Bosch Bilinx Protocol Data

14 May 2009

Eric Hamilton

Contents

List of Figures

[1] `$Header: d:/Binder7/Bosch-3012/RCS/Bosch.tex,v 1.2 2009-05-14 10:41:04-07 Hamilton Exp Hamilton $`
[4] `tocdepth = 4`

1 Bilinx with a PAL Bosch LT-620 camera only attached

Note

1. The camera model is **LTC0620/11** with a random lens from the optics lab.
2. The "head-end" is a model **VP-RS2BLNX**, Serial to Bilinx converter.
3. The software used is Bosch's "Configuration Tool for Imaging Devices" (**CTFID**) Rev 3.05.0002. The user manual is 57 pages long. (Two screen shots are in Figure 25, page 28 and Figure 26, page 29.)
4. Voltage levels on the oscilloscope pictures are off by a factor of ten, because I forgot to reset the display values after using a X10 probe.
5. The sync point (Figure 1, page 4) on the oscilloscope that was used here was not at the start of a field, but is offset somewhat. However the offset is consistent with all captures.
6. There is a location in each field (Prime and Alternate fields) marked out for data. (Figure 1, page 4, Figure 3, page 6)
7. Data format:
   - 7.1 The data appears to have 31 "semi-variable" duration pulses available on each line. (Figure 10, page 13, Figure 11, page 14)
   - 7.2 It appears that "1"'s are 1μs long. (Figure 12, page 15)
   - 7.3 It appears that "0"'s are .5μs long. (Figure 13, page 16)
   - 7.4 There are 1μs and .5μs gaps in the data which are not fully explained.
   - 7.5 Could this be Manchester (Bi-Phase) formatted data?
8. It is difficult to capture "data" as there is not data on every field, nor is it in every frame.
9. When the camera (LTC0620/11) and converter (VP-RS2BLNX) are connected together, the area "blocked out" for data changes from one line to ten lines. (Figure 1, page 4, Figure 15, page 18 and Figure 17, page 20)
10. When using the Bosch's CTFID software, the downloading, control, etc., never uses more that the first three TV lines.
11. When connecting the camera to the converter box, it was noted that there are two different voltage levels in use for the "data block".
    - 11.1 The camera uses a signal that is about 384 mV P-P. (Figure 23, page 26)
    - 11.2 The converter uses a signal that is about 240 mV P-P. (Figure 20, page 23)
12. Pelco Europe said that Bilinx does not have pan/tilt capability. From looking at the options in the CTFID software it definitely does. Navigation through the menus is quite successful.
13. When the CTFID software is turned off, the converter box and the camera continue to "talk" to each other.

[5] `$Header: d:/Binder7/Bosch-3012/RCS/BlCamera.inc,v 1.9 2009-05-14 10:41:04-07 Hamilton Exp Hamilton $`

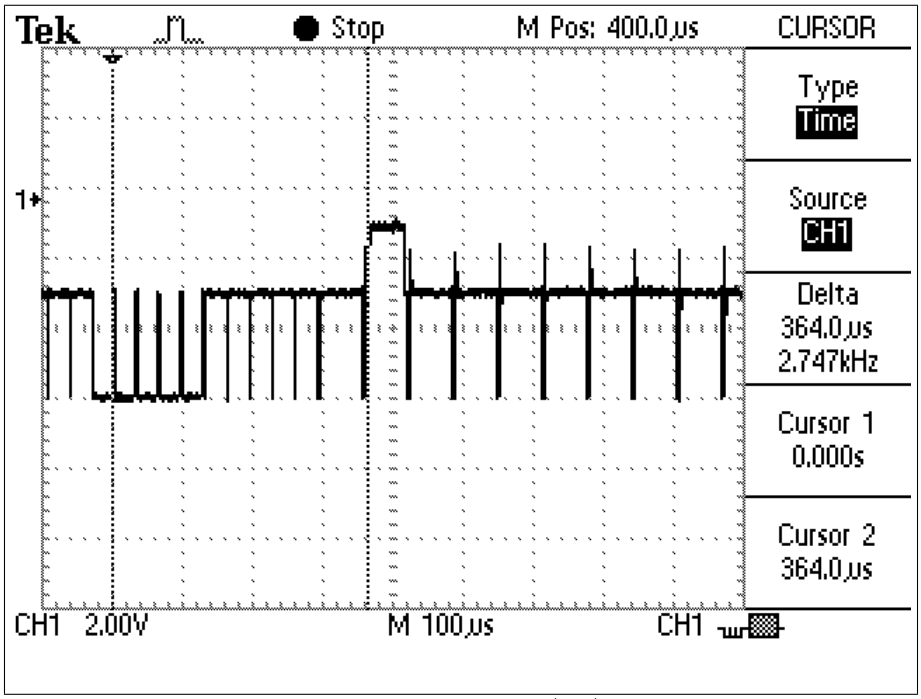

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Figure 1: Camera and "Data Spot", "Prime Field", capture 1

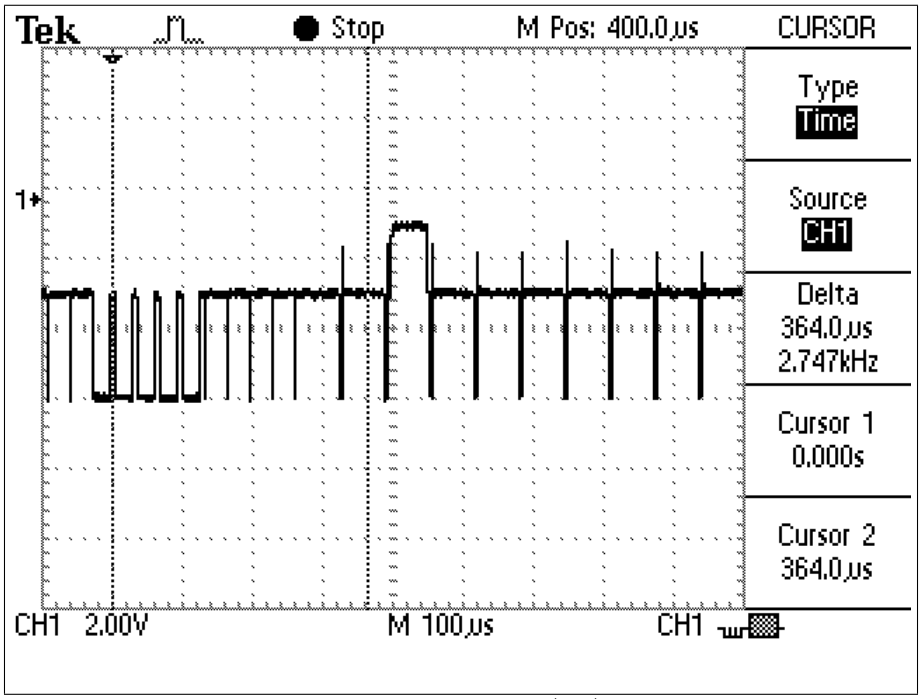

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Figure 2: Camera and "Data Spot", "Alternate Field", capture 1

