



# FW\_Lib\_HH booklet

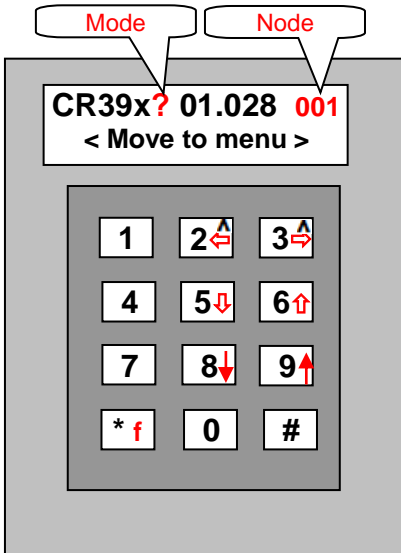
Revision 13R

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Note that the version number of the document matches the FW version.  
Later versions of the FW may not require changes to this document.  
The latest version of this document is available on [www.softconserv.com](http://www.softconserv.com)

# 1 GENERAL INFORMATION



The CR374, CR375 or CR379 hand held terminal (HH) provides the means to program the CR39X Controller panels (CntrP) as stand-alone units and to check or temporarily change set-up. This document lists all HH functions available – certain functions may not be available in certain CntrPs, and the menus may differ slightly.

Note that in LAN installations, the PC set-up overwrites the set-up done by the HH. 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 HH.

The CR374/5, CR395 is plugged into the front LAN (FLAN) connector on the controller for serial communication and power, connections are given in the installation and lid insert documents.

A link (see controller documentation) on the controller must be in for the programmer to work.

The FrontP enable setting (see [set-up/comms/FrontP](#) below) for the interface 0 need not be set to 1 for the HH to be active.

Pressing the CLEAR button (\*) enables the programmer. The display should appear as shown here.

When sharing FLAN with I/O controllers (e.g. CR394) or with more than 2 CR375 / CR395 terminals, all connected to the FLAN must run the FLAN-universal firmware (FW) – this requires CR375 FW 1.20 or later, see [set-up/comms/Front-Slaves](#).

## UNIVERSAL / LEGACY

Controller (e.g. CR391) firmware (FW) can be pre-programmed to include legacy mode functions (e.g. as a CR355 access or vending controller), only as a universal controller (e.g. CR393) or have legacy and universal functions (e.g. CR391). Certain legacy controllers (e.g. CR390) do not have the universal mode.

The mode selection is done in [set-up/comms/mode](#).

Legacy functions will be phased out. Universal selection requires that the PC software (SW) has been upgraded with the universal version.

- In this document, all information related to legacy only is indicated in BLUE.
- ❖ In this document, all information related to universal only is indicated in GREEN.
- Mode (see drawing above) displays the set legacy mode: o=CR351; f=CR355; c=cash loader; k=key vend, v=vender; a=CR355A, x=access vend.
- ❖ For universal, the mode is u=universal.

Due to FW and selection options, certain functions listed below may not be available to the controller or to other settings for the controller.

# 2 FUNCTION KEYS

\* key is Clear or a **function** key, and when kept in, the following key functions are:

**2** ⇐ (cursor left)      **3** ⇒ (cursor right)  
**5** ↓ (down / next)      **6** ↑ (up / previous)

- \*5 ↓ and \*6 ↑ allows the character to scroll 0 to 9, A to F to 0 in certain menus.
- ❖ \*8 ↓ and \*9 ↑ allows the character to scroll 0 to 9, A to F to 0 in certain menus.

# key is Enter and in most menus, # key is same a down key.

Continually selecting a key (keeping down a key), the selection runs, i.e. as if multiple selections are being made.

When the cursor is on a ^ character, the preceding word indicates a selectable option.

Option changed by selecting:

**2** (previous option)      **3** (next option)

Pulse	Tmout	O001
005*10ms^	005*sec^	

e.g. when cursor is on ^ in Output Pulse/Timeout menu, selecting 2 or 3, scrolls the option to nil, 1ms, 10m, 100, sec and min (timeout of 5 seconds is shown).

In a top heading menu (indicated with < > as below), left and right arrow keys moves to the required menu.

```
C390 x 00.28 001
< Move to Menu >
```

*Data Base Search, Data Base edit, Card enter reader 1/2, Cards batch load, Rest APB, Set-up, Versions, etc.*

When top right displays a reference number (e.g. ComA or D1), the reference (A, B or 1, 2 etc.) is changed by selecting **2** when the cursor is on the 1<sup>st</sup> digit.

In this document, these displays are indicated with:

**D** Door                      **I** Input reference                      **L** LCD                      **O** Output reference  
**P** PIN                          **R** Reader reference                      **S** Serial Com port                      **W** 1-wire reference

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.

### 3 MENU'S

#### 3.1 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 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).

#### 3.2 Data Base Edit

```
Xref e12 tg cp
00001 11 01 00
```

```
Xref e12 t1t2 cp
00001 11 0101 00
```

Legacy or universal and 1 or 2 readers set.  
 Right display if own Tg option set  
 (set-up/comms/mode=5).

```
Xref e12345678
00001 01100010
```

```
t1 t2 t3 t4 t5 t6 t7 t8
0101021234010217
```

```
Pass Cap12345678
0 01100000
```

Universal more than 2 readers

Change the status of an individual card.

- Xref = card database reference 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 or universal),
  - 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). For universal >2 readers, capture at specific reader, else capture at readers with capture in and output.
- p = **Passback** (1 = ignore any programmed anti-passback)

❖ The number of readers displayed is selected in **set-up/Rd-Card/Nr. Readers**, the maximum is dependent on controller, version and protection keys.

❖ **Sup Host Rep Ala** 1 sets the profile as:

```
Sup Host Rep Ala
0 0 0 0
```

Supervisor can change setting (via SMS).  
 Host is 1<sup>st</sup> card when multi-badge used.  
 Reports, errors, status changed are sent via SMS.  
 Alarms are sent to card

The up arrow moves to the previous card. The down arrow moves to the next card. For universal more than 2 readers, right / left key moves to next / previous display.

CLEAR key exits to main menu, having stored the new settings.

The following displays are available for certain database selections.

CardNo 123456789012	PIN Code 123456	Card number for database 10 (random cards) (set-up/dBASE/dB 2C, 10randB=10). PIN code when PIN dB enabled (set-up/dBASE/dB not/PIN=1).
OutGrp-Check% 00-00	When output group and check dB are enabled (set-up/dBASE/dB n/Out group=1) and (set-up/dBASE/dB n/Check=1).	
Check% 00	When output group dB not enabled and check dB is enabled.	
OutGrp 00	When output group dB enabled and check dB is not enabled.	

