

**iDOME
iVIEW/iVIEW2
LCU
COMMUNICATIONS PROTOCOL**

**COHU, INC.
ELECTRONICS DIVISION**

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Change Log

Revision	Page	Description
6.0	12, 26-29	Reformatted and added more message for NTCIP implementation
6.1	19	Added control for DSP Exposure
6.2	26	Specify the data range of Temperature and Pressure
6.3	29,30	Specify format for Iris Position Data
6.4	15,22	Set White Balance Environment: Indoor/Ourddor
6.5	8,25	Corrected description of Preset#

1. GENERAL

This documents defines the Asynchronous communication protocol between the MPC Master Control Panel/Host Computer and an iDome/iView/iView2/LCU. Figure 1. Illustrates the handshake protocol. The communication is full duplex. Typical or default communication parameters will be 9600 baud, 8 data bits, 1 stop bit and no parity.

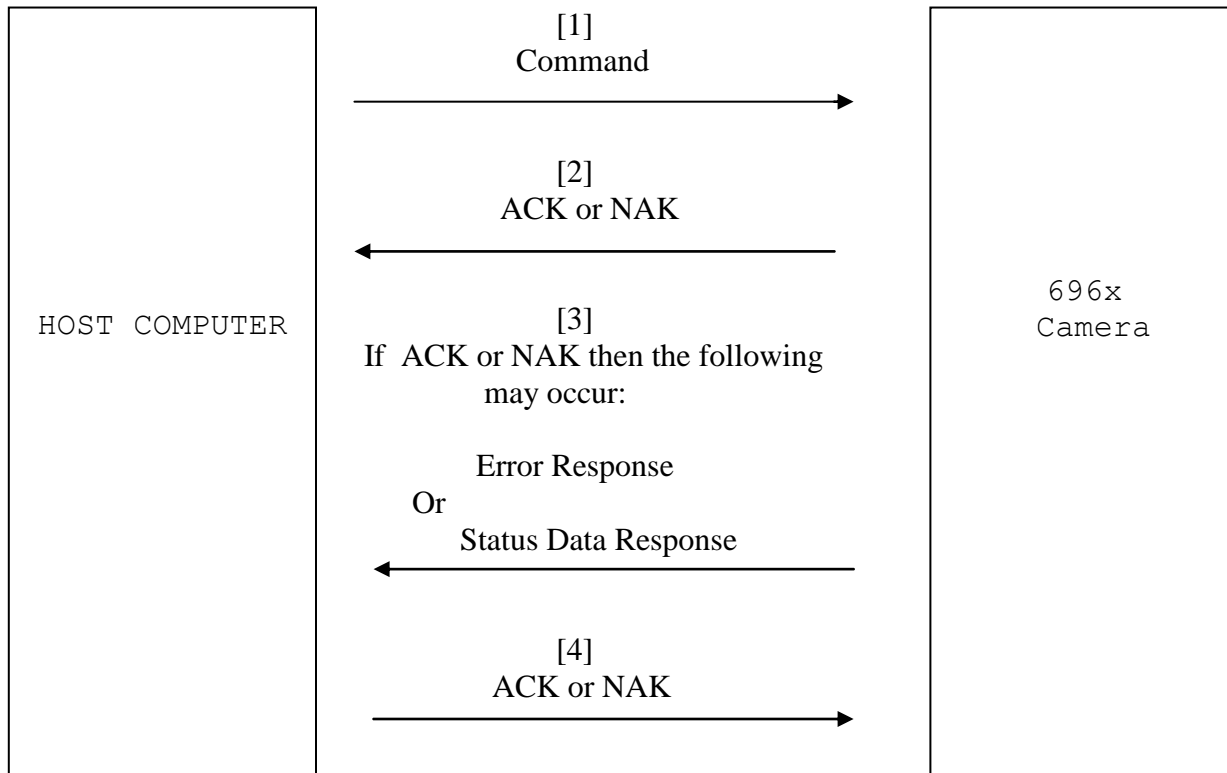


FIGURE 1. TYPICAL COMMUNICATION HANDSHAKE PROTOCOL

2. COHU MESSAGE FORMAT

Anytime a command message is sent to the Camera, the camera will respond with an ACK or NAK. The commands are sent using the command message format shown in Tables 1, 2, 4, 6, 7, 8, 9, 10. The response message from the camera is shown in Tables 3, 5.