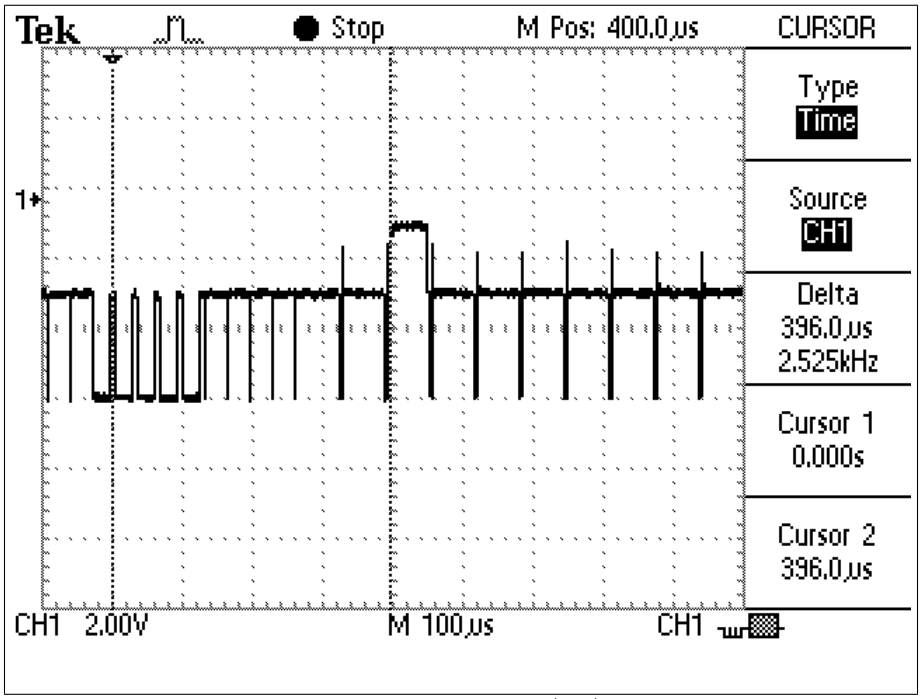

Figure 3: Camera and "Data Spot", "Alternate Field", improved timing, capture 1

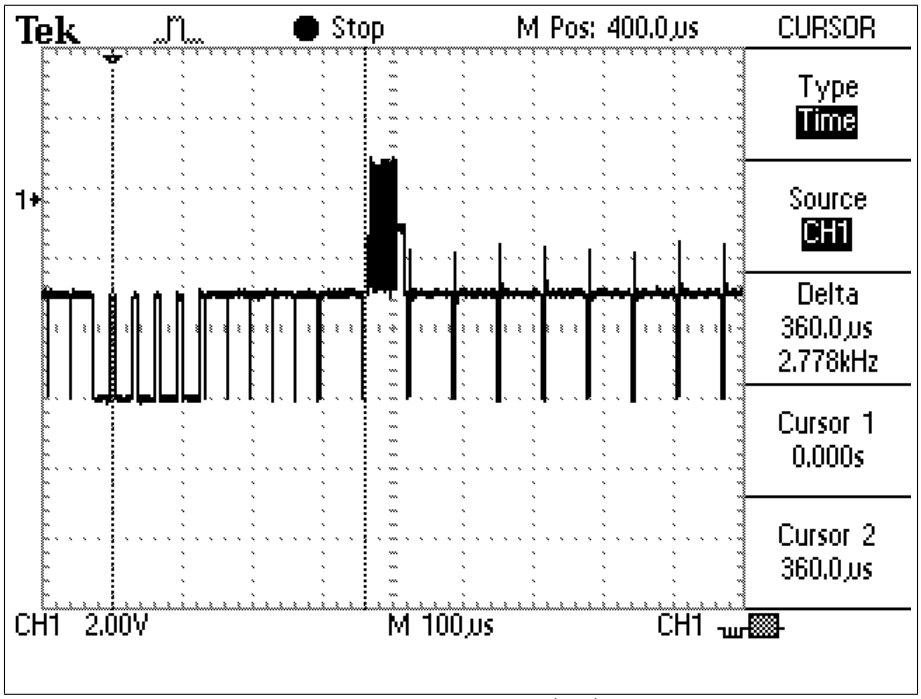

Figure 4: Camera with data burst in Prime field, capture 1

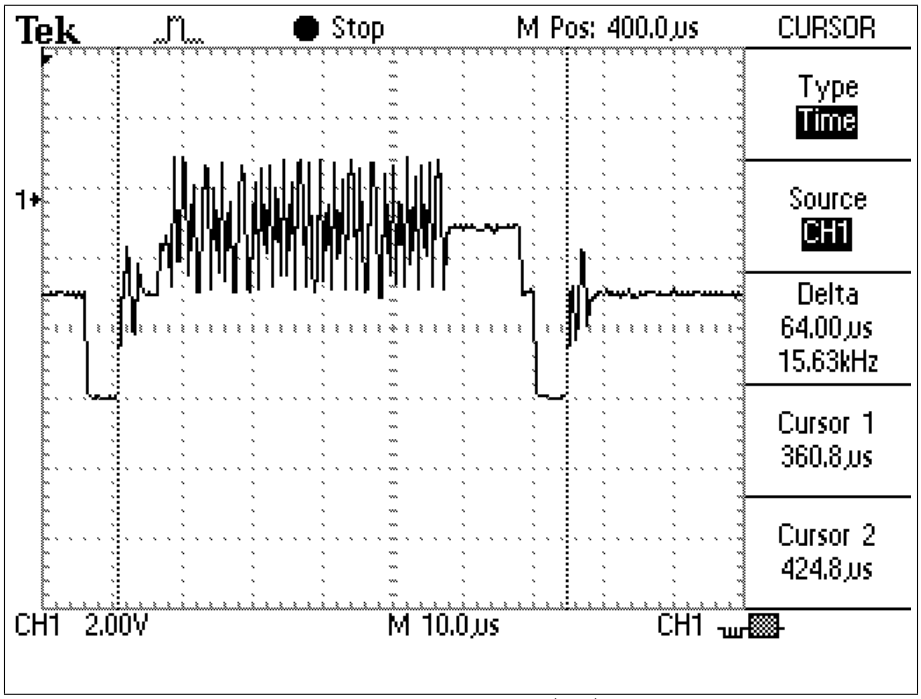

Figure 5: Camera with data burst in Prime field, expanded version, capture 1

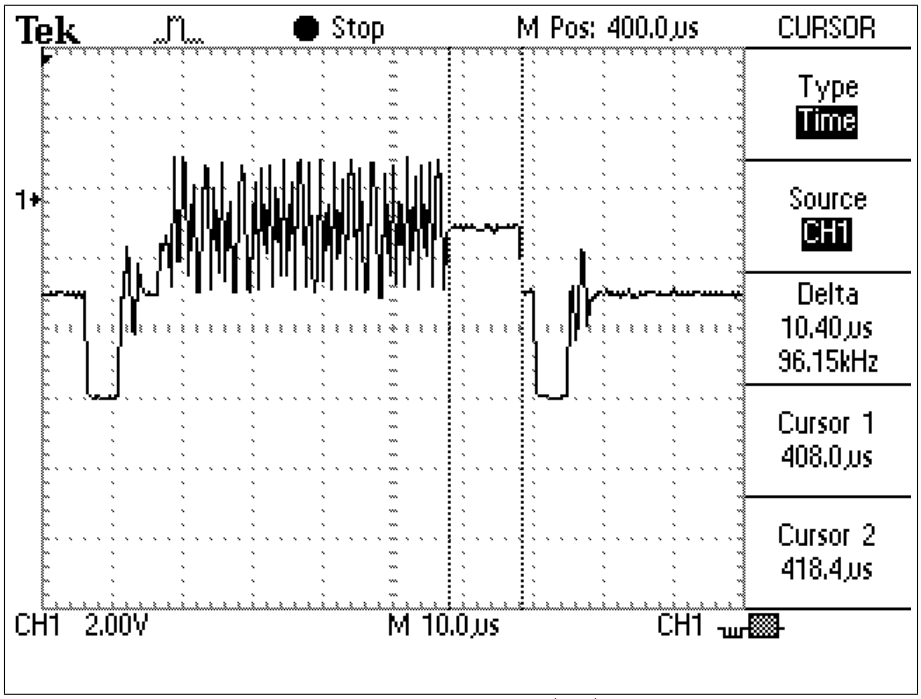

Figure 6: End of data burst, capture 1

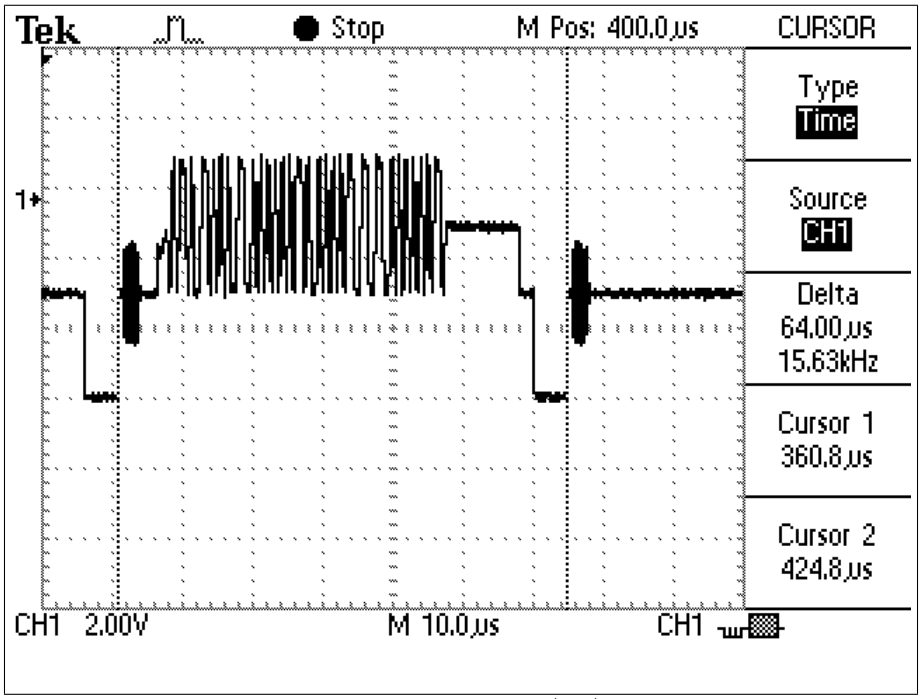

Figure 7: Camera with data burst, capture 2

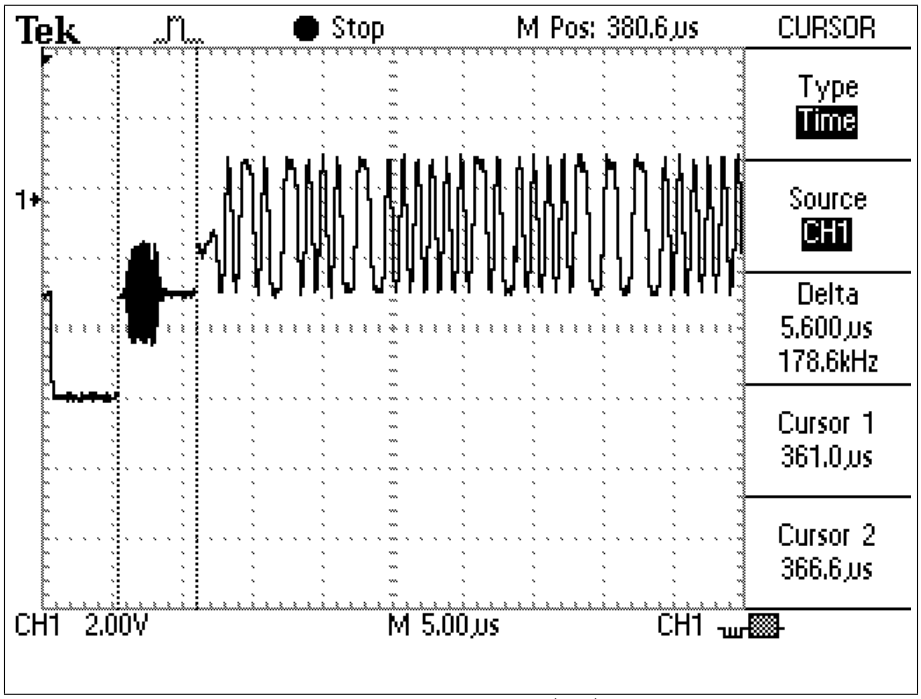

Figure 8: Start of data burst, capture 2

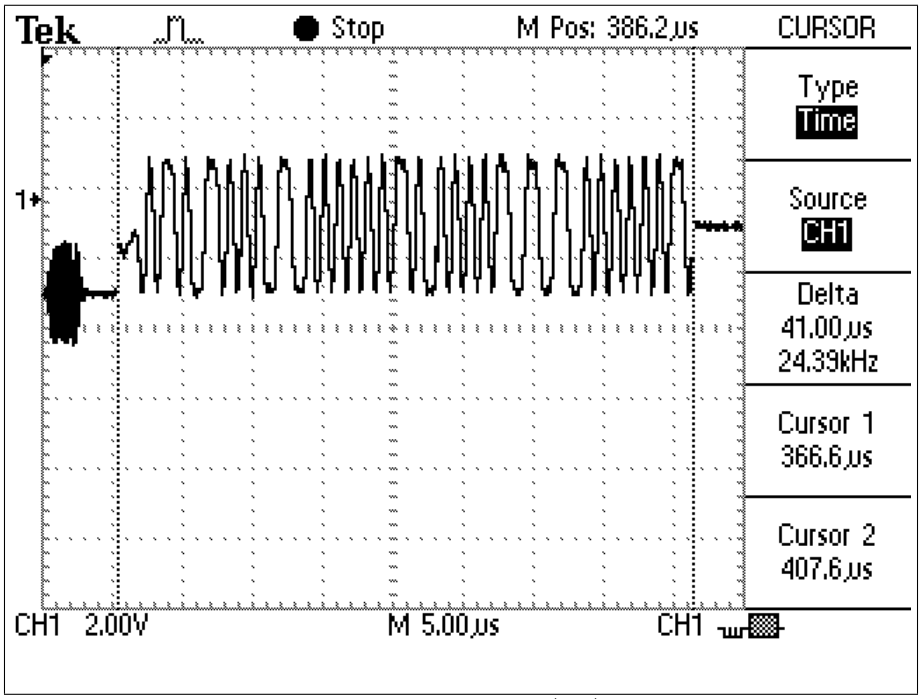

Figure 9: Camera with data burst, expanded scale, capture 2

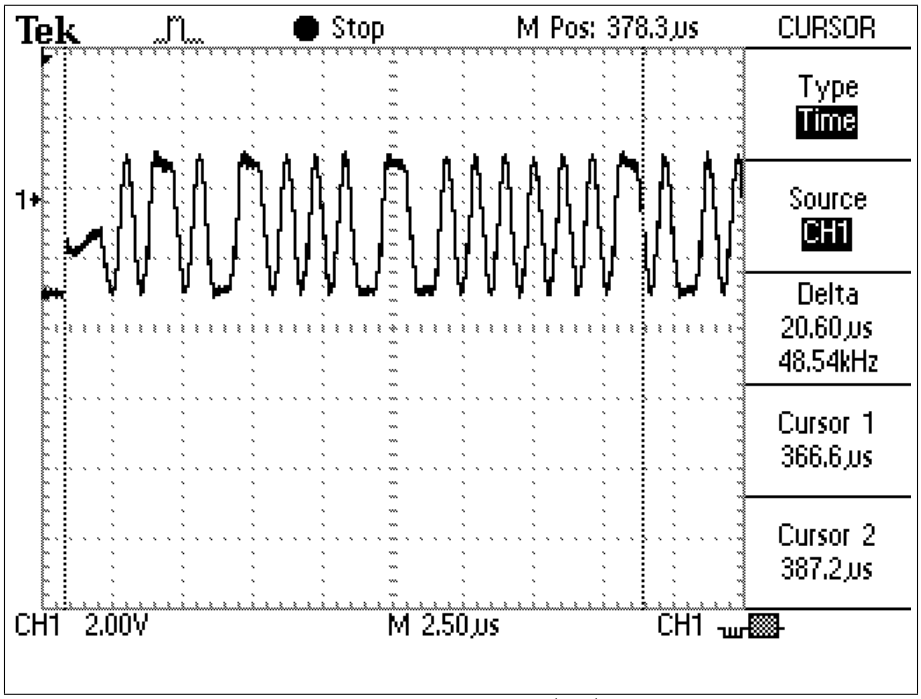

Figure 10: First 16 data bits, capture 3

