RC216

View Manager 96

17 July 2002

TABLE OF CONTENTS

Section **Page**

1 Sears Clovis CCTV configuration

1.1 Observed camera IDs from Sears Clovis 30MAY01 and 08JUN01

Sears Clovis currently has 42 cameras, some of which are fixed and others have motion. The controller can have up to 96 cameras attached. The controller has two control outputs, the monitoring of 30MAY01 only involved using the upper connector and had cameras $2 \rightarrow 19$ connected to it, all other cameras $1, 20 \rightarrow 42$ are on the lower connector.

The first hex number in the comments section is the response to the controller when the dome receives a "query" (or "poll") message.

[1] `$Header: d:/txb-s422/RCS/sc.tex,v 1.2 2001-06-05 15:29:32-07 Hamilton Exp Hamilton $`
[2] `$Header: d:/txb-s422/RCS/scconfig.inc,v 1.10 2001-11-30 15:12:05-08 Hamilton Exp Hamilton $`

Hex	Camera	Port	Status	Comments
0x01	1	Lower	??	—
0x02	2	Upper	Pan/Tilt	0xF5
0x03	3	Upper	Pan/Tilt	0xF5
0x04	4	Upper	Pan/Tilt	0xF5
0x05	5	Upper	Pan/Tilt	0xF5
0x06	6	Upper	Pan/Tilt	0xF5
0x07	7	Upper	Pan/Tilt	0xF5
0x08	8	Upper	Pan/Tilt	0xF5
0x09	9	Upper	Pan/Tilt	0xF5
0x0A	10	Upper	Pan/Tilt	0xF5
0x0B	11	Upper	Pan/Tilt	0xF5
0x0C	12	Upper	Pan/Tilt	0xF5
0x0D	13	Upper	Pan/Tilt	0xF5
0x0E	14	Upper	Pan/Tilt	0xF5
0x0F	15	Upper	Pan/Tilt	0xF5
0x10	16	Upper	Pan/Tilt	0xF5
0x11	17	Upper	Pan/Tilt	0xF5
0x12	18	Upper	Pan/Tilt	0xF5
0x13	19	Upper	Pan/Tilt	0xF5
0x14	20	Lower	??	—
0x15	21	Lower	No Camera	—
0x16	22	Lower	??	—
0x17	23	Lower	??	—
0x18	24	Lower	??	—
0x19	25	Lower	??	—
0x1A	26	Lower	??	—
0x1B	27	Lower	??	—
0x1C	28	Lower	??	—
0x1D	29	Lower	??	—
0x1E	30	Lower	??	—
0x1F	31	Lower	??	—

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Hex	Camera	Port	Status	Comments
0x20	32	Lower	??	—
0x21	33	Lower	??	—
0x22	34	Lower	??	—
0x23	35	Lower	??	—
0x24	36	Lower	??	—
0x25	37	Lower	??	—
0x26	38	Lower	??	—
0x27	39	Lower	??	—
0x28	40	Lower	Working, not on screen	—
0x29	41	Lower	No power until store opens	—
0x2A	42	Lower	??	—
0x2B	43	—	No Camera	
0x2C	44	—	No Camera	
0x2D	45	—	No Camera	
0x2E	46	—	No Camera	
0x2F	47	—	No Camera	
0x30	48	—	No Camera	
0x31	49	—	No Camera	
0x32	50	—	No Camera	

1.2 Status display information

1.2.1 Input Status

20-2
None

1.2.2 Output Status

20-4
None

1.2.3 I/O Unit Status

20-6
Only one item.

Num	Name	Status	Last Soft Input Recv
1		Off	

1.2.4 Camera Status

20-8

Cam #	Cam Name	Type	Status	Video
1		U	On	Y
2		U	On	Y
3		U	On	Y
4		U	On	Y
5		U	On	Y
6		U	On	Y
7		U	On	Y
8		U	On	Y
9		U	On	Y
10		U	On	Y
11		U	On	Y
12		U	On	Y
13		U	On	Y
14		U	On	Y
15		U	On	Y
16		U	On	Y

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Cam #	Cam Name	Type	Status	Video
17		U	On	Y
18		U	On	Y
19		U	On	Y
20		SN	Off	Y
21		SN	Off	N
22		SN	Off	Y
23		SN	Off	Y
24		SN	Off	Y
25		SN	Off	Y
26		SN	Off	Y
27		SN	Off	Y
28		SN	Off	Y
29		SN	Off	Y
30		SN	Off	Y
31		SN	Off	Y
32		SN	Off	Y
33		SN	Off	Y
34		SN	Off	Y
35		SN	Off	Y
36		SN	Off	Y
37		SN	Off	Y
38		SN	Off	Y
39		SN	Off	Y
40		SN	Off	N
41		SN	Off	N
42		SN	Off	Y
43	**Camera 42 is the last installed camera.**			