Vending database edit:

- When controller type is set to vending and node address = 0 (stand-alone).
- ❖ When Db Vending is enabled and readers are set for vending (See Set-up Apps below).

Fr Re RRRcc 12 34 56788	Fr: Daily free vends (99 is unlimited). Re: Free vend remaining for the day. RRcc Value remain (currently not used).	* Vending mode, and Node is 0
----------------------------	--	-------------------------------

- ❖ When Db ExpireBase year (see Setup dB below) is set (not zero), cards can have local expiry.

H/4 DD-MM +YY 00 00-00 00	H/4: HH Hour in the day. To limit memory, the system uses resolution of 4 hours . HH saved as 00, 04, 08, 12, 16, 20. e.g. 09 is stored as 08 DD Date 01 to 31 (00 is no expiry). MM Month 01 to 12 (00 is no expiry). YY Added to the Db ExpireBase. e.g. if Db base=18 and +YY=2, expire year=2020.
------------------------------	---

### 3.3 Card Enter Reader x

Card enter rd 1 Enter card rd 1	❖ Selecting down (*5↓) displays reader 2/3/4. Etc.
------------------------------------	--

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 pass-back.

### 3.4 Cards Batch Load

R1e R2e Time Cap Pas 1 1 01 1 1	Use the arrow keys to move to the second, third display
------------------------------------	---

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.

Free Remain Value 00 00 00000	If Free is 99, remain does not decrement.	* Vending mode, and Node is 0
----------------------------------	---	-------------------------------

Batch load R 00001 to 00500 2	Press the ENTER key to store the new settings. <b>Note, depending on number of cards, this may take up to 10 seconds to complete.</b>
----------------------------------	--

For Random database (dB10) R sets the card number:

0=Clear 1=copy xref to number 2=no change

### 3.5 Nr Cards Enabled

Displays the number of cards enabled for reader 1, reader 2, for both reader 1 and 2 and for either reader. Menu down or up displays the number of cards set for each time group.

**Note, depending on number of cards, each display may take up to 10 seconds to calculate.**

### 3.6 Reset

- ALL** Resets all the following. This is the same as doing a reset by linking the reset pins of the uP PCB. See controller for reset pins / reset sequence.
- 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.
- BRAM** Defaults all the Setup stored in Battery RAM as described below.
- ERAM** Defaults all the Setup stored in EERAM as described below.
- Card dB** Defaults the card database.
- Keys Site** Clears the SW keys (what SW3 is enabled for).
- Keys Cntr** Clears the ContrP keys (what and how many the CntrP is enabled for).
- TG count** Clears the TG count.
- Vends Reset** Forces reload of vends remain with the free vends set per card (if vending enabled).

When power-up with reset link in, a serial port defaults to test, 19k2 baud (see controller for default port). This test port setting remains even if a reset is done.

The test port can be changed with the HH or by reset after power-up without the reset link in.

*Note reset may take up to 10 seconds to complete.*

It is suggested that in TCP connected controllers, the Ethernet cable be removed before the factory reset is done and only replaced when the correct IP setting have been entered. This eliminates possible problems with certain smart routers that block the port when detecting the default IP address 192.168.100.001.

### 3.7 Display Card HEX

Reader 1
Reader 2

30.F7800000000000
36.8F0DE

Selecting down (\*5↓) displays reader 2/3, 3/4, etc. This option is used for debugging purposes.

The cards presented to the readers are displayed in HEX code. The numbers of bits read are displayed.

### 3.8 Nodes / Event Simulate

Nodes/Event Simu sss-eee SimNodes
--------------------------------------

Nodes/Event Simu rrr Event l1 L/H
--------------------------------------

See library manual for details.

For testing, a slave LAN controller can serve as multiple nodes – the range of nodes sss-eee simulate the event - Input 1 low, input high, repeated rrr, sent every time enter (# key) is selected.

### 3.9 Simulate reader

Start	End
Ssssss	: Eeeee

Repeat	*250msec
Rrrr	: xx

See library manual for details.

A Wiegand reader is simulated – generating card number on Hi/Lo data lines.

Cards in data from Start to End are simulated on output ports set to Reader-Hi and Reader-Lo.

Settings of 0 does from 1<sup>st</sup> to last card in the database.

The loop is repeated Rrrr times (0=continuous). Delay between card simulation is set multiple of 250msec.

### 3.10 Sub LAN Status

LAN-status yyy xxxxxxx n/y/p/o
-----------------------------------

\* Only when comms type is LAN Master

Status of 8 slaves (starting at node yyy) Status:

- 0=Not configured. Node is ignored, never polled.
- 2=Polling. Master is polling, but not on-line.

- 1=Yes configured for polling.
- 3=Node is on-line.

Shift 6 (up)/ 5 (down), shows previous/next 8 nodes

- Key 0 disables the node. The node is ignored, will not be polled.
- Key 1 configures the slave and a poll is done if polling started (key 8 or 9).
- Key 8 polls all configured continually.
- Key 9 does poll continually, ignores on-line to PC.
- Key 7 stops poll.

When exit menu (\* key) – polling stops.

### 3.11 Event Stats Log

The controller keeps statistics on certain events – counting the number of time the events occur. The counters are displayed by scrolling down or by #. Selecting the 0 key clears the counters on display, 9 clears all the totals. Selecting the 8 key sends stats via SMS to profiles sets with Report.

The counters are (see library manual for details):

- Communication buffer. On-line, into buffer, out of buffer and cleared (not sent).
- Reader events, counters for local controller and for all controllers on the LAN.
  - Card In (entered), Reversed, Framing and facility errors.
  - Pin duress, entered, Wrong PIN.
  - OutTime, OutArea, Not opened.

### 3.12 Output Groups / Multi-output control

Access control opens latch 1 and/or latch 2.

By allocating an output group to a card, enabled cards can control multiple outputs for each reader (if the card has Output Group=0, no multi-control is done).

Card Database must be type 10, enabled for Output Groups.

Grp	Rd	Pt	Act	Tg
01	1	02	06	00

Up to 128 output group setting – sets what output (Pt=port) and how (Act=activity) controlled when card with Group (Grp) is granted access at Reader (Rd).

- Grp Group 1 to 63 (a group is allocated to a card). If 0, setting is not used.
- Rd Reader 1 or 2 of the controller. If 0, at either reader.
- P2 Output port 1 to 80. If the output is not type Aux-Out, that type has overriding control.
- Act Activity that the output is controlled (all functions not enabled in all versions):
  - 0=No control.
  - 1=Off
  - 2=Pulse Uses latch time
  - 3=Input. On till input with type OutGroup changes (function not enabled).
  - 4=Latch. Follow latch. Control same as latch setting.
  - 5=Door. Control until door opens (function not enabled).
  - 6=Toggle. Change over output.
  - 7=On.
- Tg TimeGroup when the control is done. If 0, control is always done.