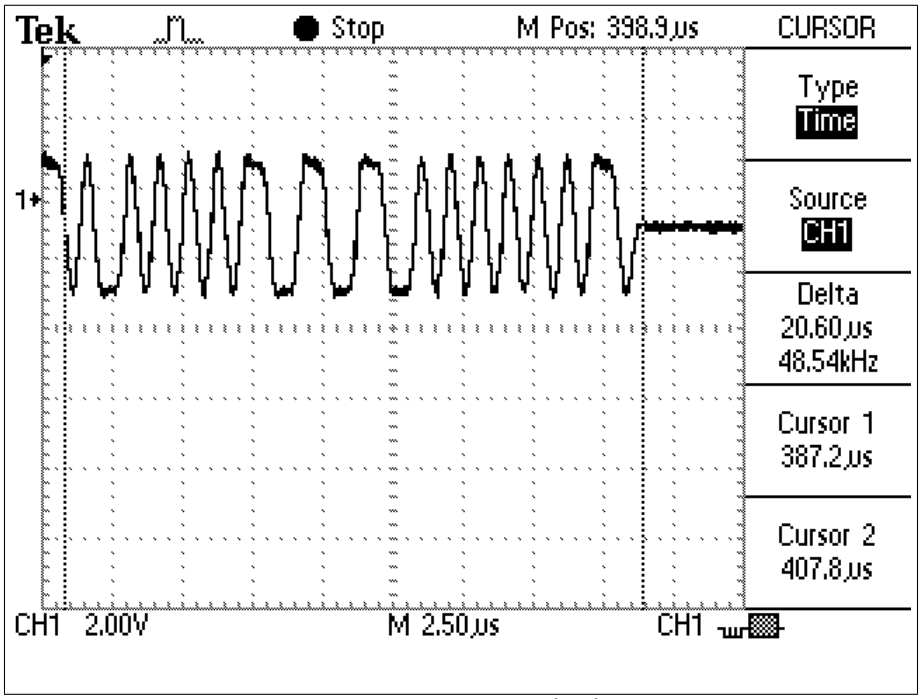

Figure 11: Last 15 data bits, capture 4

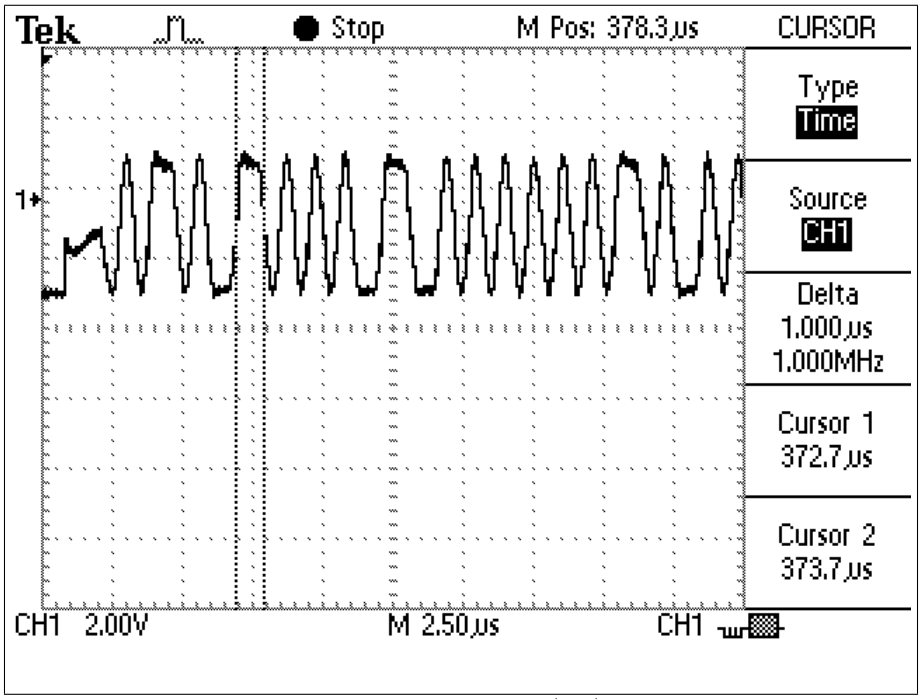

Figure 12: Duration of a “1” bit

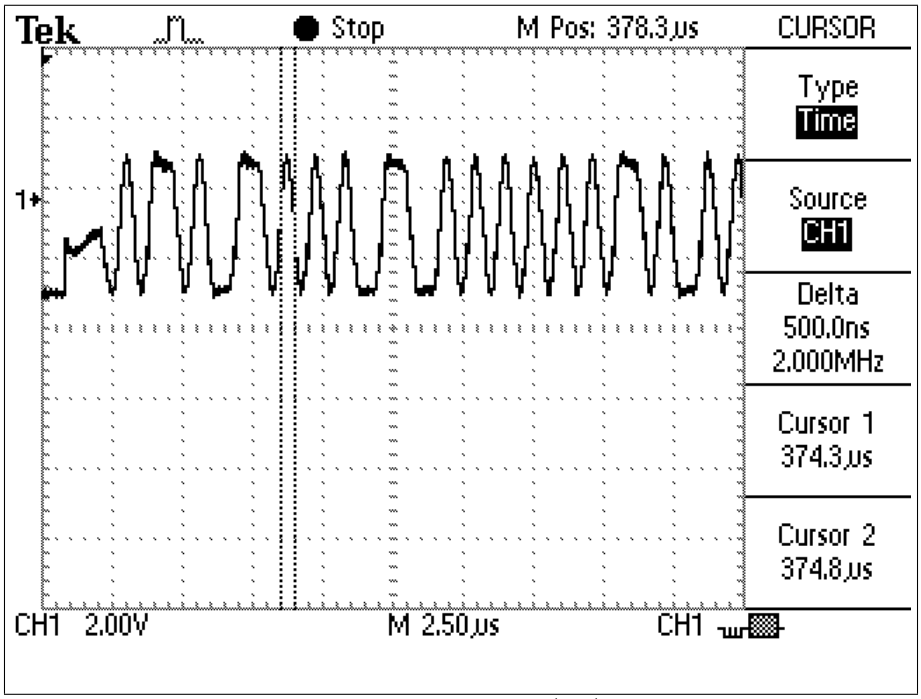

Figure 13: Duration of a “0” bit

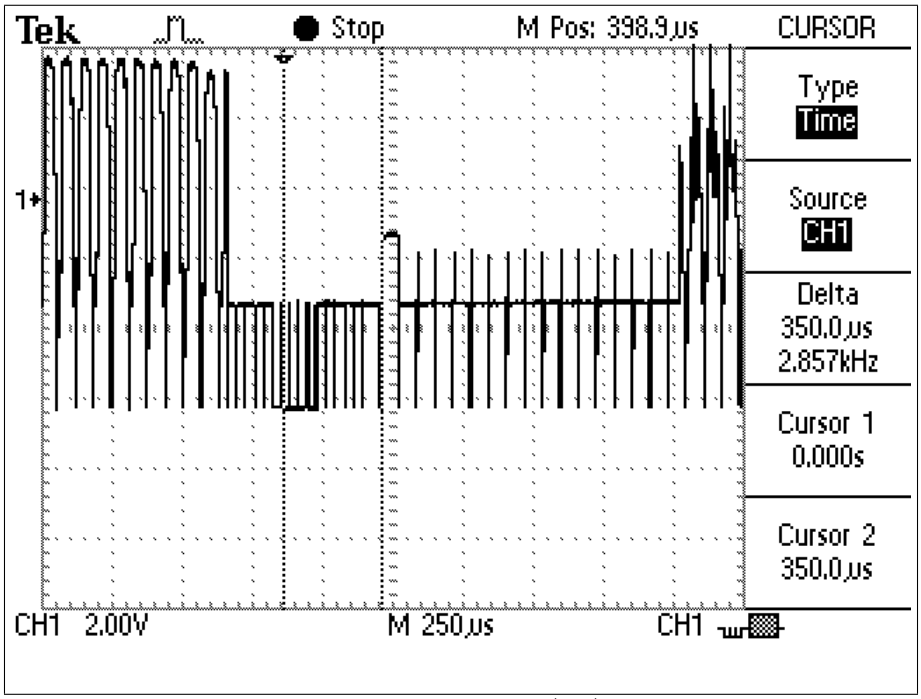

Figure 14: VSync with data block, capture 5

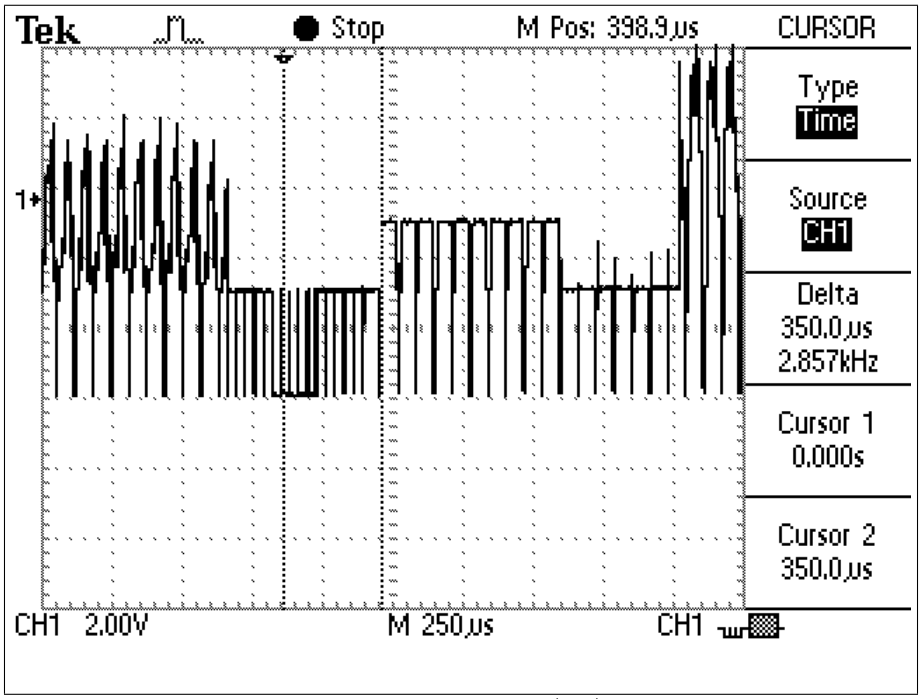

Figure 15: Full empty data block with a camera and head-end connected, capture 6

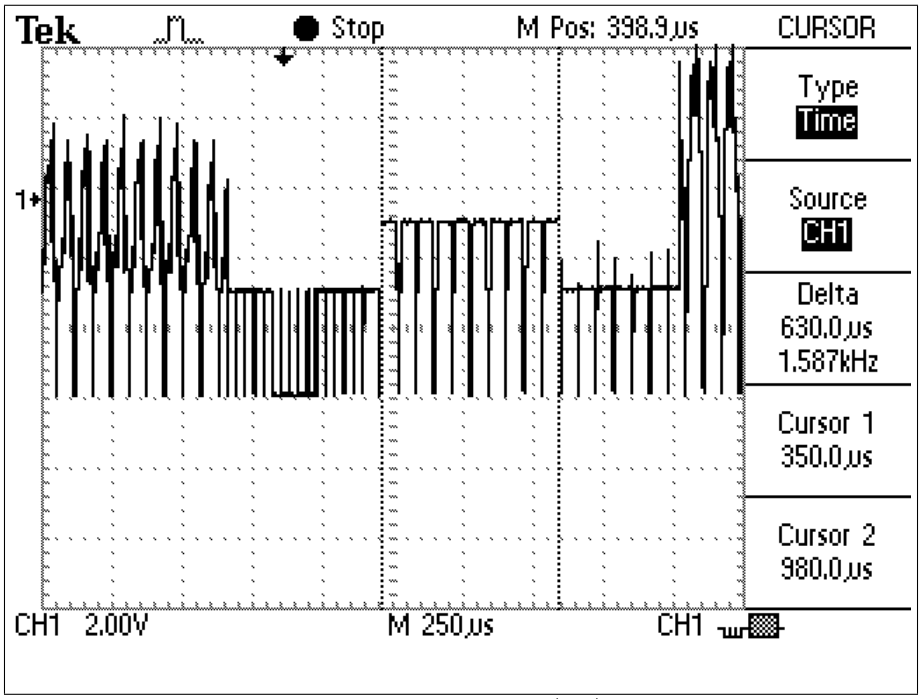

Figure 16: Duration of a full empty data block, capture 6

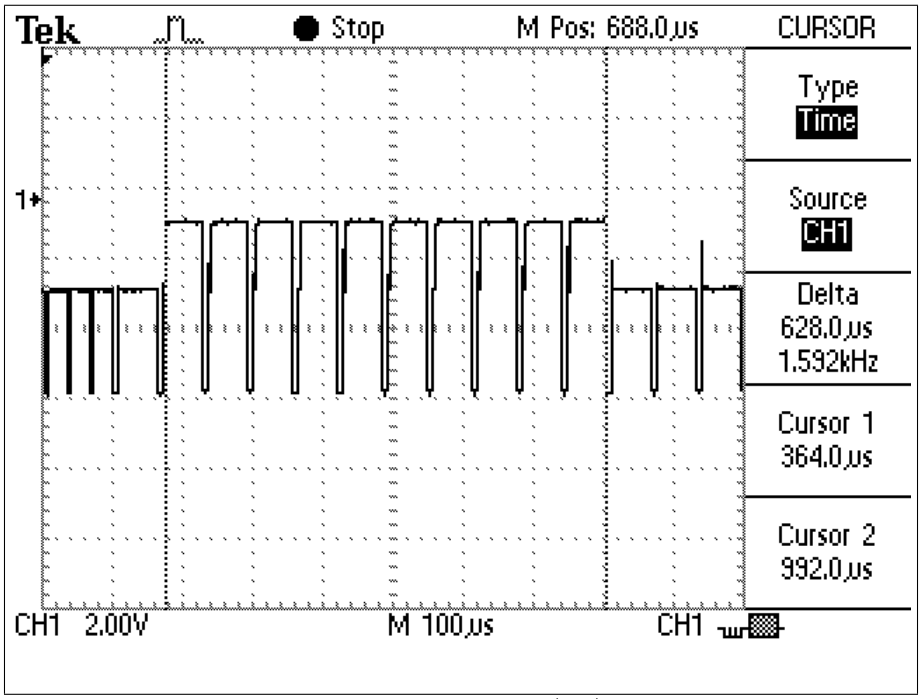

Figure 17: Duration of a full empty data block, expanded, capture 6

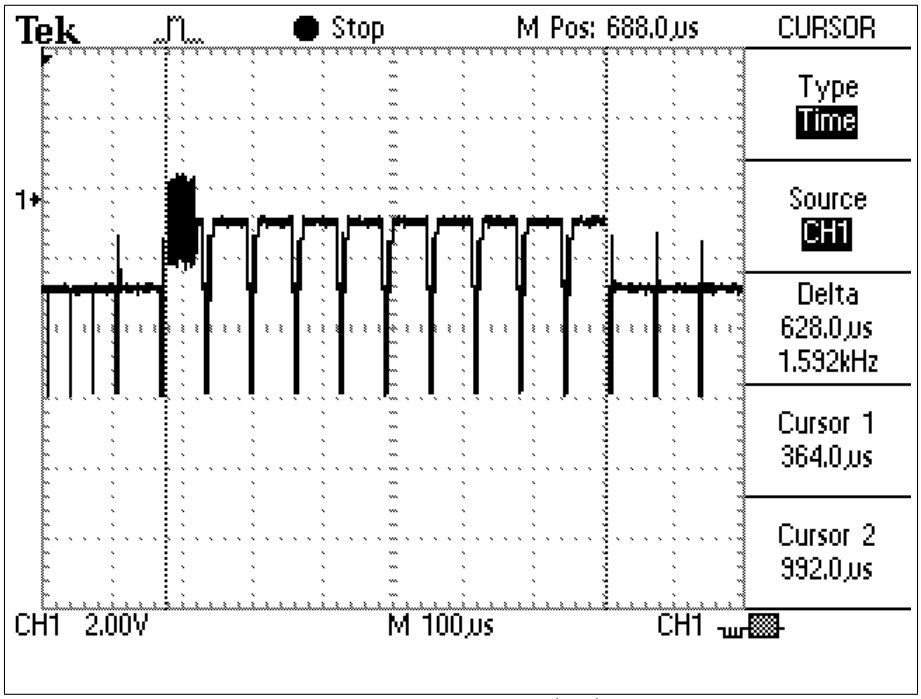

Figure 18: Full data block with one line of data, capture 7

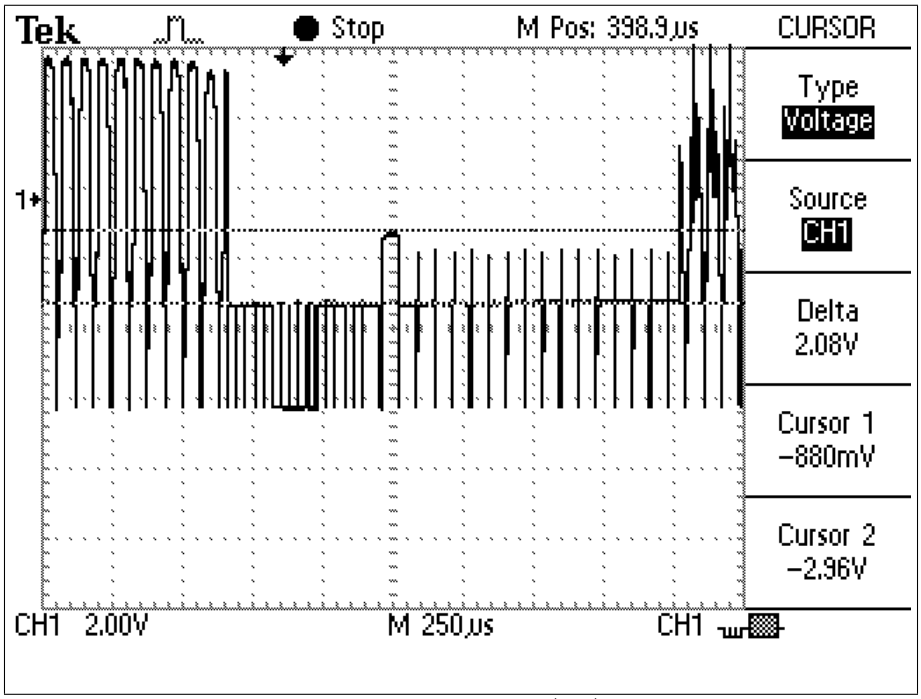