If the command message contains only a momentary function, no further response beyond the ACK or NAK will occur.

-The control characters to be used are:-

F8	Start Character (in HEX)
ACK	Acknowledge proper receipt of transmission
NAK	Bad transmission
CS	Checksum (End of Message)
ID	Camera address in HEX
##	One byte in Hex
'#'	Number in ASCII
CamID	Camera Address (1 to 223)
'*'	ASCII Asterisk
'c'	ASCII c
'd'	ASCII d

All transmissions will be in formats:

<F8> <CamID> < DATA > <CS>	Standard commands. See Table 2.
Or:	
<F8> <CamID> < cDATA > <CS>	DSP Camera commands. See Table 4.
Or:	
<F8> <CamID> < dDATA > <CS>	ID commands. See Table 6.
Or:	
<F8> <CamID> < mDATA > <CS>	Maintenance commands. See Table 7.
Or:	
<F8> <CamID> < *DATA > <CS>	Position/Touring commands. See Table 9.

2.1 COHU STANDARD COMMANDS

TABLE 2. COHU STANDARD COMMANDS

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>P/T/Z/IF</u> <u>COMMANDS</u>			
PR	Pan Right		
PL	Pan Left		
r##	16 Variable Speed Pan Right ## = 30 hex to 3F hex		
l##	16 Variable Speed Pan Left ## = 30 hex to 3F hex		
PS	Pan Stop		
TU	Tilt Up		
TD	Tilt Down		
u##	16 Variable Speed Tilt Up ## = 30 hex to 3F hex		
d##	16 Variable Speed Tilt Down ## = 30 hex to 3F hex		
TS	Tilt Stop		
rn	Pan Right – Nudge		
ln	Pan Left – Nudge		
Un	Tilt Up – Nudge		
dn	Tilt Down – Nudge		
ZI	Zoom In		For Thermal camera: 2X On
ZO	Zoom Out		For Thermal camera: 2X Off
ZS	Zoom Stop		
FN	Focus Near		

TABLE 2. COHU STANDARD COMMANDS (cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>P/T/Z/I/E</u> <u>COMMANDS</u> <u>(cont.)</u>			
FF	Focus Far		
FS	Focus Stop		
IO	Iris Open		
IC	Iris Close		
IS	Iris Stop		
s#	Set P/T Speed # = '0': Fixed P/T Speed – Use Zoom Pos as proportional speed '1': Var. Speed P/T – No Zoom Pos used as speed '2': Var. Speed and use Zoom Pos as proportional and variable speed		
sS	Request for Status of P/T Speed mode	s'#'	# = '0', '1', '2'
S#	Set P/T direction # = '0' : Normal = '1' : Inverted Tilt = '2' : Inverted Pan and Tilt		
SS	Pan Tilt Direction Set Status Query	S#	# = '0' : Normal = '1' : Inverted Tilt = '2' : Inverted Pan and Tilt
P##	Program Preset Position ## = 10h to 3Eh (first 47 positions) = 60h to 70h (last 17 positions)		Note: For iView(3955) the last position 70h is reserved for the Last P/T Position, so that P/t will go there upon power-up.
H##	Goto a Preset Position ## = 10h to 3Eh (first 47 positions) = 60h to 70h (last 16 positions)		

TABLE 2. COHU STANDARD COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
B1	Integration Up		Continue up to 1/8 th shutter speed
B2	Integration Down		Continue back to 1/60 th shutter speed
<u>LATCH COMMANDS</u>	<i>Notes:</i> All latch commands will return the status as the L? command described below.		
LP	Camera Power toggle (ON/OFF)		
LM	Manual/Auto Iris Mode toggle		
LL	Lens Speed FAST/SLOW toggle		
L1	Manual/Auto Focus Mode toggle		
L2	Wash ON/OFF (3960 model only)		
L3	Wipe ON/OFF (3960 model only)		
L4	Heater ON/OFF		
L5	Blower ON/OFF		
<u>STATUS REQUEST</u>	<i>Note:</i> See Table 5 for response status		
L?	Latch Status Request		
H?	Home Position Request		
<u>MISC. COMMANDS</u>			
Bs'#####'	Set Cam Host Baud Rate '#####' = 0300, 0600, 1200, 2400, 4800, 9600,192K		
bs#####	Set LCU Host Baud Rate ##### = 0300, 0600, 1200, 2400, 4800, 9600		
b?	Query LCU Host Baud Rate	b##### ##### = 0300, 0600, 1200, 2400, 4800, 9600	
rs	Camera software reset		