The 128 setting can be viewed and edited with the HH. Settings can be received from the PC (is the PC program has this function).

When entering the Output Group menu, the functions are scrolled (up/down keys) and selected with #

- Clear: The Clear criteria is edited (only Grp and Rd are used to find settings to be cleared). All setting matching the Grp (or any group if 0) and the Rd (or all readers is 0) are cleared when Down or # is selected.
- Search: The Search criteria is edited ((only Grp and Rd are used to find settings to be displayed). All setting matching the Grp (or any group if 0) and the Rd (or all readers is 0) are displayed when Down (or #) or Up is selected. Down (or #) shows the next setting ordered by Group. Up displays the group in descending order from the back (from setting 128). When no more matches are found, the 1<sup>st</sup> blank setting (Grp=0) is displayed – up or down resumes with the initial search criteria. The data on display can be edited.
- Edit: The settings 1 to 128 (with Down or #) or 128 to 1 (with Up) are displayed and can be edited.
- Add: Finds the 1<sup>st</sup> blank setting (Grp=0). If none found, setting 1 is displayed.
- Typically: Grp=1, Rd=1, Prt=3, Act=2  
Grp=1, Rd=1, Prt=4, Act=6  
will pulse output 3 and toggle 4 when card with Group 1 granted access at reader 1

### 3.13 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. Version is displayed as xxx.yyy where xxx is the product version (FW specific to the product) and yyy is the FW library version (FW common to all Softcon products).

### 3.14 Nodes/Event Simulate

Nodes/Event Simu  
xxx-yyy SimNodes

Nodes/Event Simu  
zzz Event l1 L/H

Nodes/Event Simu  
ccc-ddd Card-Del

Slave controller responds to own node and to nodes xxx to yyy (if not 0). Setting revert to 0 on power-up.

Zzz events of input 1 low (level 1 - closed) and high (level 2 – open) are simulated to the transaction stack. Cards in the first ddd database locations are disabled, then cards found in the first ccc locations are reported as entered (if enabled) or out-of-area.

These events are removed off the stack by the LAN master polling the matching address, or removed if 200 consecutive poll do not match the polling address.

### 3.15 Vends simulate

Vends Simulate  
# sim vend done

# Key simulate  
Key 000 R000-00

\* Only when controller is Vend

Selecting the # key simulates commands from a vending machine – vend done or key selection. The key and price simulated can be edit as required.

### 3.16 Set-up

Configures the CRC Controller. **The values displayed below are the default values** that are set when the SRAM is 'dropped', i.e. the link uE1, or reset via link uE9. 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 Resources >

2/k	Nr. Readers 0+	Number of readers controlled by the CRC.
k is the maximum the licence key allows. Top line show the maximum FW allows. Set to 0 vending/cash, requires no card, card 1 is simulated.		

10000/kkkkkk	Cards	Number or cards.	Stored in EEPROM
Maximum cards in the local database. When set lower, searches are faster. kkkkkk is the maximum the licence key allows. Top line show the maximum FW allows. When set to 0, controller determines largest number on power-up, corrected on additions. If zero, edit down adds card to end, up on card 1 goes to end (does not add).			

152/kkk	Nr. Inputs	Number of inputs controlled by the CRC.
k is the maximum the licence key allows. Top line show the maximum FW allows.		

096/kkk	Nr. Outputs	Number of outputs controlled by the CRC.
k is the maximum the licence key allows. Top line show the maximum FW allows.		

< Set-up Apps >

Setup 1234 F  
k Acc 1100

Sets the readers for App Access.  
Top right shows maximum, FW allows. Bottom left shows maximum keys allow.

The readers enabled for the access control (not access vend) is selected with 1 for the required reader (0 is not selected, e.g. if two access points and reader 2 and 3 are used for access, set 4 Acc 0110).

0/k BootLoader

Stored in EEPROM

Top right shows maximum, FW allows. k shows maximum keys allow.

❖ When set to 1, the controller is master to slave BootLoader – bootloader data is transferred to a slave.

Setup 1234 F  
k Cash 0000

Stored in EEPROM

Top right shows maximum, FW allows. k shows maximum keys allow.

❖ Enables the cash application and set the reader used for cash load.

Setup 1234 F  
k Check 0000

Top right shows maximum, FW allows. k shows maximum keys allow.

❖ Enables the check application and set the reader used for random check.

Setup 1234 F  
k Fuel 0000

Stored in EEPROM

Top right shows maximum, FW allows. k shows maximum keys allow.

❖ Enables the fuel application and set the reader used for Fuel.

0/k Intrusion

Stored in EEPROM

❖ Enables the number of intrusion inputs monitored (0 disables the App).

0/k Lift

Stored in EEPROM

❖ Enables the number of floor in the lift / level App (0 disables the App).

0/k PLC

Stored in EEPROM

❖ Sets the number of PLC algorithms (0 disables the App).

0/k Temperature

Stored in EEPROM

❖ Sets the number of Temperature sensors.

Setup 1234  
k Vend 0000

Stored in EEPROM

Top right shows maximum, FW allows. k shows maximum keys allow.

❖ Enables the vend application and set the readers used for vend.