Figure 19: Voltage level of the data block, capture 5

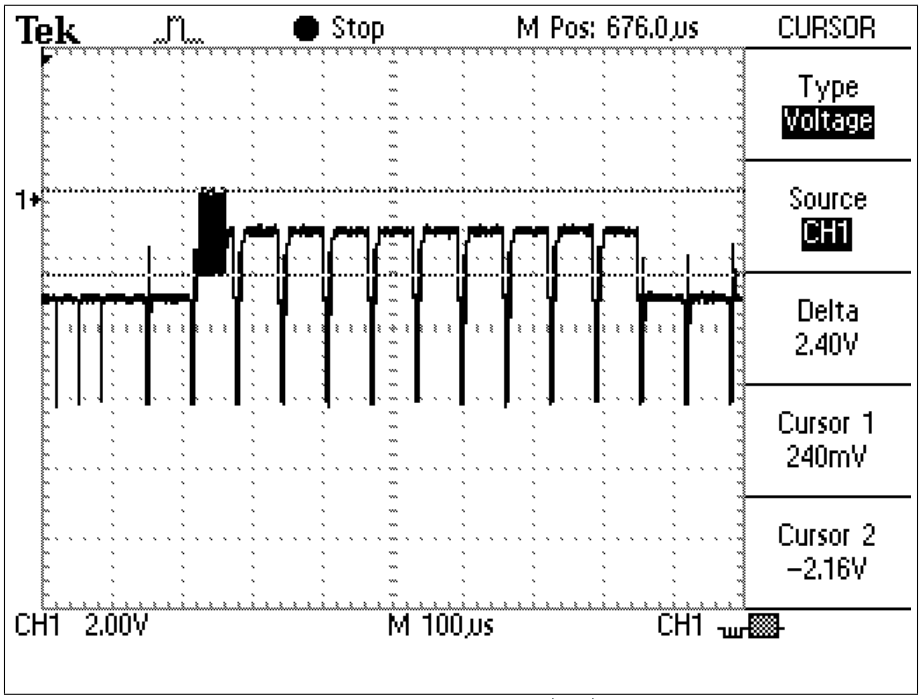

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Figure 20: Converter data Peak-Peak voltage

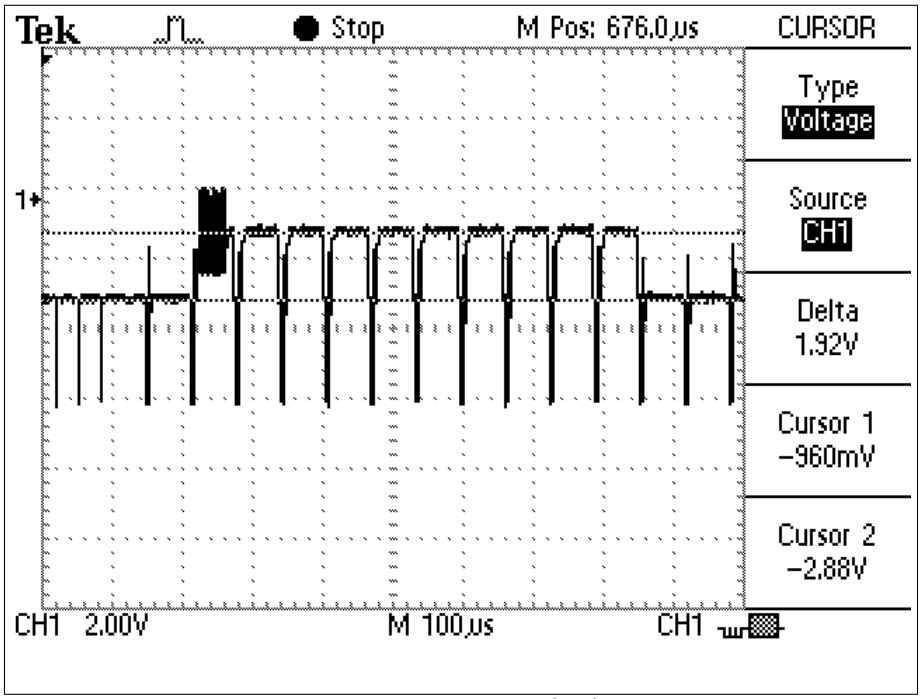


Figure 21: Converter data Base Line voltage

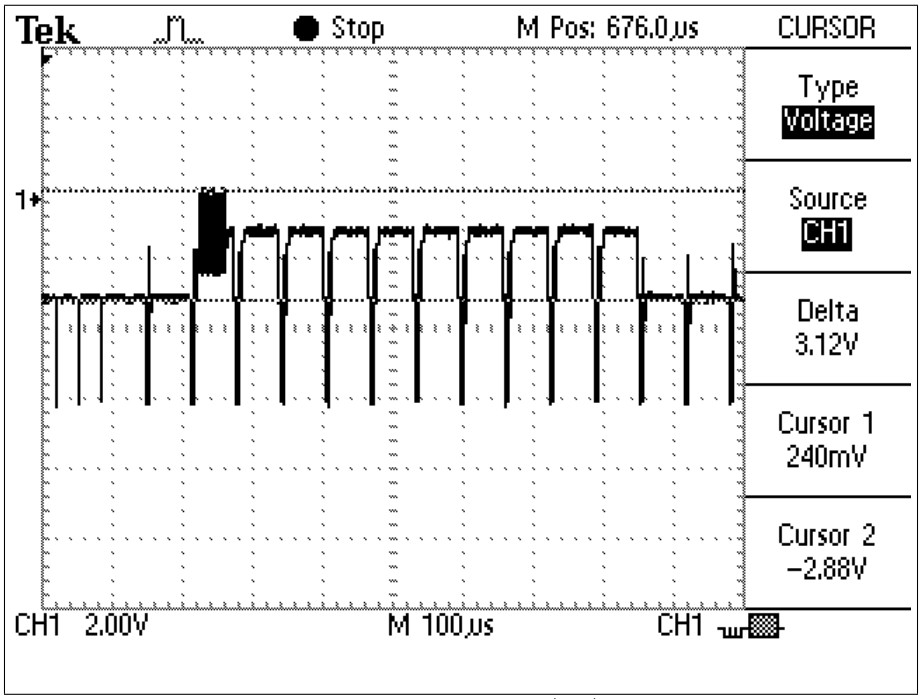


Figure 22: Converter data Peak voltage

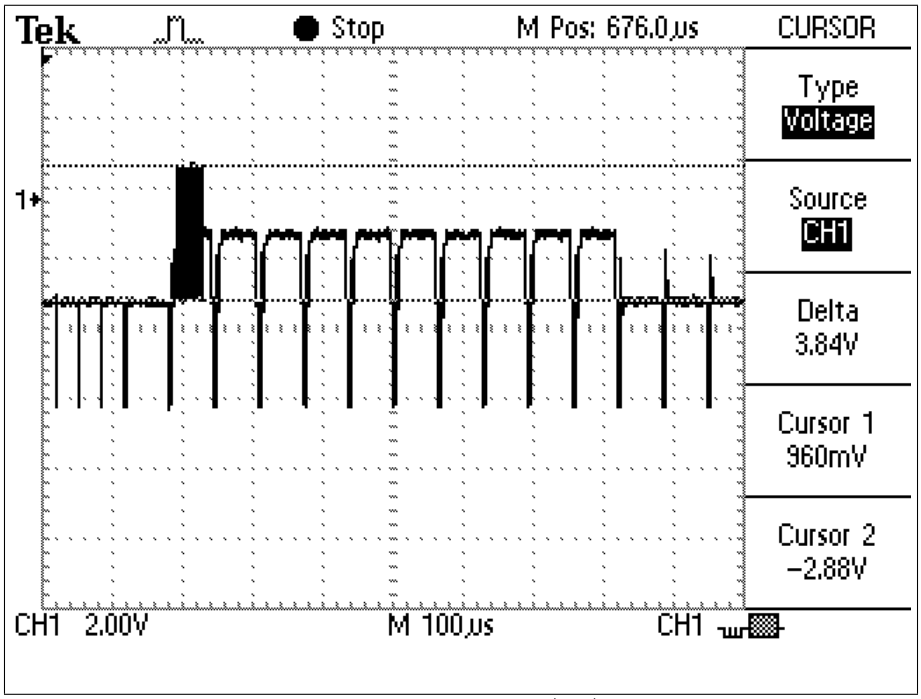


Figure 23: Camera data Peak-Peak voltage

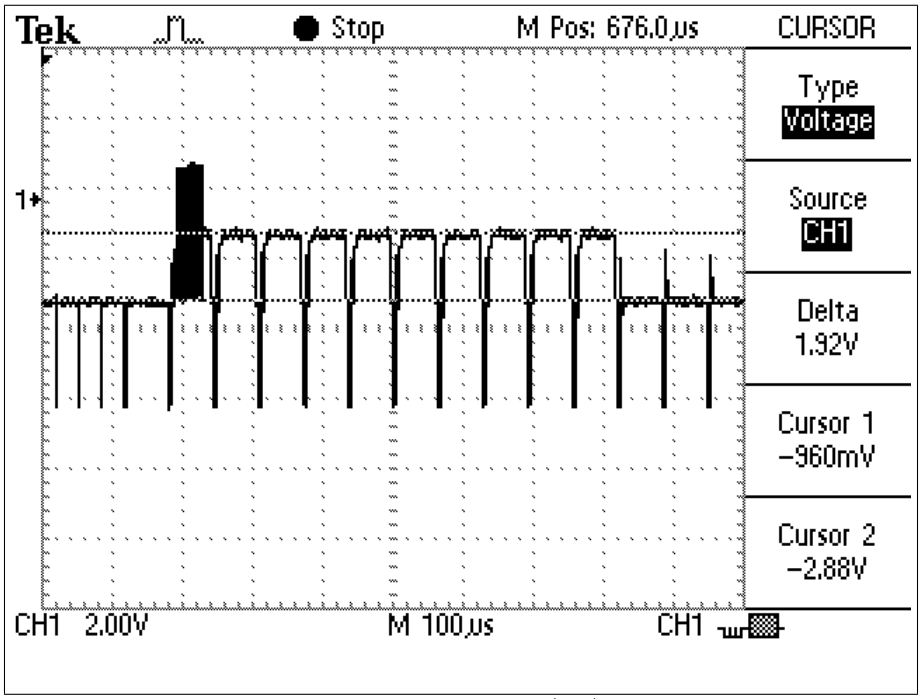


Figure 24: Camera data Base Line voltage

2 RS-232 Communications between CTFID and the converter

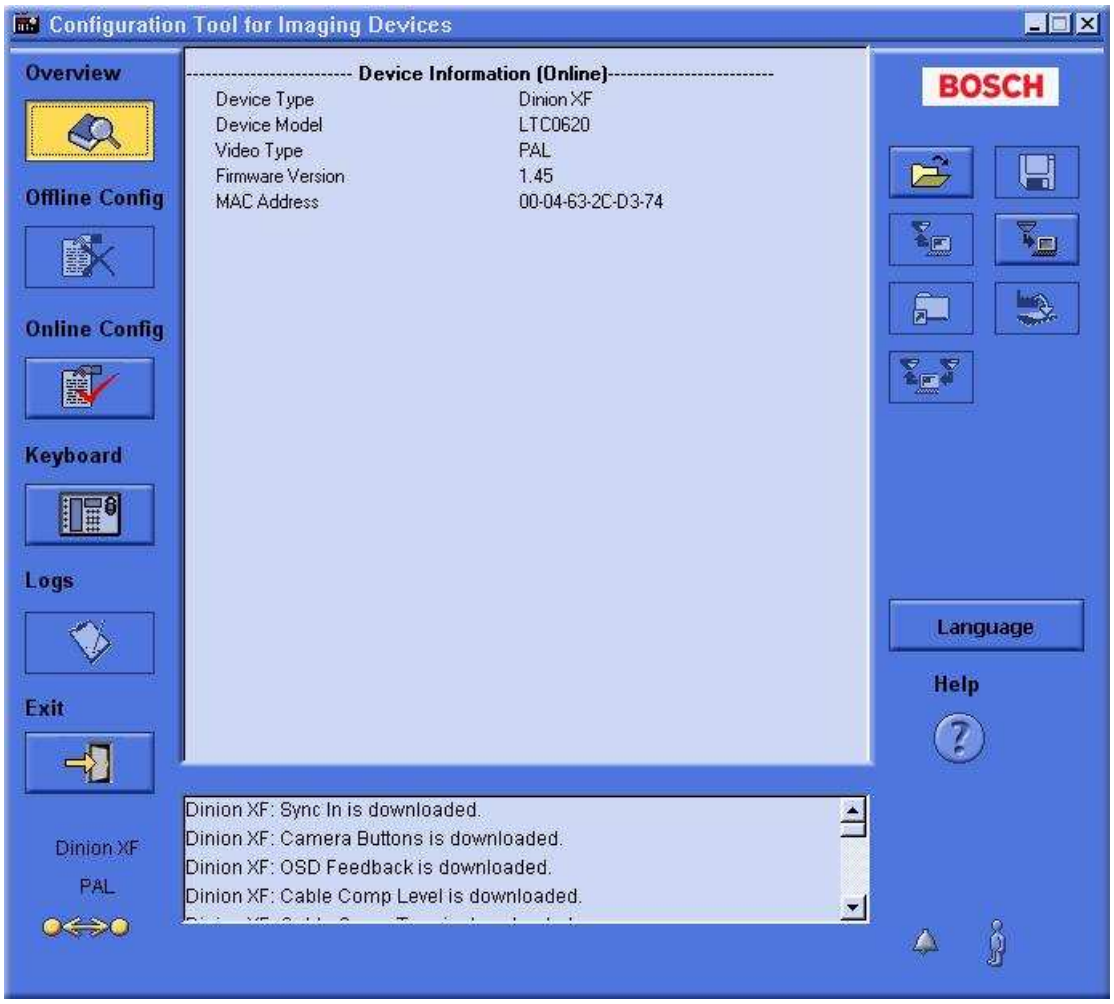


Figure 25: CTFID, Overview Display

[6] $Header: d:/Binder7/Bosch-3012/RCS/CTFID.inc,v 1.2 2009-05-14 10:41:08-07 Hamilton Exp Hamilton $