TABLE 2. COHU STANDARD COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>MISC.</u> <u>COMMANDS</u>			
Lp#	Line Lock Phase Adjust # = '0' (Camera is in Crystal mode) = '1' (Line Lock – Phase 0 mode – 0 degree) = '2' (Line Lock – Phase 1 mode – 30 deg) = '3' (Line Lock – Phase 2 mode – 60 deg) = '4' (Line Lock – Phase 3 mode – 90 deg) = '5' (Line Lock – Phase 4 mode – 120 deg) = '6' (Line Lock – Phase 5 mode – 150 deg)	Lp#	
E'#####'	Set Elevation Level where the camera is mounted This is used to calibrate the Low Pressure indicator in the camera. '#####' = 0 to 10000 in ASCII (in feet)	E'#####'	Set Elevation Level where the camera is mounted This is used to calibrate the Low Pressure indicator in the camera. '#####' = 0 to 10000 in ASCII (in feet)
As'###' ### = '001' – 223'	Assign Camera Address <u>NOTE:</u> This command is valid if Camera Address is the Broadcast Address, or is the same as the current camera address.		
RS	iDome/iView Firmware Revision Query		Return Firmware Revision (Maximum 24 Characters) 'iDome Firmware Ver. 1.0' <u>For example:</u> RiDome Firmware V1.0
Rs	LCU Firmware Revision Query		Return Firmware Revision <u>For example:</u> rLCU Firmware V1.0
fE	iDome Tilt Flip Enabled		
fD	iDome Tilt Flip Disabled		
fS	iDome Flip Enable Query	'fE' (Flip Enabled) 'fD' (Flip Disabled)	Return Tilt Flip Enable Status

TABLE 2. COHU STANDARD COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>MISC. COMMANDS</u>			
h1	RS232 Flow Control (RTS/CTS) Enabled		
h0	RS232 Flow Control (RTS/CTS) Disabled		
hS	RS232 Flow Control Query	'h1' (Enabled) 'h0' (Disabled)	Return RS232 Handshake Status
<u>MISC. COMMANDS for Javelin protocol</u>			
Jc0	Set Javelin Continous Motor Mode for Camera OFF		
Jc1	Set Javelin Continous Motor Mode for Camera ON		
JcS	Query Camera for Javelin Continous Motor Mode status in Camera	'Jc0' (OFF) 'Jc1 (ON)	
Jb0	Set Javelin 2 Bytes Addr for camera OFF		
Jb1	Set Javelin 2 Bytes Addr for camera ON		
JbS	Query Camera for Javelin 2 Bytes Addr status in camera	'Jb0' (OFF) 'Jb1 (ON)	
jc0	Set Javelin Continous Motor Mode for LCU OFF		
jc1	Set Javelin Continous Motor Mode for LCU ON		
jcS	Query LCU for Javelin Continous Motor Mode status in LCU	'jc0' (OFF) 'jc1 (ON)	
jb0	Set Javelin 2 Bytes Addr for LCU OFF		
jb1	Set Javelin 2 Bytes Addr for LCU ON		
jbS	Query LCU for Javelin 2 Bytes Addr status in LCU	'jb0' (OFF) 'jb1 (ON)	