<b>&lt; Set-up Comms &gt;</b>		
<b>Controller name</b>	Edit with numbers or scroll with *8 and *9	
❖	.Used by Mobile Apps and SMS	
<b>001 Node address</b>	<b>Not set by PC</b>	<b>Stored in EEPROM</b>
The node address on the RS485 LAN. No two controllers may have the save address on a LAN.		
<b>1 4/5/C/V/x/A/F/u</b>		<b>Stored in EEPROM</b>
<p>Controllers can function in modes that emulate other Softcon controllers. See 1. General / Legacy / Universal above. When mode is set to type:</p> <ul style="list-style-type: none"> <li>➤ 0=CR351/2/4 controllers are emulated (PC type CR351).</li> <li>➤ 1=CR355 (PC type CR355), that has configurable inputs and outputs and additional features.</li> <li>➤ 2=Cash loader (PC type Cash).</li> <li>➤ 3=Vender (PC type Vender).</li> <li>➤ 4=Access vender (PC type Access Vend).</li> <li>➤ 5=CR355A with 60 TimeGroups (PC type CR355A).</li> <li>➤ 6=Fuel controller.</li> <li>❖ 7=Universal controller – see universal / legacy (always 128 TimeGroups).</li> </ul> <p>Settings 2 to 4 and 6 require database mode 10.</p>		
<b>0 CR390 / CR390V</b>		<b>Stored in EEPROM</b>
➤ Hardware configuration (different base PCBs)		
<b>1 Ser/IP/MOD/USB</b>		<b>Stored in EEPROM</b>
Comms mode to top (interface to PC/ top LAN). LAN (RS485) or serial, TCP, Modem, USB (special version).		
<b>128.168.100.001a</b>	<b>*Only when PC mode is TCP/IP</b>	<b>Stored in EEPROM</b>
Net IP Address.		
<b>128-168-100-002m</b>	<b>*Only when PC mode is TCP/IP</b>	<b>Stored in EEPROM</b>
Net mask		
<b>56789 TCP Port</b>	<b>*Only when PC mode is TCP/IP</b>	<b>Stored in EEPROM</b>
TCP port address, defaults to 56789. Older versions were fixed at 00701		
<b>0004A3-5D3B31mac</b>	<b>*Only when PC mode is TCP/IP</b>	<b>Stored in EEPROM</b>
<p>If option is enable, the Net MAC. The Hex digits scroll 0-9, A-F with up/down or edit 0-9. Cursor on '-' scrolls up/down to next set-up option. 1<sup>st</sup> digits are reserved (allocated byte IEEE) – the first two digits can only be 00 or 02 (indicates MAC set locally) – if not, MAC will default on next power-up. The last 6 are the HW ID (PCB serial number) - e.g. 06110001 is Hex 5D3B31. On reset, MAC defaults to the HW ID and should ideally not be changed. When MAC is changed (e.g. by replacing a PCB), certain net switches and PCs may need to be reset (for PCs, running ARP –d from the command line, resets the PC MAC settings).</p>		

FLAN mast^ SType S_	*Not set by PC	Stored in EEPROM																												
<p>The communication type for serial COM A to COM F (number of COM ports according to controller).          In older versions, COM A settings are displayed, followed by COM B, C, etc.          In new versions, COM B, C, etc. is selected with left key when cursor is on the first digit.</p> <table border="0"> <tr> <td>00 = None (Port not used).</td> <td>01 = LAN slave (controller is slave on LAN).</td> </tr> <tr> <td>02 = LAN master (controller master to LAN).</td> <td>03 = RS232 Test port (displays debugging, set-up).</td> </tr> <tr> <td>04 = FLAN master (Hand programmer).</td> <td>05 = Cash (note) reader.</td> </tr> <tr> <td>06 = Vending machine.</td> <td>07 = PC direct comms.</td> </tr> <tr> <td>08 = Fuel pump comms.</td> <td>09 = RFmodule polygon comms (requires 9k6, 8 bit).</td> </tr> <tr> <td>10 = GSM modem</td> <td>11 = TRX ASCII basic</td> </tr> <tr> <td>12 = Serial reader Universal, MTEK, HCR</td> <td>13 = ControlSoft</td> </tr> <tr> <td>14 = Salto reader/lock</td> <td>15 = WiFi</td> </tr> <tr> <td>16 = BlueTooth</td> <td>17 = Wifi/BT (dual module)</td> </tr> <tr> <td>18 = Front LAN slave (this CntrP is FLAN slave)</td> <td>19 = LMI scale</td> </tr> <tr> <td>20 = OSDP</td> <td>21 = PLD (power line – MO310 to MO310)</td> </tr> <tr> <td>22 = PassThru (to/from RS232 Test port)</td> <td>23 = PLD LAN</td> </tr> <tr> <td>24 = MO310 – CR39X</td> <td>25 = ID Barcode</td> </tr> <tr> <td>26 = Aperio</td> <td>27 = Alcohol Breathalyzer</td> </tr> </table> <p>Type 0 functions as 04 is HH link installed, else as 01 (LAN slave) or 02 (LAN master)  <b>Note that setting an unconnected test could cause errors. See reset for default of test port.</b></p>			00 = None (Port not used).	01 = LAN slave (controller is slave on LAN).	02 = LAN master (controller master to LAN).	03 = RS232 Test port (displays debugging, set-up).	04 = FLAN master (Hand programmer).	05 = Cash (note) reader.	06 = Vending machine.	07 = PC direct comms.	08 = Fuel pump comms.	09 = RFmodule polygon comms (requires 9k6, 8 bit).	10 = GSM modem	11 = TRX ASCII basic	12 = Serial reader Universal, MTEK, HCR	13 = ControlSoft	14 = Salto reader/lock	15 = WiFi	16 = BlueTooth	17 = Wifi/BT (dual module)	18 = Front LAN slave (this CntrP is FLAN slave)	19 = LMI scale	20 = OSDP	21 = PLD (power line – MO310 to MO310)	22 = PassThru (to/from RS232 Test port)	23 = PLD LAN	24 = MO310 – CR39X	25 = ID Barcode	26 = Aperio	27 = Alcohol Breathalyzer
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04 = FLAN master (Hand programmer).	05 = Cash (note) reader.																													
06 = Vending machine.	07 = PC direct comms.																													
08 = Fuel pump comms.	09 = RFmodule polygon comms (requires 9k6, 8 bit).																													
10 = GSM modem	11 = TRX ASCII basic																													
12 = Serial reader Universal, MTEK, HCR	13 = ControlSoft																													
14 = Salto reader/lock	15 = WiFi																													
16 = BlueTooth	17 = Wifi/BT (dual module)																													
18 = Front LAN slave (this CntrP is FLAN slave)	19 = LMI scale																													
20 = OSDP	21 = PLD (power line – MO310 to MO310)																													
22 = PassThru (to/from RS232 Test port)	23 = PLD LAN																													
24 = MO310 – CR39X	25 = ID Barcode																													
26 = Aperio	27 = Alcohol Breathalyzer																													

1 baud 192/96/48/24 S_	*Not set by PC	Stored in EEPROM
<p>The communication baud rate speed (bits per second) of the main serial port is set at:          0 = 19k2    1 = 9k6    2 = 4k8    3 = 2k4    4 = 1k2    5 = 38k4    6 = 57k6          When the RAM is 'dropped' (power off and battery link removed), the option defaults to 1.</p>		

00 bits 9/8/7 S_	*Not set by PC	Stored in EEPROM
<p>The communication character bits (bits per character).</p>		

00 parity P n/e/o/1/0 S_	*Not set by PC	Stored in EEPROM
<p>The communication parity bits: none, even, odd, 1 (high) or 0 (low).</p>		