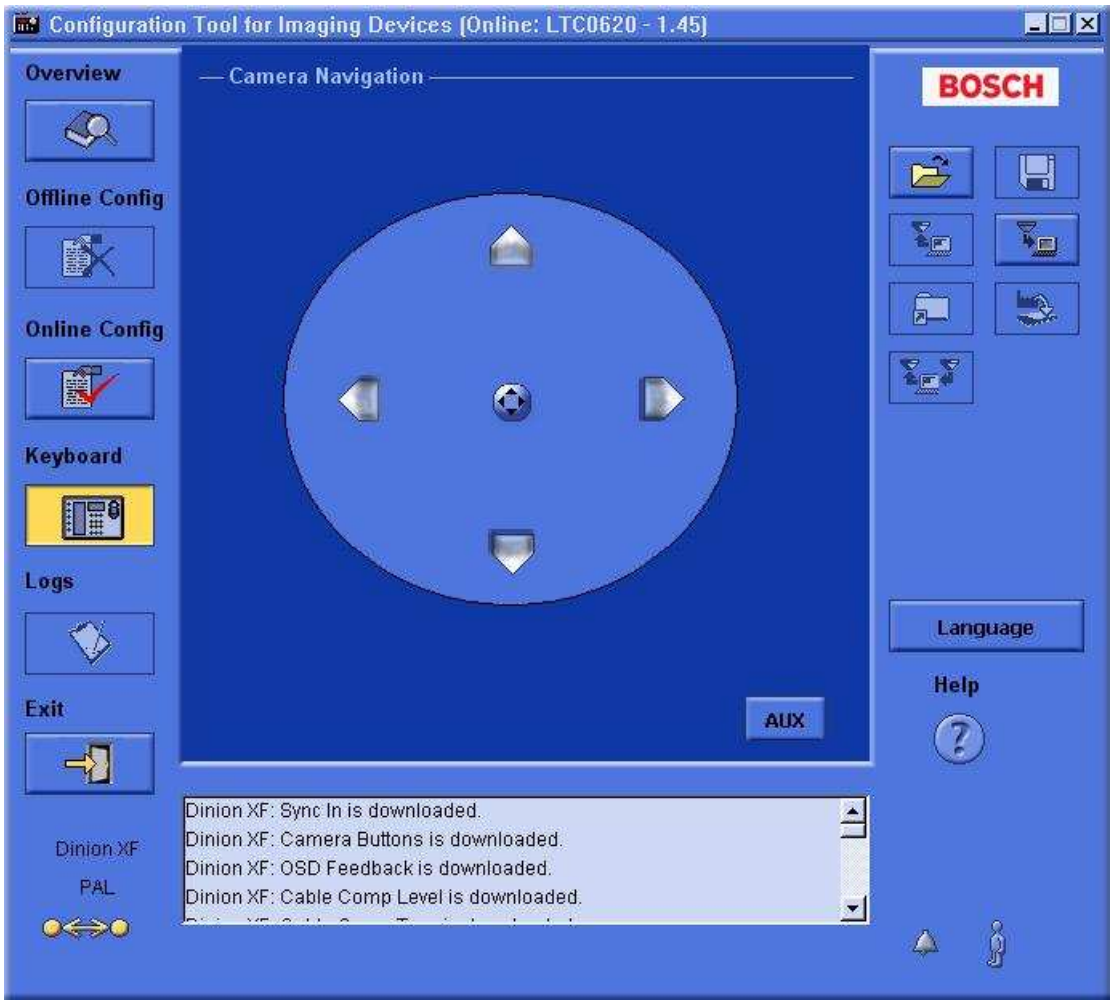
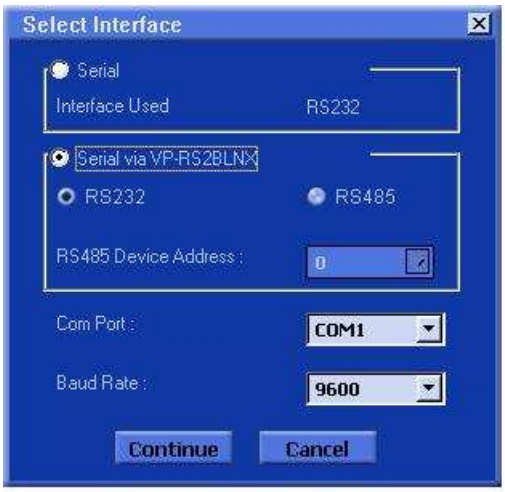
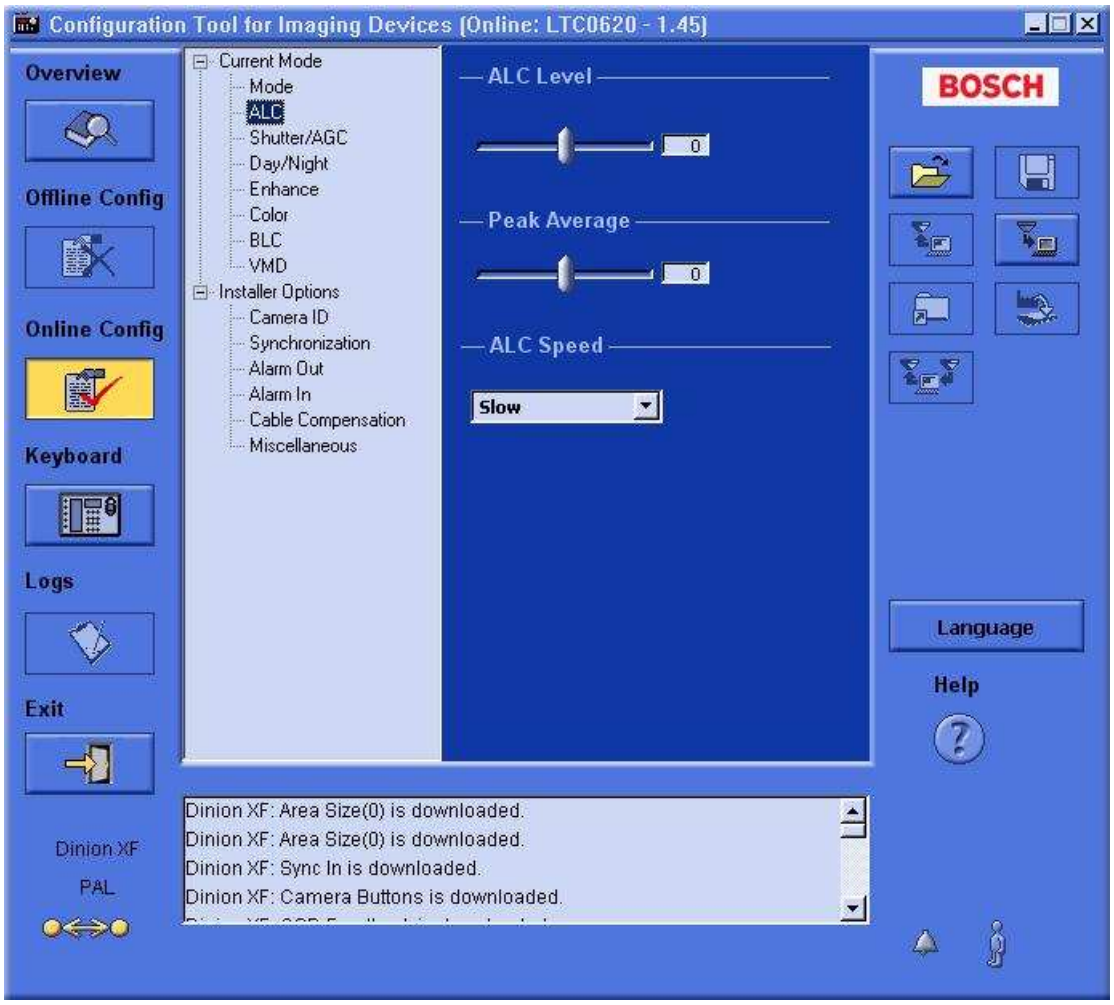


Figure 26: CTFID, Keyboard Display



SelectInterface 05/14/2009 10:06 AM

Figure 27: CTFID, Select Interface Display



CurrentModeALC 05/14/2009 10:06 AM

Figure 28: CTFID, Current Mode ALC Display

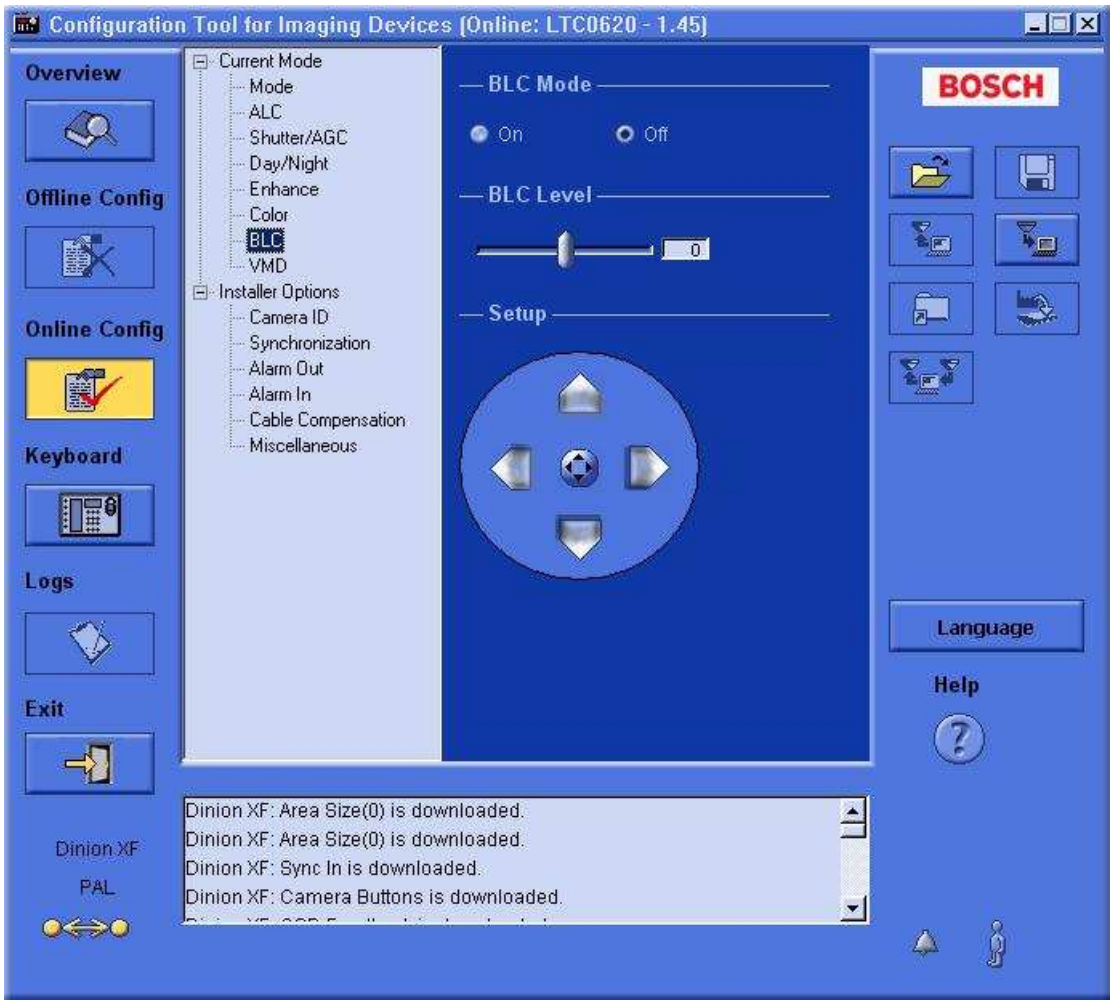
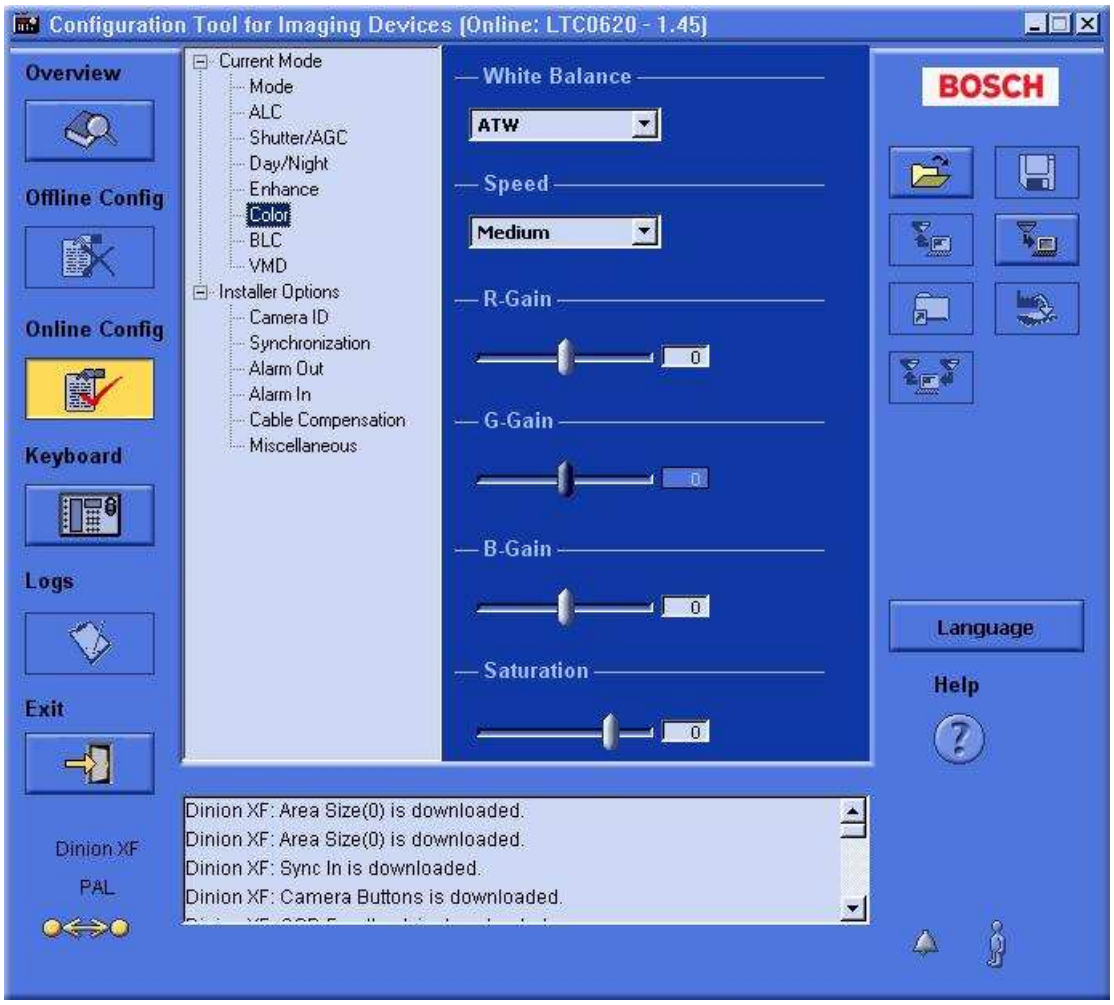