In the camera status display the following type abbreviations are used:

F Fixed

LT SpeedDome LT

NP Non-programmable Camera

P MiniDome

SN Non-programmable SpeedDome

SP Programmable SpeedDome

U UltraDome

While in the camera status display the following status abbreviations are used:

Dnld Download

Off Off

On On

Trbl Trouble

Updt Update

1.2.5 Network Status

21-10

Sensornet Network Statistics		**422 Network Statistics**	
Crc Errors	0	Checksum Errors	0
Underrun Error	290	Overrun Errors	0
Number of Naks	0	Parity Errors	0
Average Poll	69	Framing Errors	1,315
Msgs Last 15 Min	34	Average Poll	2
Errors Last 15 Min	290	Chars Last 15 Min	2,114
Last 15 Min Error Percent	852?	Errors Last 15 Min	22
Total Msg Received	77,809	Last 15 Min Error Percent	1
Total Errors	290	Total Chars Recvd	481,208
Cumulative Error Percent	0	Total Errors	1,315
Diagnostic Codes	0	Cumulative Error Percent	0
Station Address	0	Diagnostic Codes	0
Version Number	534		

Note

The entry for "`Last 15 Min Error Percent`" might be a transcription error.

2 VM96 (RC216) information

A VM96 is (from the advertising brochure from Sensormatic):

"SensorVision
Video Surveillance Systems

ViewManager 96

Video Matrix Switcher

RC216H"

"ViewManager 96 is the most innovative and powerful video system controller ever offered. The unique TouchTracker controller is designed for one handed, laptop or tabletop operation of the system. The TouchTracker provides one button activation of system activities, vector proportional pan and tilt control and user assignable zoom and focus control keys. Operators can select cameras, views, patterns, sequences, salvos and zones by name through a unique on-screen user menu and TouchTracker buttons."

"Features

- Versatile system size — minimum 16 video inputs and 4 video outputs, maximum 96 video inputs and 8 video outputs
- Futuristic TouchTracker hand held controller
- Programmable quick views, patterns, sequences, zones and salvos
- Plain language usage on screens to simplify operation
- Multilevel user restrictions
- Full matrix switching capability
- Embedded PC platform for future plug and play option
- A new generation of versatile programmable video security"