0-0 RdRref-event S_	*Not set by PC	Stored in EEPROM
<p>(e.g. a scale or scanner linked to a reader)          Reader ref for serial devices linked to readers – device data added to card entered. Requires action complete setup.          Event=1 also sends device data as card entered (must be in card dB), card as added data.</p>		

0 n/SerPort LEDs	*Not set by PC	Stored in EEPROM
<p>Select com port (1 to 5) to show TX and RX for diagnostic LEDs. 0=Com 1 if a type set, else Com 2</p>		

0-0 n/Ser Echo-H	*Not set by PC	Stored in EEPROM
<p>1<sup>st</sup> digit = com port (1 to 5) to echo to test port. 2<sup>nd</sup> digit 1=decode hex data to ASCII HEX.</p>		

00 ComNode Mac	Link a 1-wire node to a Mac address (W_=71 to 99).	Stored in EEPROM
<p>❖ Com=0 (node ignored) when 1-wire directly connected to controller PCB.          Mac of 1-wire node is edited or read by entering # when cursor on mac address.</p>		

001 LAN Slaves	* Only comms type LAN Master	Stored in EEPROM
<p>The number of slave controller on the LAN (largest node address), max 128</p>		

0000 FrontP 3210	* Not when Front Slaves>0	Stored in EEPROM
<p>➤ 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.</p> <p>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 HH link uE8 acts as an enable for interface 0).</p>		

<b>00 Front Slaves</b>	<b>HH Requires V1.20, requires Fronts with node address</b>	<b>Stored in EEPROM</b>
<p>❖ The number of slave controller on the Front LAN. When not zero, replaces FrontP setting above. HH is node 1 (CR374 only requires address link installed). Expander nodes (CR374) follow non-expanders. Fronts slaves ignore TTL expanders (only LAN expanders function).</p>		
<b>0 Stack s/Dump/L</b>		
<p>Transactions can be sent to PC. When off-line, the transactions are buffered. Setting available are:</p> <ul style="list-style-type: none"> <li>0 Save transactions to a backed-up (non-volatile) stack.</li> <li>1 Dump. Transactions are not reported to the PC.</li> <li>2 Save to local (volatile) stack (stack is lost if no power supply).</li> </ul>		
<b>00000 nGSM ADSCP</b>	<b>* Only comms type GSM – 10 sec delay after change</b>	
<p>❖ 1's enable the option: A=audio, D=data, S=SMS, C=Clip, P=Pass (not to uP, requires a test port type). e.g. 00110 enables Clip and SMS A and D to be included in future versions.</p>		
<b>0 GSM type M95/MC35/x</b>	<b>* Only comms type GSM – 10 sec delay after change</b>	
<p>❖ Type of GSM: 0=Quectel M95 onboard module, 1=Siemens MC35 external, 2=other</p>		
<b>00 nBTooth EP</b>	<b>* Only comms type BT</b>	
<p>❖ 1's enable the option: Enable BT, Pass (not to uP, requires a test port type).</p>		
<b>00 nWiFi MSRP</b>	<b>* Only comms type WiFi</b>	
<p>❖ 1's enable the option: Enable Master/Slave/Router, Pass (not to uP, requires a test port type).</p>		
<b>&lt; Set-up dBase &gt;</b>		
<b>02 db 2C,10 ran</b>	Data base mode. See controller for number of cards	
02 = Running numbered cards.		10 = Random number cards. se.
<b>0000 dB Lock</b>	First xxxx cards in the local card database are never overwritten (edited with HH).	
<b>0 not/PIN used</b>	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.	
<b>0 One/own RD Tg</b>	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, i.e. 32 000 (64 000 if one time group).	
<b>0 n/Output Group</b>	Output group database.	
<b>0 n/Check</b>	Random check database.	
<b>0 n/VendLocal</b>	Local vend database.	



00-00 Fc-Nr Digit	R_		
Number of facility and card number digits for Wiegand (db10). When Facility digits not zero, facility decoded as separate number and added to front of the card number.			
00000 Card offset	R_		
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.			
0 RD no parity n/y	R_		
0 = Check ISO MAG LRC, parity on Wiegand.                      1 = Do not check LRC, parity.			
00 RD exact bits	R_		
Reader does not delay after the exact number bits have been read. 00 delays to read more bits.			
00 RD duress bits	R_		
Number of bit read when duress.			
0 FormError n/y	R_		
0 = Not report reader format errors.                      1 = Report reader format errors.			
016 Reader Tg	R_	018 PIN Tg	P_
Time groups for when Reader and PIN required. Universal 1 to 128, CR355A 1 to 60, others fixed (16/17, 18/19)			

< Set-up Access >

**0-00 Check type -% R\_** Reader check type:  
 0 = None  
 1 = latch (at 1<sup>st</sup> latch/door, continue same)  
 2 = Booth (within booth)  
 3 = externally (indication at reader, done externally)  
 Reader random check %. If random search dB, cards % setting overrides this reader %.  
 If reader 0%, check is disabled. If 100% all checked. Random check also en- disabled on input

**1 Latch click en/dis R\_** Causes DC door latches to click, giving user audible indication when the latch opens.  
 0 = Output relay pulses once per second.  
 1 = Do not pulse.

**0 no/HI/P ena. R\_** For CR351/5 In 7, 8 - closed disables reader 1, 2. Other types input settable.  
 Reader disable option  
 0 = Disable arming input for reader.  
 1 = Enable arming input for reader.  
 2 = Enable arming input for both reader and free exit button.

**1 Booth/none/1dr/In R\_** Booth, only one may be opened at any time.  
 Booth, "air-lock", "inter-lock" or mantrap, i.e. if a pair of doors is set for booth then they are inter-locked.  
 0 = Booth mode.  
 1 = Normal mode (no booth).  
 2 = 1 door booth (special sliding door booth).  
 3 = Interlock.  
 4 = 1 reader (reader=active rd enable input).  
 5 = Call booth (Door opened by button, reader in booth).

**0 AC till n/O/t/C R\_** Action complete. Polarity is set for the input (see P setting for input type below)  
 0 = None.  
 1 = Till open.  
 2 = Till time-out.  
 3 = Till closed.

**0 no/Cap/m/mC/Cd R\_** Cards capture type.  
 0 = Normal card reader.  
 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.

**0 A/N/Ee/D APBr R\_** CR351/4 APB reset input is Aux 2. Other types input is configured.  
 Anti-pass back (APB) reset (when input with type APBR is active).  
 0 = Ena all cards with number.  
 1 = Ena card if enabled any reader.  
 2 = Disable all cards.

**1 APB en/dis/LAN/Ldis R\_** APB  
 0 = Enable Anti Pass-Back.  
 1 = Disable APB.  
 2 = If offline, access if ena any reader (no change).  
 3 = Disable for all readers.  
 4 = If offline, access if ena any reader, then disable for all readers.