Figure 29: CTFID, Current Mode BLC Display



CurrentModeColor 05/14/2009 10:06 AM

Figure 30: CTFID, Current Mode Color Display

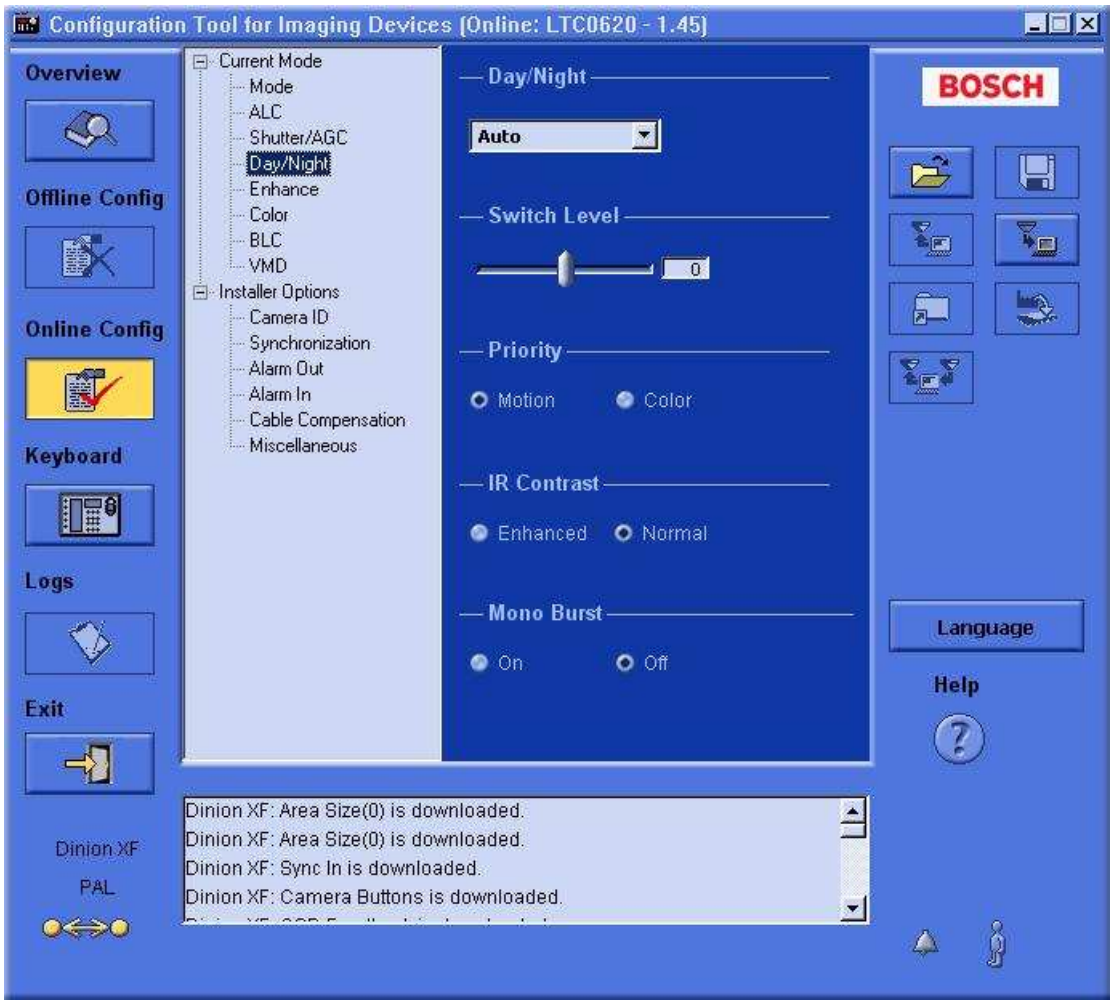


Figure 31: CTFID, Current Mode Day Night Display

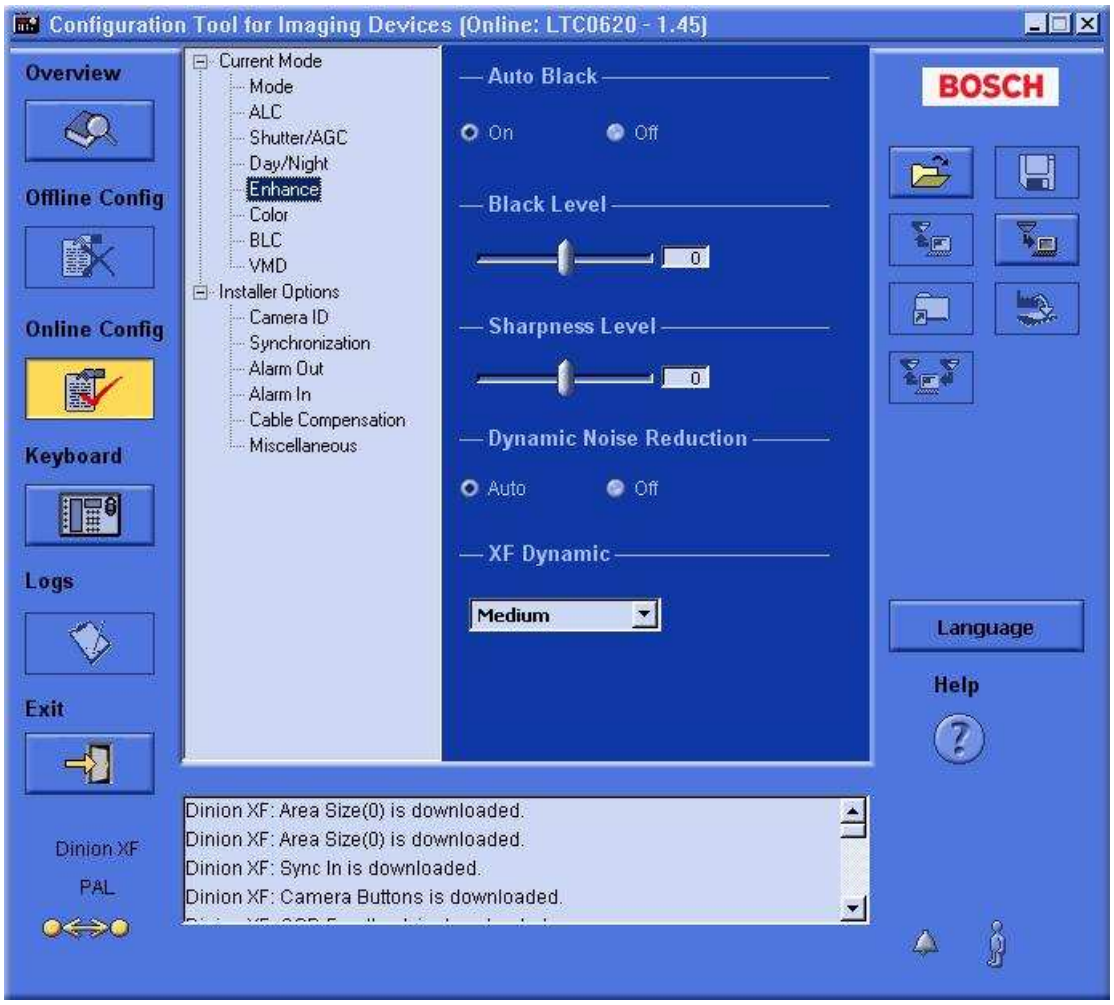


Figure 32: CTFID, Current Mode Enhance Display

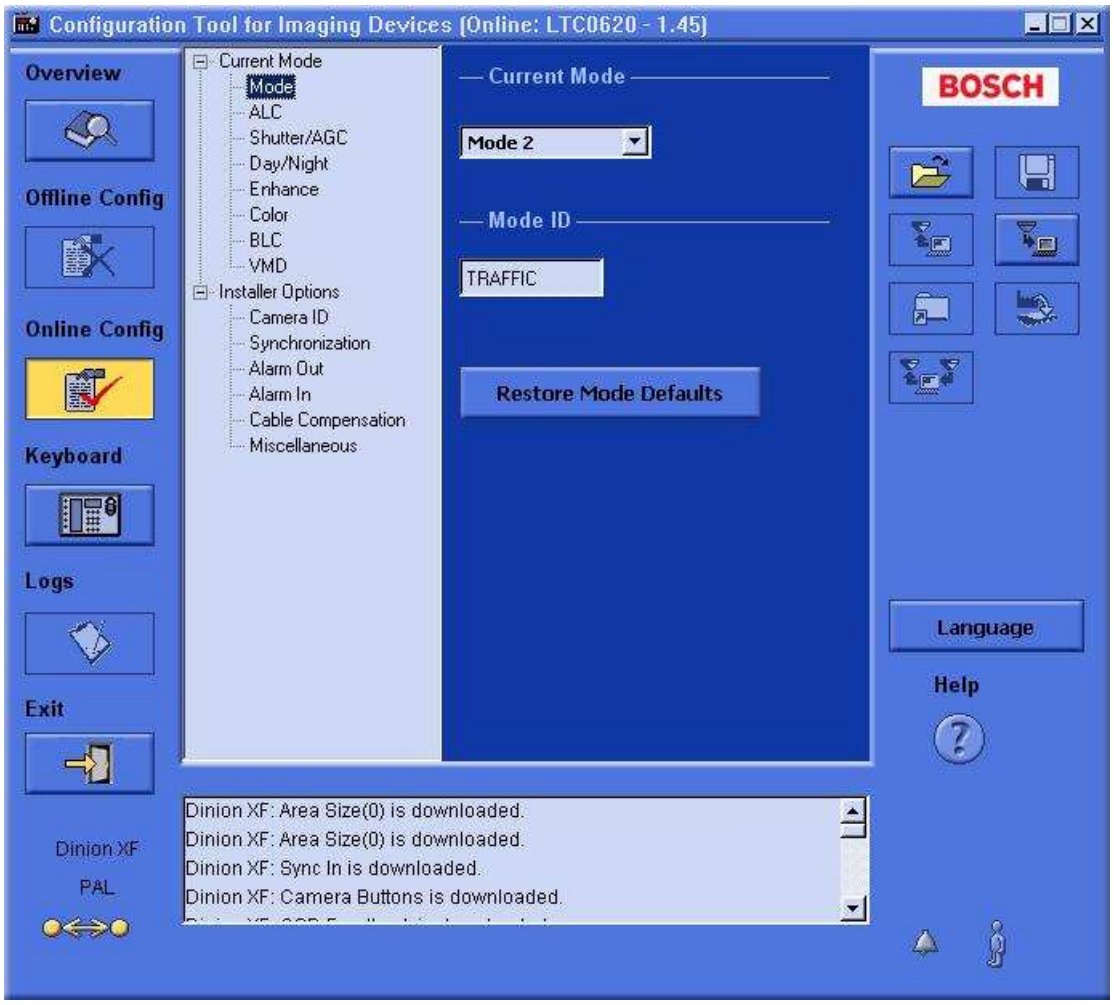
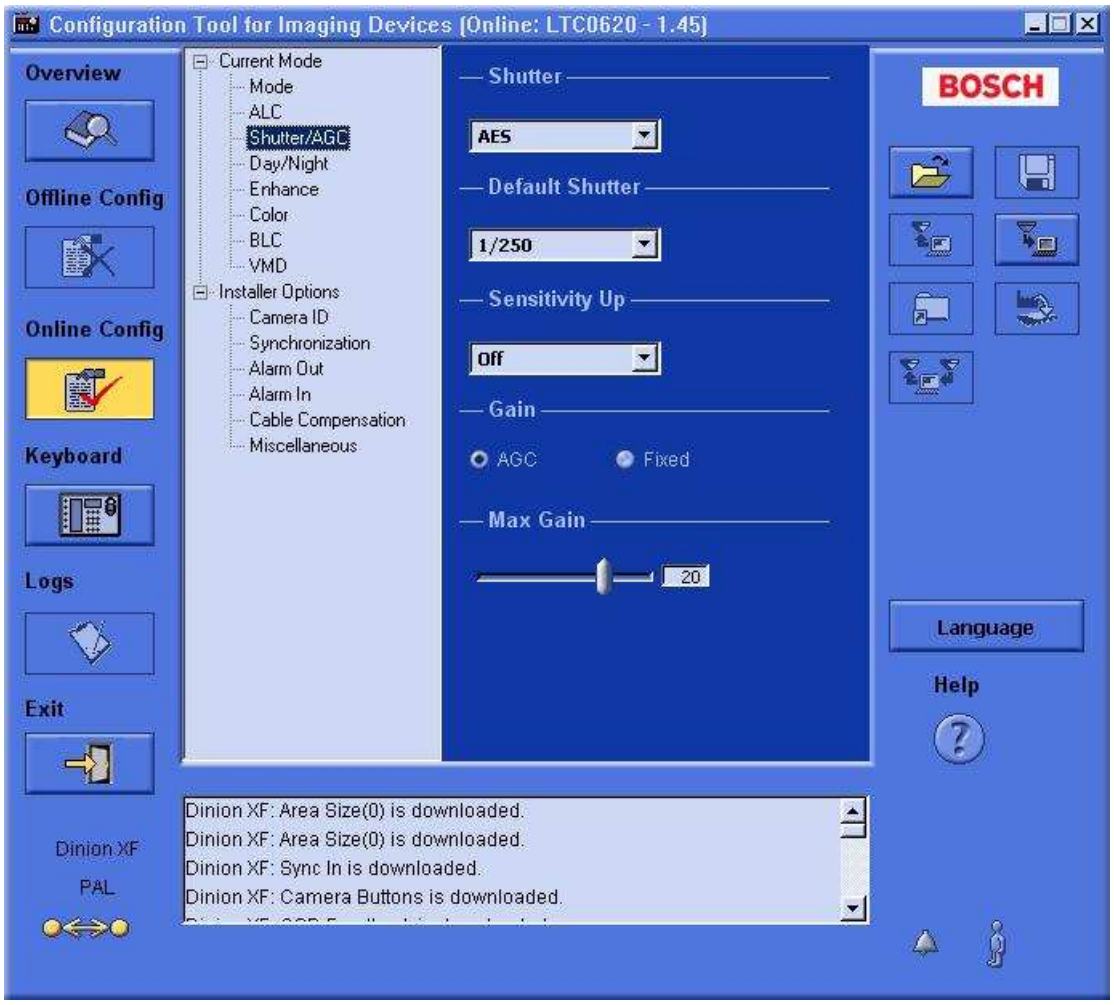


