reader 2)
 - 11 = Enable arming input for reader (1st digit = reader 1, 2nd digit = reader 2)
 - 22 = Enable arming input for both reader and free exit button.
- Input 7, 8 - closed disables reader 1, 2 (CR355 settable)

0 not/LO/LAN APB

APB reset.

- 0 = Normal operation (hard-wired anti-passback disabled)
- 1 = Auxiliary input 2 resets anti-passback
- 2 = If LAN comms off, card granted access if enabled for wither reader. Not applicable in stand-alone mode

02 db 2C,10 ran

Data base mode. 02 = 64,000 card number capacity, no keypads. (default)
10 = Random number cards, with (10 000 cards) or without PIN (15 000 cards).

0 not/PIN used

***Sw3**

In data mode 10, PIN pads can be used. If used, the database size is 10 000 card, if not the size is 15 000 cards. Using PIN readers (e.g. prox combinations) requires that HH be removed and controller reset before the PIN readers function correctly.

0 One/each RD Tg

***Sw3**

Cards can use one time group or have different time groups per zone. When using different time groups per zone, the database is smaller for database 2, namely 32 000 cards (64 000 if one time group).

0239 Client Code

Four figure number. Together with the site-code identify the cards as belonging to a particular site/installation. Ignored if client and site codes set to zero.

000 Site Code

Three figure number. Together with the client-code identify the cards as belonging to a particular site/installation. Ignored if client and site codes set to zero.

11 APB en/dis/hi R12

00 = Enable anti-passback (1st digit = reader 1, 2nd digit = reader 2)
11 = Disable anti-passback (1st digit = reader 1, 2nd digit = reader 2)
22 = Logical anti-passback (aux input 3 enables for reader 1, aux input 4 for reader 2)

< Time zone, Groups >

Use the right or left arrow keys to enter the time group options.

T1 Group 02 MTWTFSSH
00:00-00:00 1 1 1 1 1 1 1

The up and down arrows move between the time-zones.
The right and left arrows move between the time-groups.
T1 = Card time-zone 1 Group 01 = Card time-group 1
Time-zone of 00:00-00:00 = Never valid.
Time-zone of 10:00-10:00 = Always valid. (24 hours per day)
Time-zone of 08:30-17:15 = Valid from 8:30am to 5:15pm.
There are time-zones and time-groups for when Reader 1, Reader 2, PIN-pad 1, PIN-pad 2, Door 1 open, Door 2 open, inputs and outputs are active.

00-00 Holiday 01

30 holidays in the year, in the format DD-MM. Right and left off the month or date, displays the next, previous holiday.

< Input time gr >

***For CR351-4 mode only reserved inputs function**

Input time group for inputs, closed time group – open time group. If door tg also for illegal, not opened, too long.

< Output time gr >

***For CR351-4 mode only reserved outputs function**

Output time group for level 1.

16-17 Reader Tg

18-19 PIN Tg

20-21 Latch Tg

Time groups for when Reader 1-2, PIN 1-2 required and Latch 1-2 open.

***For CR355A mode only**

02-02b Card type

Reader and card type for reader 1 – reader 2.

- 00 = 40 bit Wiegand card format.
- 02 = 44,40,37,36,35(corporate 1000),34,32,30,26 bit Wiegand card format.
- 04 = 26 bit Wiegand card format, 32 bit corporate 1000, 34 bit Dutch.
- 06 = 32 bit Wiegand card format (Aritech).
- 08 = **Softcon** mag-stripe card format (not ISO).
- 12 = Mag-stripe card format. ISO standard 7 characters
- 14 = Mag-stripe card format. ISO standard 8 characters
- 16 = Mag-stripe card format. ISO standard 1-12 characters
- 18 = Touch tags, random numbers (must be db10).
- 20 = 32 bit BCD, 34 bit GSC cards (no facility, 32 bit card number).

0 LRC/parity check/not

- 0 = Check the LRC character on ISO mag-stripe cards, check Wiegand parity.
- 1 = Do not check the LRC character on ISO mag-stripe cards, ignore Wiegand parity.

00 FormErr R12 n/y

- 0 = Not report reader format errors.
- 1 = Report reader format errors.

00000 Card offset

Five digit number that adds an offset to the card number. e.g. If the lowest card number to be used in the system is 6,001 then by setting an offset of 06000 card 6,001 becomes card number 1.

00-00 Nr Location

Location of card number data on the mag-stripe card. (start character = 01)

00-00 Facility location

Location of facility code data on the MAG-stripe card. (start character = 01)

For type 12 MAG-stripe cards:-

- Client-code = facility-code / 256 Site-code = remainder.
- e.g.. If facility = 1122, Client = 1122 / 256 = 4, Site = 1122 - (4 x 256) = 98.