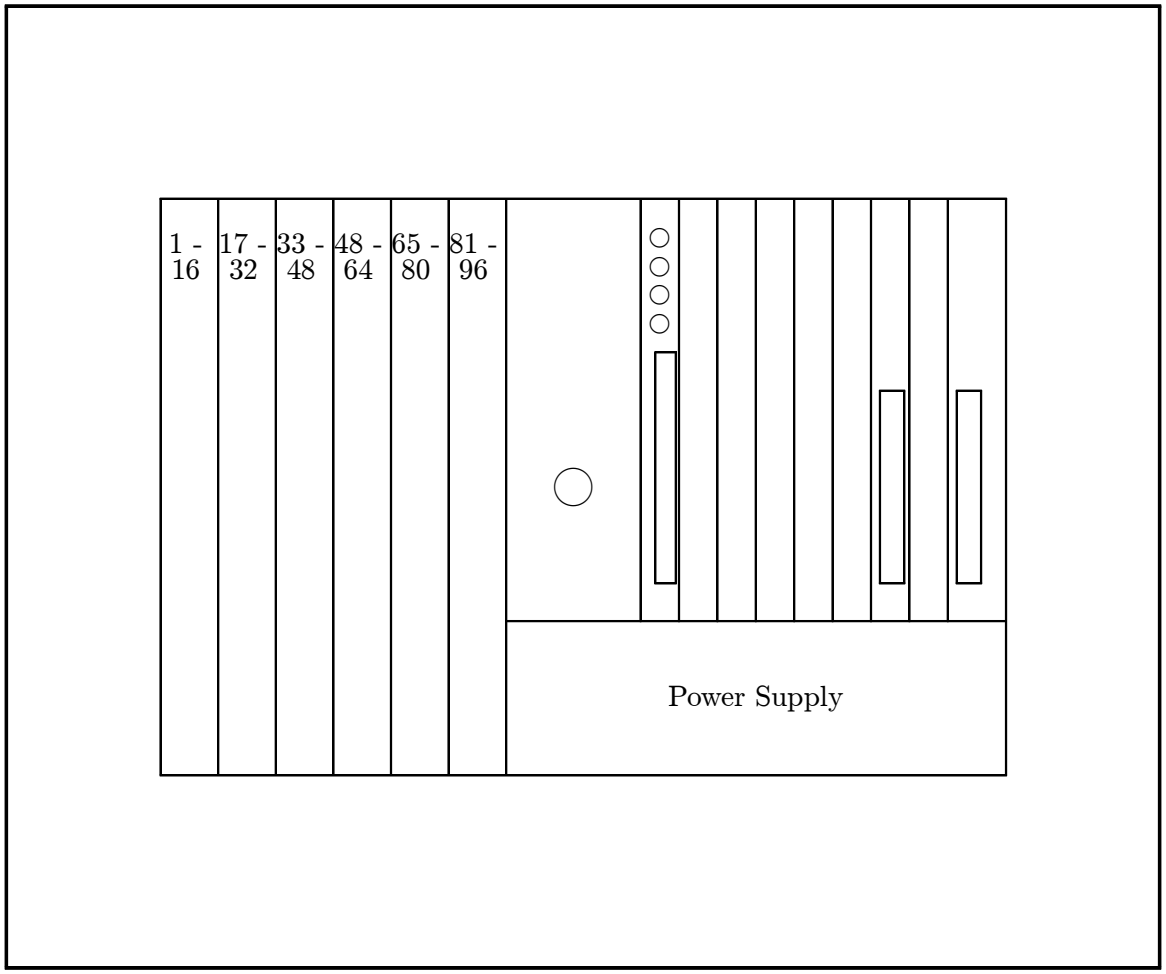
2.1 VM96 chassis connections

The right rear of a VM96 (RC216 Figure 1, page 10) is marked as follows:

[3] `$Header: d:/txb-s422/RCS/vm96.inc,v 1.11 2002-02-28 12:57:48-08 Hamilton Exp Hamilton $`

Sensornet	
1 2	Net 1
3 4	Net 2
5 6	Net 3
7 8	Net 4
1 2 3 4	RX HI + RX LO - TX + TX LO -
5 6 7 8	RX HI + RX LO - TX HI + TX LO -
—422—	

Table 1. Rear IO connections with an RC216H/VM96



$RCSfile: vm96.inc,v $

Figure 1. VM96 (RC216) Rear view <rc216rear>

2.2 SensorNet protocol

The "DeltaDome II, Installation and Service Guide" (8000-2708-01, Rev A, page 8) indicates that this protocol:

1. Utilizes one pair of unshielded twisted pair, 22 AWG, non-polarized cable.
2. Supports a maximum of 32 devices on a line.

In the manual for the "ADTT16 Enhanced Touch Tracker, 8000-2672-02, Rev. A" (ADTT16E), it mentions (on page 12) that SensorNet:

1. Has a bit rate of 230.4 Kbps,
2. Uses SDLC as a Link Layer Protocol,
3. Utilizes a "Proprietary" Application Protocol,
4. With Network Nodes for Enhanced Touch Tracker and SensorNet Domes.

From an investigation at Sears Clovis on 15MAY01, it appears that the Sensornet Net X outputs consist of:

1. A type of Manchester data encoding.
2. The baud rate of the signal is about 500 KHz.
3. The bit rate of the signal is about 238 KHz.
4. Commands repeat about every 25 ms.
5. Command blocks consist of three command blocks.
6. Some commands consist of two sub-command blocks and some consist of one larger sub-command block.
7. If two sub-command blocks are sent then they are sent about every 520 μs apart.
8. Each short sub-command block is about 316 μs long.
9. An expanded sub-command block shows the presence of Manchester formatted data.
10. Assuming that each data bit is about 316 μs long and that each bit of data is about 4.2 μs long, indicates that a "typical" command might consist of about 64 or so bits (or better yet about 8 bytes). This takes into account probable leading data bits for synchronization, start and parity bits on the data bytes.
11. The start of each sub-command has a variable width starting bit. After that the data is reasonably consistent.
12. Odd and even numbered Sensornet "Net" outputs appear to be complemented and have the same information.

2.3 RC216 messages

So far the following on-screen messages from a RC216 have been detected:

1. `Camera 44 is OFFLINE`, this message is displayed whenever the RC216 does not get a response (answer to a POLL command) from a previously working camera/dome.
2. `Camera 44 is ONLINE`, this message is displayed whenever the RC216 gets a message from a POLL command when the unit was previously marked as being "offline". It lasts for about 5 seconds.
3. `Pattern 20` is displayed when a dome is running a pattern.

2.4 Operating notes

1. To enter a pattern:
   A. Enter the menu system of the controller by hitting the "`Menu`" key on the TouchTracker.
   B. Select a pattern number to use. It is unclear if a currently defined pattern may be changed.