Figure 33: CTFID, Current Mode Mode Display



CurrentModeShutter 05/14/2009 10:06 AM

Figure 34: CTFID, Current Mode Shutter Speed Display

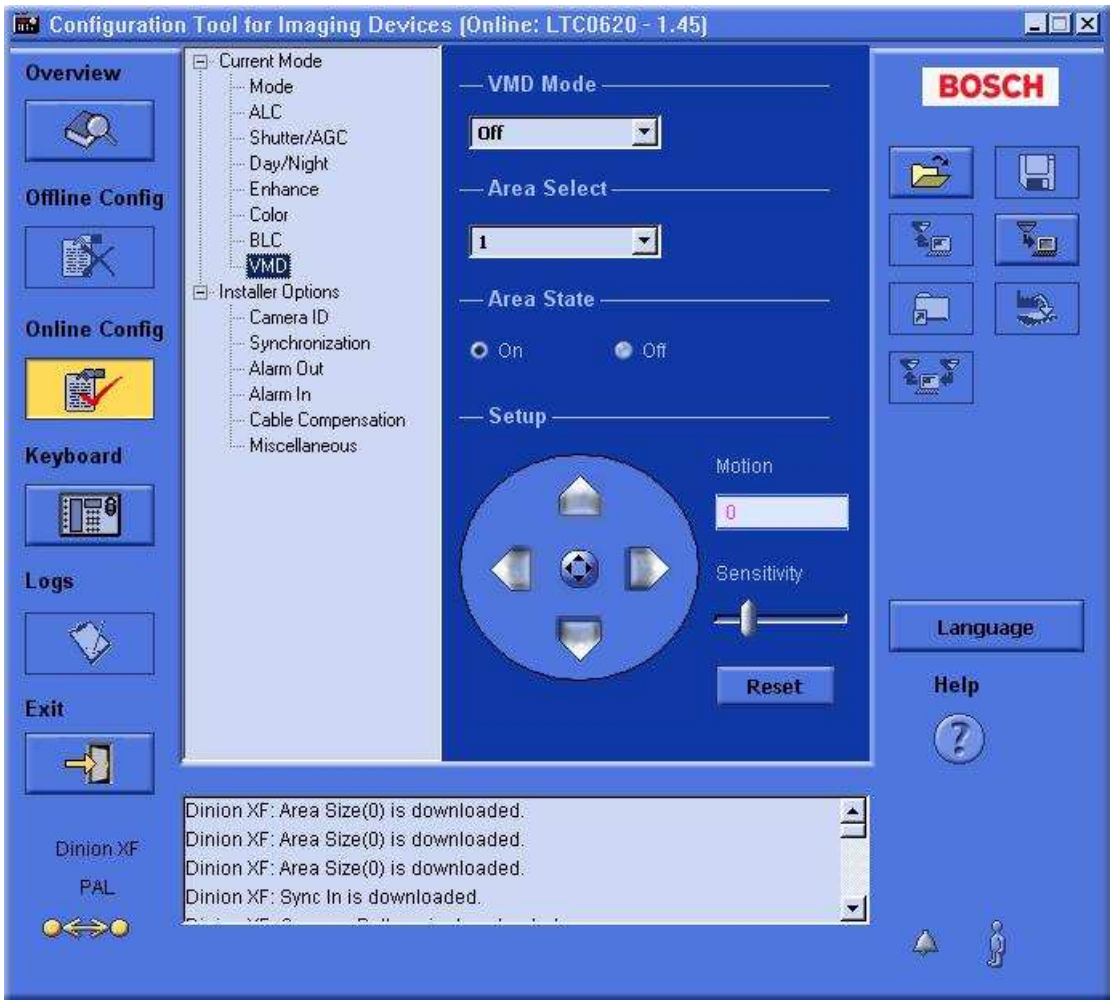


Figure 35: CTFID, Current Mode VMD Display

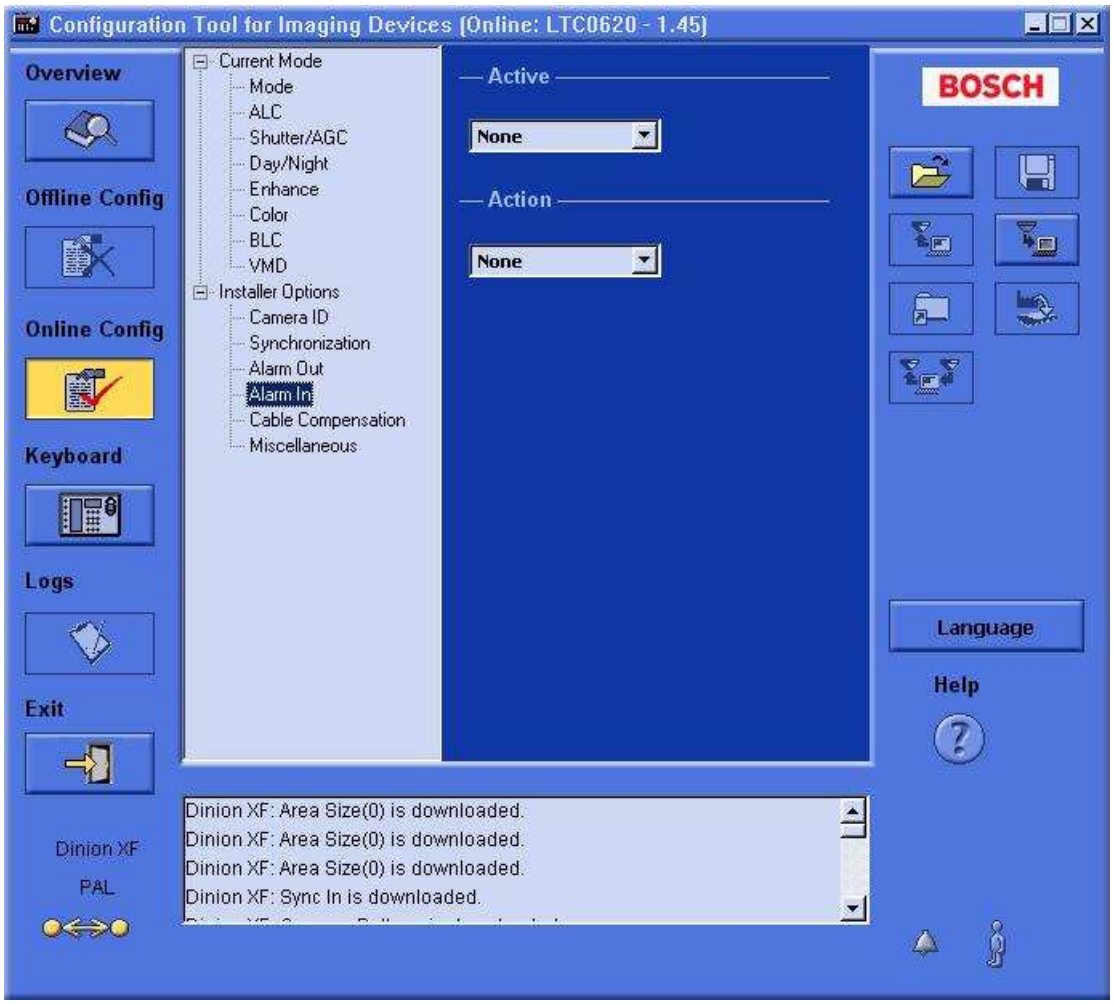


Figure 36: CTFID, Installer Options Alarm In Display

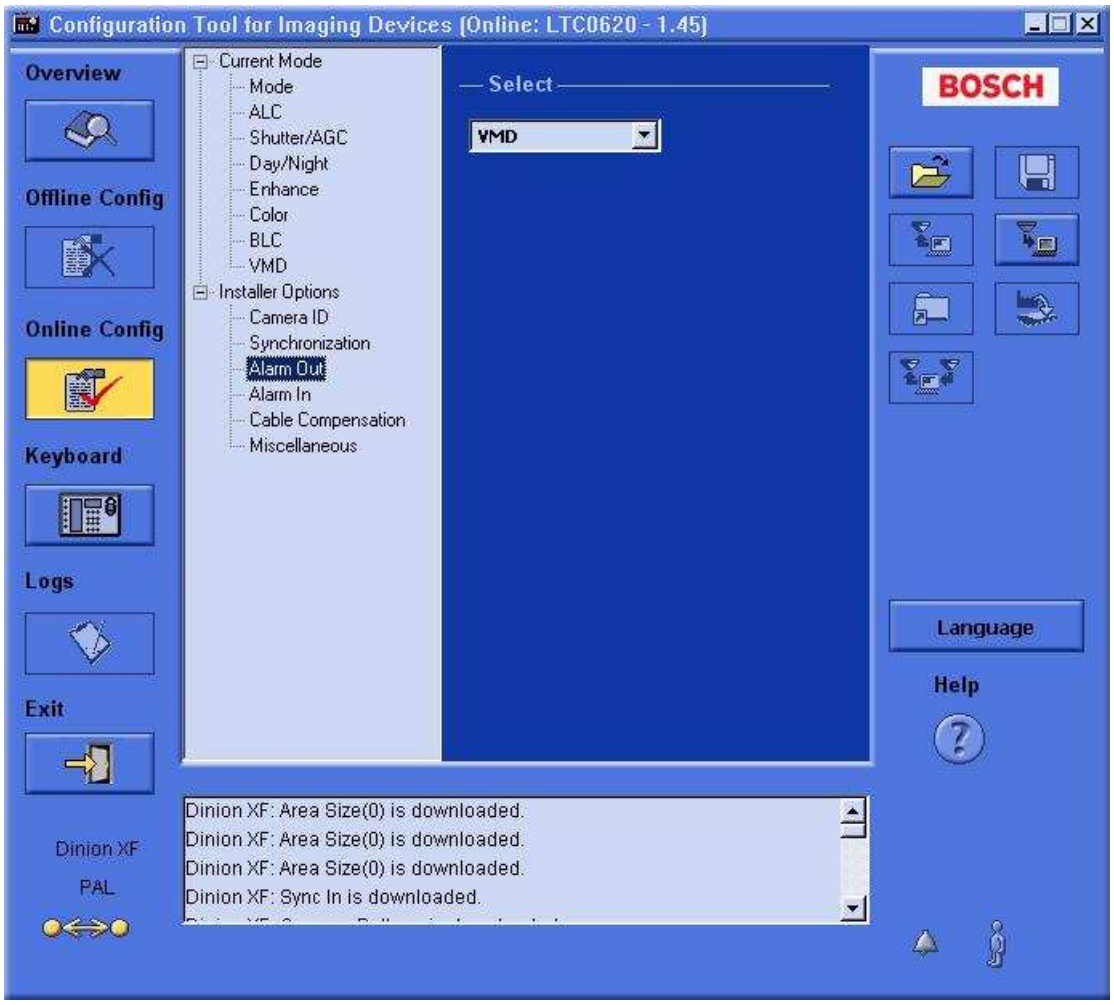


Figure 37: CTFID, Installer Options Alarm Out Display