TABLE 3. COHU STANDARD LATCH/HOME STATUS RESPONSE FORMAT

FORMAT LATCH STATUS RESPONSE

BYTE	DATA	DESCRIPTION
0	F8h	Start of message
1	Camera Address	0x01 to 0xDF <u>Note:</u> 0xFF (Broadcast Address) used to access a camera regardless the camera address
2	L	Latch status
3	30h – 37h	LS nibble is four bits of status Bit Value 0/1 B0 = Manual Iris/Auto Iris (1/0) B1 = Camera Power On/Off (1/0) B2 = Lens Speed Fast/Slow (1/0) B3 = Not Used
4	A	Aux status
5	30h – 37h	LS nibble is four bits of status Bit Value 0/1 B0 = Auto/Manual Focus (1/0) B1 = Heater ON/OFF (1/0) B2 = Wipe ON/OFF (1/0) (for 3960 model only) B3 = Wash ON/OFF (1/0) (for 3960 model only)
6	X	Misc. statuses
7	30h – 3Fh	LS nibble is four bits of status Bit Value 0/1 B0 = Blower ON/OFF (1/0) B1 = Pressure Alarm (1/0) B2 = Video Loss Alarm (1/0) B3 = Temperature Alarm (1/0)
8	x	Camera equipped
9	00h – 1Fh	Bit Value 0/1 B0 = Camera Power Present (1/0) B1 = Heater Present (1/0) B2 = Wiper Present (1/0) B3 = Washer Present (1/0) B4 = Blower Present (1/0)
10	a	Alarm Equipped
11	00h – EFh	Bit Value 0/1 B0 = Cabinet Alarm Present (1/0) B1 = Enclosure Alarm Present (1/0) B2 = Video Loss Present (1/0) B3 = Temperature Alarm Present (1/0) B4 = Pressure Alarm Present (1/0) B5 = Local/Remote Alarm Present (1/0) B6 = Washer Fluid Alarm Present (1/0) B7 = Reserved (Not Used)

TABLE 3. COHU STANDARD LATCH/HOME STATUS RESPONSE FORMAT(cont.)

FORMAT LATCH STATUS RESPONSE

BYTE	DATA	DESCRIPTION
12	e	Extended Alarm Status
13	30h – 3Fh	LS nibble is four bits of status Bit Value 0/1 B0 = Cabinet Alarm (1/0) B1 = Enclosure Alarm (1/0) B2 = Local/Remote Alarm (1/0) B3 = Washer Fluid Alarm (1/0)
14	CHECKSUM	End of message 80H-8FH Least significant nibble is XOR of all previous bytes (LS NIBBLES only) except F8h

FORMAT COHU HOME STATUS RESPONSE

BYTE	DATA	DESCRIPTION
0	F8h	Start of message
1	Camera Address 1 to 223	3 bytes in ASCII (1 to 223) <u>Note:</u> 0xFF (Broadcast Address) used to access a camera regardless the camera address
2	H	Home status
3	10h – 3Eh 60h – 70h 'I'	Home Position Home is inactive (camera is not at a preset position)
4	CHECKSUM	End of message 80H-8FH Least significant nibble is XOR of all previous bytes (LS NIBBLES only) except F8h

2.2 COHU DSP CAMERA COMMANDS

TABLE 4. COHU DSP CAMERA COMMANDS

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
DSP COMMANDS			
cD'#'	Set Digital Zoom Range # = '0' OFF = '1' (2X) = '2' (5X) = '3' (10X) = '4' (12X)		
cDS	Request for current DSP Status	See Table 7 for response format	Return the current DSP Statuses
cS#	Shutter # = 30h (Auto) = 31h (1/2) = 32h (1/4) = 33h (1/8) = 34h (1/15) = 35h (1/30) = 36h (1/60) = 37h (1/120) = 38h (1/180) = 39h (1/250) = 3Ah (1/500) = 3Bh (1/1000) = 3Ch (1/2000) = 3Dh (1/4000) = 3Eh (1/10000) = 3Fh (1/30000)		

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>DSP COMMANDS</u> (cont.)			
cW#	White Balance # = '0' (Auto) = '1' (Manual)		
cw#	White Balance Environment # = '0' (Indoor) = '1' (Outdoor)		
cWR	Increase RED (in Manual mode only)		
cWr	Decrease RED		
cWB	Increase BLUE		
cWb	Decrease BLUE		
cWQ	Stop Increase/Decrease color		
cWL#	Set Sensitive Light Level (ER8011B5) # = '0' (Low) = '1' (Manual)		
cWLS	Query Light Level Status (ER8011B5)	cWL# # = '0' (Low) = '1' (Manual)	
cWSD#	Set Shutter for Day (ER8011B5) # = 30h (Auto) = 31h (1/2) = 32h (1/4) = 33h (1/8) = 34h (1/15) = 35h (1/30) = 36h (1/60) = 37h (1/120) = 38h (1/180) = 39h (1/250) = 3Ah (1/500) = 3Bh (1/1000) = 3Ch (1/2000) = 3Dh (1/4000) = 3Eh (1/10000) = 3Fh (1/30000)		