**00 ATB typeLink R\_** Ani-TimeBack link: 2<sup>st</sup> digit=reader linked to  
 1<sup>st</sup> digit-link type:  
 0 = No link (just timeout). 1=Linked clears 2 = Linked sets

**0 min ATB R\_** Minutes a card is anti-time back per reader.

**0 Illegal attempts R\_** After illegal attempts, reader / PIN-pad disabled for disable min.  
 (see Set-up/Tick/Illegal disable).

**00 min reader dis R\_** On multiple illegal entry attempts, the time period for which the reader will be ignored.

**OFRID 000000 R\_** Output types: Alarm Buzz Chime for access events Ok, Fail, Random, Illegal, Duress  
 nn^nn^nn^nn^nn^  
 With cursor on ^, select 2 or 3 to scroll options None, A, B, C or combinations  
 xx is A, B and C  
 For each of the events, top line is a reference to which output ABC.  
 Ref 0 is all ABC outputs, non-zero activates ABC outputs with matching reference

**0 dis/BEEP/al/Ba,aux R\_** 0 = Buzzer output disabled. 1 = Buzzer once for card accepted, twice for card rejected.  
 2 = Buzzer on alarm (door open, invalid card etc.).  
 3 = Rd / Door2 to aux relay (CR351/4), others output set.

0 Multi Badge	R_	Max 3
<p>Dual/multi- badge sets nr. enabled cards must be badged before latch is unlocked. &lt;2, only 1 enabled card required).  Enabled cards to be badged within number of seconds set in MultiTmout.  The dual time-out of 1 to 9 second restarts on every badge. Setting of 0 is taken as 9 seconds.  On timeout, the cards that have badged are cleared. The cards that were badged are reported as entered.</p>		
00s Multi Tmout	R_	Timeout per reader between cards badging for Dual (or multi-) badge (see above). Setting of 0 is taken as 9 seconds.
00 Multi OutGrp	R_	If not zero, 1 <sup>st</sup> card badge must have this setting as Output group.

< Set-up Tick >

❖ Where time settings have resolution setting (e.g. latch time), the resolution can be set to:  
nil none 1ms \* mseconds  
10m \* 10 mseconds 100 \* 100 mseconds  
sec \* seconds min \* minutes  
The resolution is changed by moving the cursor to the ^ character at the end of displayed resolution abbreviation and selecting 2 or 3 to the previous or next resolution (the abbreviation changes).

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.

< Time zone, Groups >

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

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

Up and down keys move between the time-zones. Right and left keys move between the time-groups.

Tx = Time-zone x Group yy = Time-group yy  
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 Readers and PIN-pads must be used, and when doors are open, and when inputs and outputs are active.

- Controller type = CR355A, 60 time groups, each 15 has own time-zones.
- ❖ Controller type = Universal, 128 time groups, 32 time-zones.

TG MAX NOW  
01 00000 00000

Access Time group counters. If a MAXimum is set, the time group NOW value increments on enter at reader 1 and decrements on enter reader 2. If NOW is equal or greater than MAX, access is denied. An output can be set to close when NOW equals or greater than MAX.

25-12 Holidays 01

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

250 Slave poll sec

\* Only when LAN master

Seconds before next poll of all nodes.

19 Latch Tg D\_

\* Only when not Universal (Universal uses output tg)

- Tg when latch is open

05 sec Lock time D\_

\* Only when not Universal (Universal uses output pulse)

- Sec latch time to open door (see AC till – latch until open/close/timeout )

4 \*250msec 1sec D\_

\* Only when not Universal (Universal uses output tmout)

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

000 10msec ACbounce

\* Only when not Universal (Universal uses input bounce)

- Debounce for door contact

00000 s open time-out D\_

\* Only when not Universal (Universal uses input tmout)

- 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.



0000 10ms CapPuls <b>R_</b>	<b>* Only when not Universal (Universal uses output pulse)</b>
<ul style="list-style-type: none"> <li>➤ 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).</li> </ul>	
10 sec CapTmout <b>R_</b>	<b>* Only when not Universal (Universal uses input tmout)</b>
<ul style="list-style-type: none"> <li>➤ Time-out to capture card. On capture, delay CapPuls before close. On CapTmout, reports not captured.</li> </ul>	
0000 10ms RanPuls <b>R_</b>	<b>* Only when not Universal (Universal uses output pulse)</b>
<ul style="list-style-type: none"> <li>➤ Random search pulse, length to keep random output active after pass / fail.</li> </ul>	
10 sec RanTmout <b>R_</b>	<b>* Only when not Universal (Universal uses output tmout)</b>
<ul style="list-style-type: none"> <li>➤ Time-out for random search to give inputs pass or fail. If pass, latch activated, pass and entered reported. On RanTmout, CRC reports failed.</li> </ul>	
HH:mm-DD SMS period	<b>* Only comms type GSM</b>
<ul style="list-style-type: none"> <li>❖ SMS stats period, sync date/time (next). Only 1<sup>st</sup> non-zero pair taken</li> </ul>	
HH:mm-DD SMS sync	<b>* Only comms type GSM</b>
<ul style="list-style-type: none"> <li>❖ SMS stats period (previous) sync to this date/time. <span style="float: right;">1<sup>st</sup> mm in hour, 1<sup>st</sup> HH in day, 1<sup>st</sup> DD in month</span></li> </ul>	

< Set-up Input >

0 Input Expanders	<b>*Not set by PC in CR355 modes.</b>	<b>Stored in EEPROM</b>
Up to 4 IO390 A/D expanders (16 inputs each) can be added to CR391 controllers (IO390 being phased out).		
On-board inputs=1 to 16	Expander 1=17 to 32	Expander 2=33 to 48
	Expander 1=49 to 64	Expander 4=65 to 80

<b>xyzz   ComNodePort</b> <span style="color: red;">L</span>	Input connection
<p>❖ <b>x = 0</b> Connected to on-board input or input on 1-wire node, 1-wire connected to local PCB.  y is ignored (set to 0)  z = Input on-board port number (e.g. 1 or 2). If 1-wire input, zz is 71 to 99 (see 1-wire mac).</p> <p><b>x &gt; 0</b> Serial Com port (ComA=1, ComB=2, etc.)  y = LAN node number if serial port is a LAN (else ignored).  z = Input port number if node has multiple inputs, if 1-wire input, zz is 71 to 99 (see 1-wire mac).</p>	