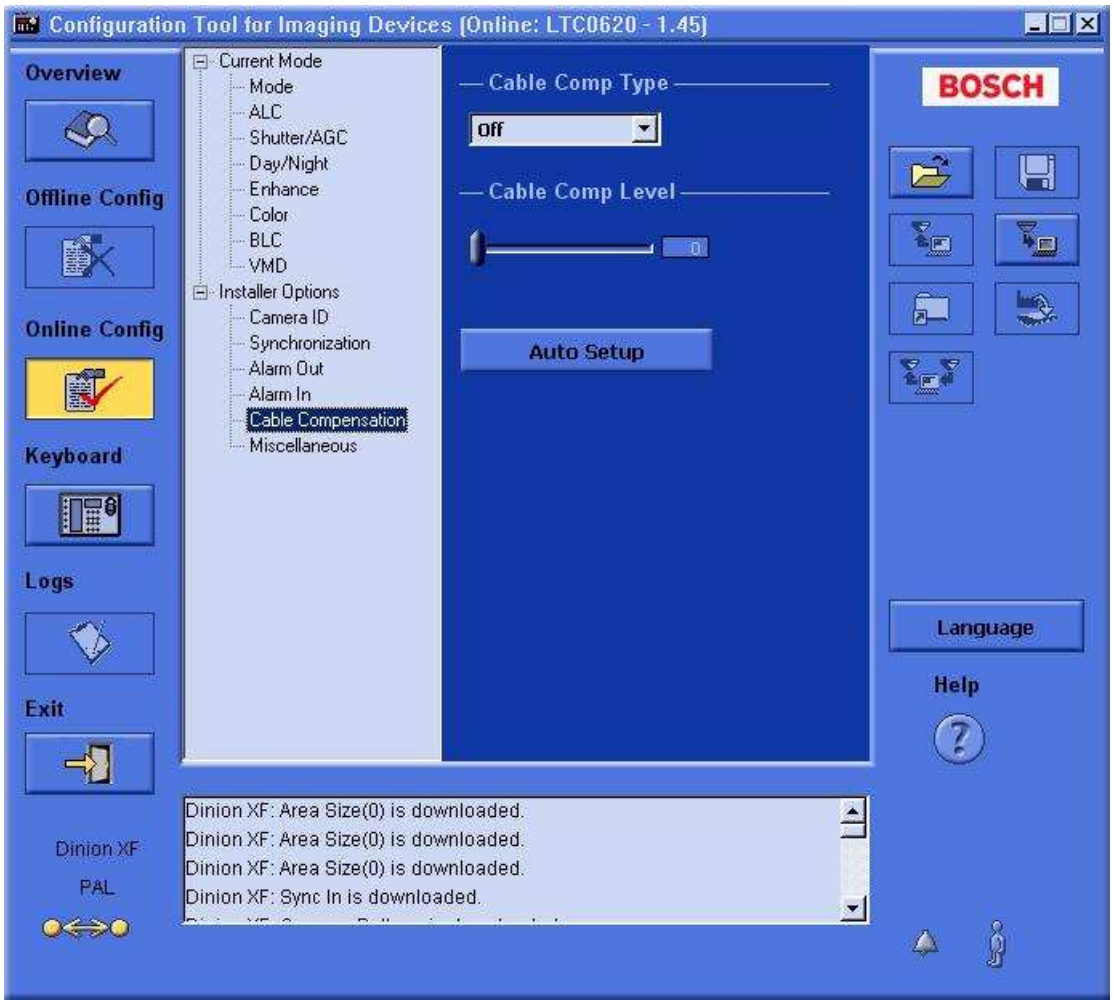


Figure 38: CTFID, Installer Options Cable Compensation Display

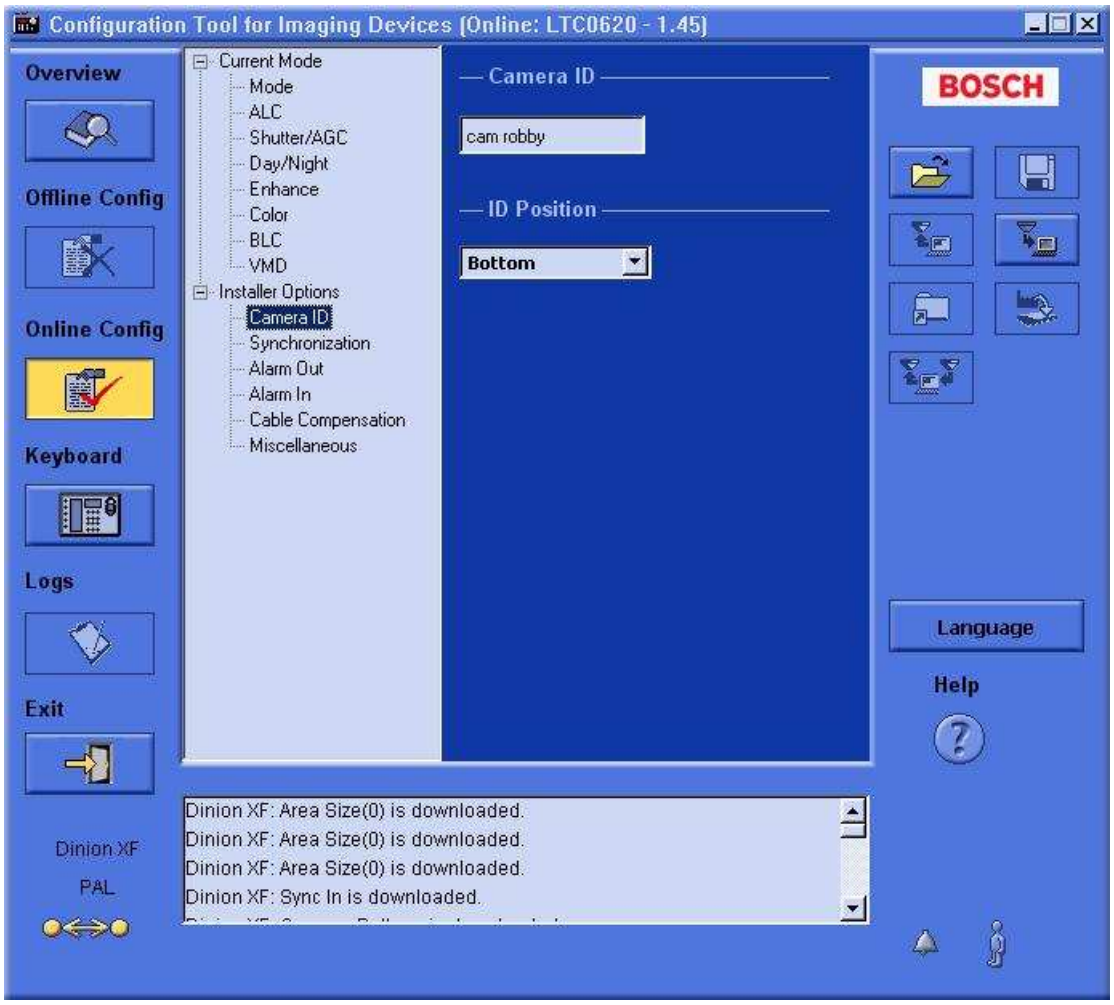


Figure 39: CTFID, Installer Options Camera ID Display

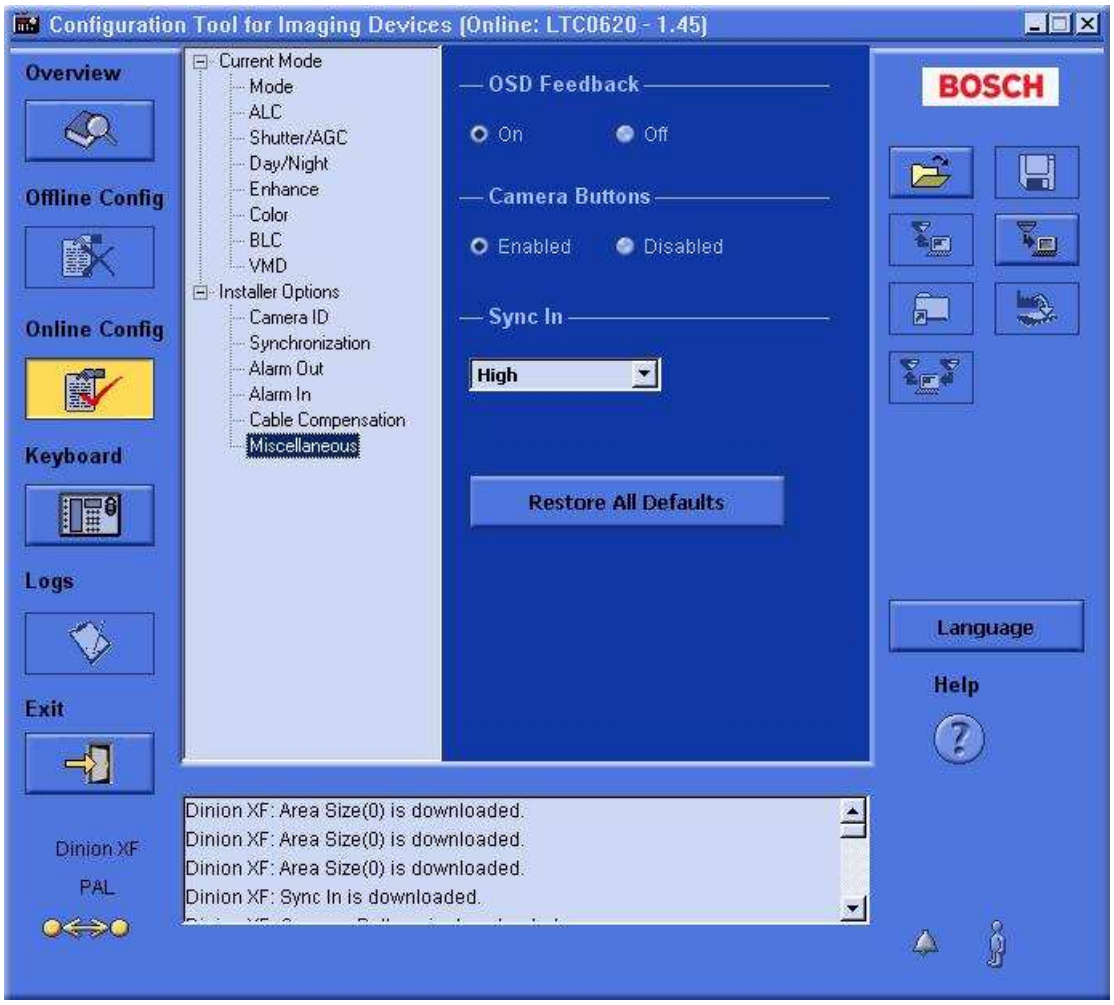


Figure 40: CTFID, Installer Options Miscellaneous Display

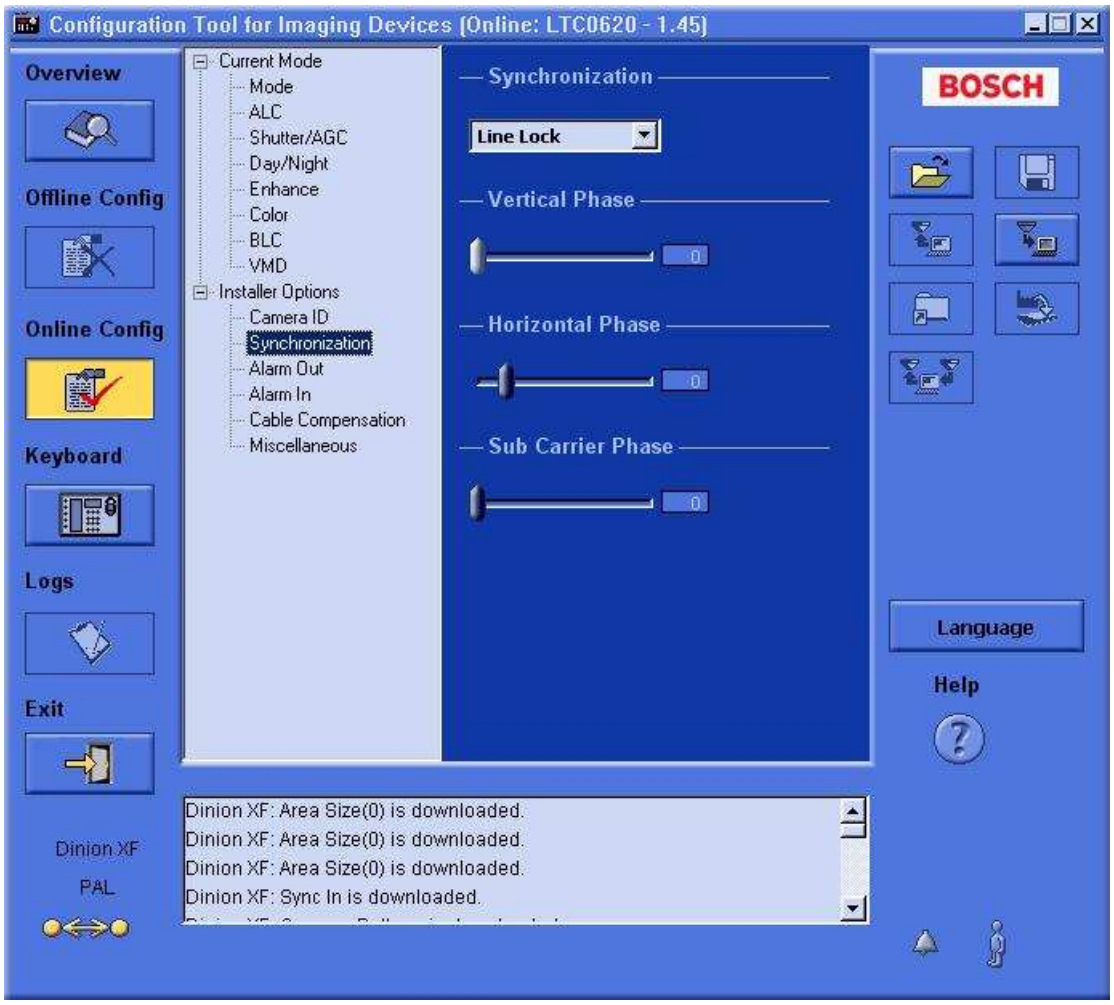


Figure 41: CTFID, Installer Options Synchronization Display

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