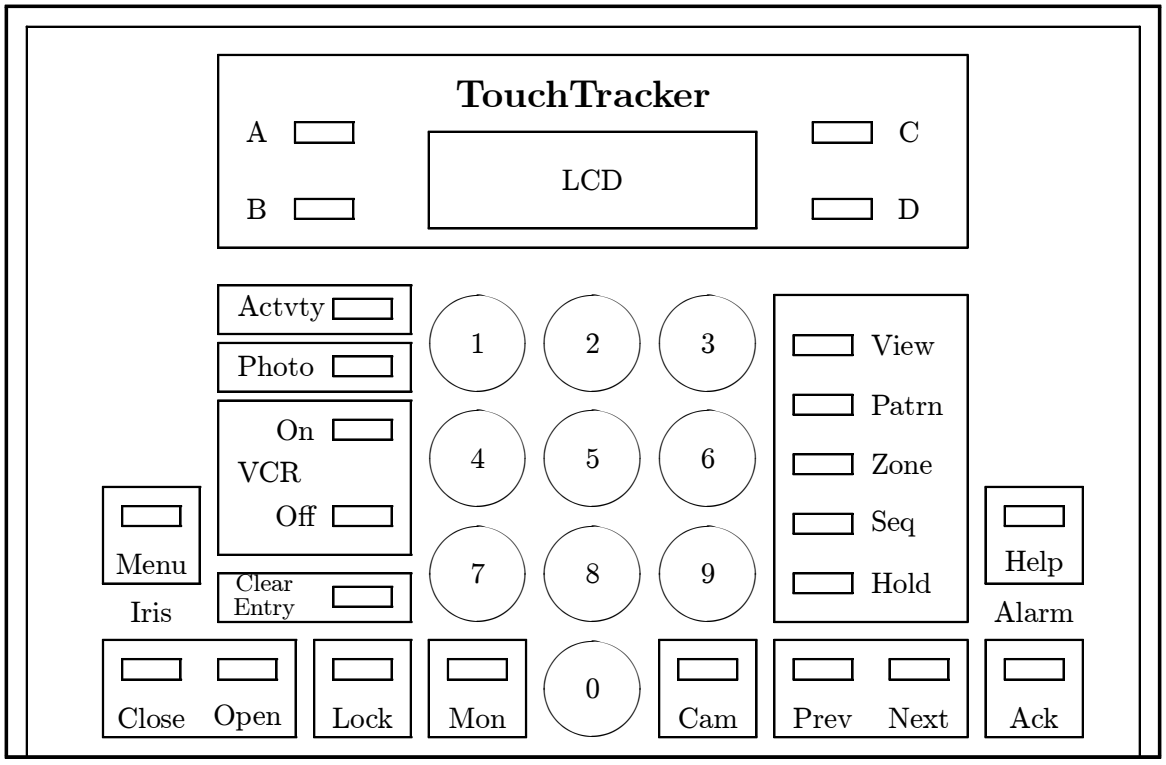
      Note that while actually defining a pattern the Spectra will put up a message saying "`PROGRAMMING PAT`" on the screen. This message does conflict with the controller's messages and may not be turned off.
   C. When done with the pattern, hit the "`Ack`" button on the TouchTracker.
   D. The controller will then ask if you want to run the new pattern. Hit the "`Ack`" button on the TouchTracker to run the new pattern. Note Sensormatic domes do not save the pattern until the user indicates that the pattern is OK. At this point the Spectra has already save the most recent pattern.

      There is a difference between the way that a Spectra and a DeltaDome/SpeedDome saves patterns. The Spectra saves commands for a given amount of time, while the Sensormatic domes save 99 commands **no matter how long it takes to run them**.
   E. To complete the test/new pattern run, hit the "`Clr`" key on the TouchTracker.
   F. To actually save the new pattern hit the "`Ack`" key on the TouchTracker to save the pattern and complete the pattern saving process. (Remember that the Spectra always has the new pattern saved. However the controller does not know that it is a Spectra so it "talks" to the Spectra as though it is a DeltaDome/SpeedDome.)
2. To run a pattern continuously:
   A. Hit the "`C`" button on the TouchTracker.
   B. Enter in the pattern number. Note that patterns are system wide, i.e. the controller will "know" that pattern #22 is for dome #3 etc.
   C. Hit the "`Patrn`" key on the TouchTracker.

D. And whichever dome the pattern applies to, will start running its pattern continuously. Remember that this is the only way that a Spectra runs patterns. It may be that a Sensormatic dome will only run a pattern once or that the controller stops the pattern after a given amount of time. (Which is happening in unknown.)

3. To have a dome "flip", hit the "D" key on the TouchTracker.

4. To change the state of AUX 4 (windshield/wiper on/off), hit the "B" key on the TouchTracker. The TXB-S422 translates AUX 4 to Auxilary #1. This is done so that with an Esprit, auxilary #1 is used to control the windshield wiper. Thus the windshield wiper may be turned on and off through use of the "B" key.



$RCSfile: tt.inc,v $

Figure 2. VM96 type TouchTracker layout

[4] $Header: d:/txb-s422/RCS/tt.inc,v 1.5 2002-02-14 16:08:02-08 Hamilton Exp Hamilton $

Index