XPS Type 100 ActionC <span style="color: red;">L</span>	<b>*Not CR351 mode</b> Type list is given below.
<p>Input ports are configured as <b>Aux inputs</b> (normal input) or as a special function input, linked to reader/door/ Apps</p> <p>X = Input type reference (e.g. door 1, 2, etc.).  P = Active polarity level of the input. 0=contact closed, 1=contact open.  S = Supervised input when set to 1 (requires resistors at the contact, detects short and open circuit),  Set 0 is not supervised.</p>	

Input types available depend on the controller options and on the Apps enabled:

- None** The input has no function, ignored.
- Aux** The input is monitored and changes are reported.
- Battery** Battery low.
- Mains fail** No mains supply.
- Tamper** Controller housing tamper.
- Action complete** Door monitor.
- APB enable** Pass-back when this input is active (access is enabled any reader).
- ATB enable** Time-back ignored when this input active (access is enabled for this reader).
- Booth call** When booth type 5, 1<sup>st</sup> door is opened on Call 1, door 2 on call 2 input low. Second door on reader. Egress functions as normal in egress inputs.
- Booth 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.
- Continue** Before activating (opening) a latch, inputs Continue for that door is checked and if active, the activation is done. The door open time-out is timed-out for receiving the Continue input. Typically used for search applications. Similarly, Continue booth input must be active before the second door of booth is opened – 1<sup>st</sup> door does not check continue booth input. If continue and booth occupied inputs are set, both inputs (the booth active and the second door continue must be active for the second door to open).
- Egress** When the Egress or push button input is active, the door is opened.
- Latch monitor** Latch is monitored and only when locked after door closed (action complete), action is complete. When action complete is till door closed, latch is controlled locked on door closed.
- Reader enable** The associated reader is enabled when the input is not active and reader functions normally.
- Reader LastAct** When active, the reader is disabled and the red led indicates that data from the reader is ignored. Report last card activity.
- Check App**

Check 0%	disables random check for the reader.
Check 100%	forces check of all cards at the reader.
Check Continue	proceeds with access.
Check Pass	opens latch, reports passed and entered.
Check Failed	reports failed.
- Reset APB** When this input is active, all card APB is reset according to the APB reset option (see **Set-up/Access/ n/A/N/Ee/D APBr**).
- Reset ATB** When this input is active, all ATB is reset.
- Reset Count tg** All tg counters are reset to zero when the input is low.
- ❖ **Level App**

Call	For each level - send lift to this level.
Bottom	lift now at bottom (minimum).
Top	lift now at top (maximum).
Maintenance	Maintenance mode (light on, door unlocked if level call active > 3 seconds).
Now	For each level - lift now at level.
Occupied	lift occupied (light stays on).

	Alarm	lift alarm.
❖ <b>DENIS App</b>	Mode-Disabled	Disabled (e.g. only panic enabled).
	Mode-Enabled	Enabled (e.g. away – all enabled).
	Toggle Ena/Dis	Toggle enable / disable modes.
	Mode-Near	Near (e.g. gardener – outside disabled).
	Toggle Near/Dis	Toggle near / disable modes.
	Mode-In	Inside (e.g. outside chime).
	Toggle In/Dis	Toggle in / disable modes.
	Mode-Sleep	Enable all non-sleep inputs.
	Toggle Sleep/Dis	Toggle sleep / disable modes.
	Mode Toggle	Toggle though the DENIS modes.
	Input	Input sensors
❖ <b>Temperature App</b>	Degrees	Analogue input, 0.1 degrees C (via 1-wire input).
	Low	Low level alarm.
	High	High level alarm.
<b>Vend App</b>	Clean	Machine has been cleaned.
	Do	Do the selected vend (e.g. when simulating).
	Done	Vend completed.
	Fail	Vend is incomplete (error).
	Fill / Clear	Machine has been filled with product or cleared or money.
	Select key	Each select has matching output. 1 <sup>st</sup> select key input without key output is calibration enable.
	Service	Machine has been serviced.
	Reset count	Counter are reset / reloaded.

<b>Enaln - EnaOut</b> <span style="float: right;">I_</span> 000 - 000
❖ An input is only monitored when the allocated Tg is active and the enabling input and enabling output is active. Enaln selects the reference (0 is none) to an enabling input that must be active for this input to be monitored. EnaOut selects the reference (0 is none) to an enabling output that must be active for this input to be monitored.

<b>DENIS / ANILF 000000</b> <span style="float: right;">I_</span> nn^nn^nn^nn^nn^	Output types: Alarm Buzz Chime Intrusion Inputs for modes: Disable, Enable, Near, Inside Sleep Other Input events: Ok, Fail, Random, Illegal, Duress
With cursor on ^, select 2 or 3 to scroll options None, A, B, C or combinations xx is A, B and C For each of the events, top line is a reference to which output ABC.	

<b>Bounce Tmout</b> <span style="float: right;">I_</span> 000*mec^ 000*sec^
❖ Input bounce (input must be in the new level for the bounce period before being active). The event after time-out depends on the input type (see <a href="#">Set-Up/IO/Input Port Type</a> ). See Resolution above. Up and down keys move between the inputs. For Intrusion sense input, Bounce used for entry delay, Tmout used for exit delay (after mode changed)

Bounce and Tmout are used for by the following input types:

DENIS input sensors	Bounce = Entry delay.	Input ignored whileB before mode changed.
	Tmout = Exit delay.	Input ignored while Tmout after mode changed.
Action complete	Tmout = Open2Long.	After Tmout, Open too long is generated.
Other	Bounce = Debounce.	Input must be in level for the Bounce time before level true.

<b>Tg Lo.Hi - i n l</b> <span style="float: right;">I_</span> 000.000 - 00.00.00	<b>*CR351-4 mode only reserved inputs function</b>
Input time group for inputs level monitoring active. Supervised Short and Open Circuit always active If input is Action Complete, Tg also for illegal, not opened, too long 0=always (could be 1 to 128)	

<b>Type Count Delay</b> <span style="float: right;">I_</span> 0 in/c 00000 000	Counting input:
Type=0 Normal input (non-counting). Count and Delay are ignored. Type=1 Counting input. Count is the current count since last reset (reset / set by the master). Delay in seconds before count value is reported	

<b>1 AC till open/t/c</b> <span style="float: right;">D_</span>
Action compete (Door Monitoring). The matched latch is controlled until the action complete input is; 0 = Door is opened. <span style="float: right;">1 = For set timeout period (door status not affect latch time).</span> 2 = Until door closes (after opening).