00-00 Alt Nr location

Location of card number data on the MAG-stripe card (start character = 01), if the facility number does not match.

0 dis/BEEP/al/B+a,aux

- 0 = Buzzer output disabled.
- 1 = Buzzer once for card accepted, twice for card rejected.
- 2 = Buzzer on alarm condition. e.g. door left open, invalid card etc.

00000 s open time-out

Number of seconds (0 to 65 000) the door may be left open after being opened with a card or free exit request before a "door left open" alarm occurs.

05 sec. Lock time

Number of seconds the door output relays will operate for. If action complete is enabled then it will over-ride the latch time.

4 *250msec 1sec

250 msec latch time multiplier when lock time set to 1 second.

00 Illegal attempts

After X number of illegal attempts (invalid card or PIN) the reader / PIN-pad will be disabled for XX minutes.

00 min reader dis

On multiple illegal entry attempts, the time period for which the reader will be ignored.

00 R12 min ATB

Minutes a card is anti-timeback per reader

00 R12 ATB clr/n

00=R1 Clears card from R2 ATB list, R2 clear R1
01=R1 Clears card from R2 ATB list, R2 not clear R1
10=R1 Not clears card from R2 ATB list, R2 clear R1
11=R1 and R2 not clear R2 and R1

0000 Password

Not implemented – future use.

hhmmss DDMMYY w

Sets the real time (24 hour clock), date (dd-mm-yy) and day of week (Monday = day 1, Sunday = 7). The enter key must be used to accept this data.

< Modem Init >

Sets the data sent to the modem on power-up. The string is a maximum of 64 characters and is terminated when a 0FFH character (displayed as an underscore _) is encountered in the string. Carriage return (0DH) is automatically added. Characters are edited by moving to the characters with the right or left keys and entering 0 to 7 or scrolling through the characters via the up and down keys. The \ character is displayed as ¥.

When the controller type is set to CR355 (setting above), the input ports are configured. Each of the local 16, the front modules 1 and 2 (4 each) supervised inputs are set as **Aux inputs** (normal input) or as a special function input, linked to reader/door 1 or 2:

APB follow. The cards APB is only changed when this input is read as high (open).

APB reset. When the input is read as low, all cards that have access on either reader, are given access on both.

Action complete. Door monitor.

Boot occupied. In booth (mantrap) mode, a low input (closed contact) indicates that the booth is occupied.

Capture. When card capture is set, a low input (contact closed) indicates that a card has been entered in to the capture bin.

Egress. When the Egress or push button input is read as low, the door is opened.

Reader enable. The associated reader is enabled when the input is high (open) and the reader functions normally. When low, the reader is disabled and the red led indicates that data from the reader is ignored.

Reader tamper. The latch control (via reader or push button) is disabled when the tamper input is low. This input is connected to a micro switch mounted on the reader that is low when the reader is removed from its mounting.

Latch monitor. The latch is monitored and only when locked after door closed (action complete) is action complete. When action complete is till door closed, latch is controlled locked on door closed.

Each input is set to be a 2 level detection (not supervised) or 4 level (supervised). Level is changed by entering 2 or 4.

When the controller type is set to CR355 (setting above), the output ports are configured. Each of the local 14 (outputs 13 and 14 are virtual), the front modules 1 and 2 (9 each, 9th output is virtual) outputs are set as **Aux outputs**, or as special function outputs linked to the reader/door:

Latch. Control of the latch.

Capture. Control of the capture bin.

Buzzer. Audible alarm output.

Reader Isolate. Output driven by the PC when reader is isolated (data is ignored). When set to a **virtual** output, the reader isolate is controlled without an output being controlled.

LED Green, Red, Yellow. LEDs are controlled displaying green for access granted, yellow flashing for ready and red for access denied or reader disabled. Flashing red indicates booth busy.

Interlock busy. When booth sequence is in progress or interlock with a door open/unlocked, the output is activated.

1.2.8 Versions

Displays the Firmware (FW) or Software (SW) versions of the controller processor and the connected interfaces and the electronic ID of the controller and interfaces. These are:

CR355. The main program (IC 16) and ID of the controller PCB.

R1. The program of the R1 processor (IC 1).

R2. The program of the R2 processor (IC 4).

u0. The program and the ID of the interface 0 (connected to P9, no address link on interface).

u1. The program and the ID of the interface 1 (connected to P9, address link on interface).

u2. The program and the ID of the interface 2 – future option (connected to P10, no address link on interface).

u3. The program and the ID of the interface 3 (connected to P10, address link on interface).

Unknown or not connected interfaces display version ???? and ID 0000.