< Set-up Output >

0 Output Expanders	<b>*Not set by PC in CR355 modes.</b>	<b>Stored in EEPROM</b>
Up to 6 IO391 out expanders (8 outputs each) can be added to CR391 controllers (IO391 being phased out).		
On-board outputs 1 to 14	Expander 1=15 to 22 Expander 4=39 to 46	Expander 2=23 to 30 Expander 5=47 to 54
		Expander 3=31 to 38 Expander 6=55 to 62

xyzz O ComNodePort O_	Output connection
<p>❖ x = 0 Connected to on-board output or output on 1-wire node, 1-wire connected to local PCB. y is ignored (set to 0) z = Output on-board port number (e.g. 1 or 2). If 1-wire output, zz is 71 to 99 (see 1-wire mac).</p> <p>x &gt; 0 Serial Com port (ComA=1, ComB=2, etc.) y = LAN node number if serial port is a LAN (else ignored). z = Output port number if node has multiple outputs, if 1-wire output, zz is 71 to 99 (see 1-wire mac). For 1-wire dual output nodes, 1<sup>st</sup> setting is output 1, 2<sup>nd</sup> setting is output 2.</p>	

XP OutType 10 Latch	O_ ^	<b>*Not CR351 mode</b> Type list is given below.
Output ports are configured as <b>Aux outputs</b> (normal output) or as a special function output, linked to reader/door/App – type list is given below. X = Output type reference (e.g. door 1, 2, etc.). P = Active polarity level of the output.		
	0=contact closed 2=toggle closed	1=contact open 3=toggle open 4=toggle

Output types available depend on the controller options and on the Apps enabled:

<b>None</b>	The output has no function.	
<b>Alarm</b>	Activated by A of ABC settings for Access events OFRID, intrusion inputs for modes DENIS and other input events ANIF.	
<b>Aux</b>	The output has no special function, controlled on master commands or on time groups.	
<b>Buzzer</b>	Activated by B of ABC settings for Access events OFRID, intrusion inputs for modes DENIS and other input events ANIF.	
<b>Capture</b>	Open capture bin.	
<b>Chime</b>	Activated by C of ABC settings for Access events OFRID, intrusion inputs for modes DENIS and other input events ANIF.	
<b>Check App</b>	Output driven indicating when random check must be done for card at reader.	
<b>Count</b>	Full	Access Time group counter is full.
	Available	Access Time group counter not full or empty.
	Empty	Access Time group counter is empty.
<b>LAN off-line</b>	The output is activated when communication to the LAN is off-line.	
<b>Interlock busy</b>	When booth sequence is in progress or interlock with a door open/unlocked, the output is activated.	
<b>Latch</b>	Control of the latch. Tmout setting is latch time, pulse in on-off puses.	
<b>Rd LED G, R, Y.</b>	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.	
<b>Reader Isolate</b>	Output driven by the PC when reader is isolated (data is ignored). When set to a <b>virtual</b> output, the reader isolate is controlled without an output being controlled.	
<b>Reader Out-Hi</b>	Reader simulate, Hi / Clock.	
<b>Reader Out-Lo</b>	Reader simulate, Lo / Data.	

❖	<b>Level App</b>	Down	Control lift down.
		Up	Control lift up.
		Latch	For each level - open door.
		Light	Light in lift.
		Now	For each level - lift now at level.
❖	<b>DENIS App</b>	Alarm	Lift error alarm.
		Mode-Enable	Now in Arm mode.
		Mode-Near	Now in Near mode.
		Mode-In	Now in Inside mode.
		Mode-Sleep	Now in Sleep mode.
		Alarm	Input set for alarm now active.
❖	<b>Temperature App</b>	Buzz	Input set for beep now active.
		Chime	Input set for chime now active.
		Normal	For each temperature (or 0 for all), not high or low.
		Alarm Low	For each temperature (or 0 for all), now low.
		Alarm High	For each temperature (or 0 for all), now high.
	Cool	For each temperature, control colder.	
	Heat	For each temperature, control hotter.	

**Vend xxx**

Vend key output for each key input, xxx is the vend time in 100msec resolution.  
Edit xxx via digit keys or vend calibration.

<b>Ei.Ci – Eo.Co</b> <b>0_</b> 000.000 – 000.000
❖ Output enable. This output can only be changed if the linked enabling input and enabling output are active. Output control. When the linked controlling input or controlling output is active, this output is activated. Ei Enabling input reference. Ci Controlling input reference. Eo Enabling output reference. Co Controlling output reference.

<b>Pulse Tmout</b> <b>0_</b> 000*mec^ 000*sec^
❖ Output toggles pulse periods. After time-out event depends on the output type (see <b>Set-Up/IO/Output Port Type</b> ). See Resolution above. Up and down keys move between the outputs.

<b>Ctr Ena Rpt</b> <b>0_</b> 000.000.000 Tgroup	Time group when output is active
Control when Tg active (Ena must be 0 or active)	
❖ Output enable and report (when can be controlled, when change reported, 0=always, 1 to 128)	

<b>00 Latch Tg</b> <b>0_</b>	* <b>Only when not Universal (Universal uses Ctr output tg above)</b>
➤ Aux Time group – when activated	

< Set-up Vend >	*Vending mode
0 sVD/ IO/ AV/ KV/ C	Vend type
0 = Serial vend	1 = I/O vend      2 = Access vend      3 = Key vend      4 = Cash loader
0 MDB/Exec/BD/NR	Serial type
0 = MDB	1 = Exec      2 = BDV      3 = NRV coin
0 n/ Multi/ Coin	<p>Set to zero results in credit of 99.99 being display, enabling product selection.  Set to 1 allows multi-units on MDB, 2 also coin on MDB (and/or note reader) with the card system.  99.99 is not displayed. Product selection only after card read, while name is display – the value of the card is sent to the vending machine. If the card value is zero, the maximum item value in the machine is set.</p>
0 Cashless Node	Controller is MDB cashless 0 or 1.
00 Key Offset Vend	Offset added to vending key from the vending machine.
0 Hex/BCD/Dec key	Key from the vending machine in hexadecimal, in Binary Coded Decimal or decimal.
0 KeyShare n/ID	<p>1=KeyPad shared with external system (only CR395 can share KeyPad)  Sequence: External disabled (“<b>Enter Voucher#</b>”), External enabled (“<b>Enter Item</b>”).</p>
15sec Select TMOU	Timeout in seconds for user to select item.
15sec Vend TMOU	Timeout in seconds for vend to complete.
0 n/OffLine Free	Allows Vending when offline.
0 n/Credit Vend	Allows Vending credit – vend is deducted from local value received from PC.
0 n/DetDone Vend	Detect vend done (completed) signal from the vending machine. Must be 1 to stop/start I/O vend.
0 Vend disp Fund	Display funds after vend.
0 n/Debug	Add additional vending debug information on the LCD