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>DSP COMMANDS</u> (cont.)			
cY1	Wide Dynamic Range ON		
cY0	Wide Dynamic Range OFF		
cM0	Camera in Day/Night Auto Mode		
cM1	Camera in Day Mode (Color)		
cM2	Camera in Night Mode (Monochrome)		
cIA	Auto Iris		
cIM	Manual Iris		
cIO	Iris Open		
cIC	Iris Close		
IS	Iris Stop		
cz#	Zoom Wide – Var. Speed # = ‘0’ (Low Speed) = ‘1’ (Medium Speed) = ‘2’ (Fast Speed)		
cZ#	Zoom Tele – Var. Speed # = ‘0’ (Low Speed) = ‘1’ (Medium Speed) = ‘2’ (Fast Speed)		
ZS	Zoom Stop		
cFA	Auto Focus		
cFM	Manual Focus		
cF#	Focus Far – Var. Speed # = ‘0’ (Low Speed) = ‘1’ (Medium Speed) = ‘2’ (Fast Speed)		
cN#	Focus Near – Var. Speed # = ‘0’ (Low Speed) = ‘1’ (Medium Speed) = ‘2’ (Fast Speed)		
FS	Focus Stop		

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>DSP COMMANDS</u> (cont.)			
cP#	Camera Communication Protocol Selection # = 0x30 (Cohu) = 0x31 (American Dynamics) = 0x32 (Pelco D) = 0x33 (Javelin) = 0x34 (Philips) = 0x35 (Vicon) = 0x36 (Kalatel) = 0x37 (Ultrak)		
cPs	Query LCU Communication Protocol	P# # = 0x30 (Cohu) = 0x31 (AD) = 0x32 (PelcoD) = 0x33 (Javelin) = 0x34 (Philips) = 0x35 (Vicon)	LCU Protocol
csO	Set Progressive Scan On		
cso	Set Progressive Scan Off		
cs'0'	Set Progressive Scan - Even Field		
cs'1'	Set Progressive Scan - Odd Field		
cFF	Video Freeze ON/OFF toggle		
cF#	Set Video Freeze ON/OFF # = 0x4F 'O' (ON) = 0x6F 'o' (OFF)		
cb	Enable Boot Loader to update new firmware in the iDome/iView		
cB	Enable Boot Loader to update new firmware in the LCU		
cLN	Set Normal Light mode (ER8439E - special Camera module)		

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
DSP COMMANDS (cont.)			
cLn	Set Sodium Vapor Light mode (ER8439E - special Camera module)		
cLS	Status request of Light mode setting (ER8439E - special Camera module)	cLN : Normal mode cLn : Sodium Vapor mode	
cC#	Set Camera Head Comm. Baud Rate (ER-8682 only) # = '0' for 4800 = '1' for 9600 = '2' for 19.2K = '3' for 38.4K		
cn#	Set Poll Camera (ER-8682 only) # = '0' for OFF = '1' for ON		
cG##	Set Max AGC Gain ## = 0x11h to 0x38		
cGS		cG## # = 0x11h to 0x38	Current Max AGC Gain Status
cA#	Set Aperture Mode # = '0' : Auto = '1' : Manual		
cAH##	Set Horizontal Aperture ## = 0x11 - 0x2F		
cAV##	Set Vertical Aperture ## = 0x11 - 0x2F		
cAS	Inquiry Aperture Mode	cA#H##V## ## = 0x11 - 0x2F (H/V level) # = '0' : Auto = '1' : Manual	
cE#	Set Electronic Image Stabilizer Mode # = '0' : OFF = '1' : ON		

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
DSP COMMANDS (cont.)			
cES	Set Electronic Image Stabilizer Mode # = '0' : OFF = '1' : ON		
cEF#	Set Electronic Image Stabilizer Frequency Level # = '0' : 16 Hz (default) = '1' : 5 Hz		
cEFS	Inquiry Electronic Image Stabilizer Frequency Level	cEF# # = '0' : 16 Hz (default) = '1' : 5 Hz	
cEP#	Enable/Disable EIS while Pan/Tilt is moving '#' = '0' : Disabled = '1' : Enabled		
cEPS	Inquiry the Enable/Disable EIS While Pan/Tilt Is Moving Status	cEP# # = '0' : Disabled = '1' : Enabled	
ce'#	Exposure Control '#' = 'u' : Step up = 'd' : Step down = '0' : -10.5 dB = '1' : -9 dB = '2' : -7.5 dB = '3' : -6 dB = '4' : -4.5 dB = '5' : -3 dB = '6' : -1.5 dB = '7' : 0 dB = '8' : 1.5 dB = '9' : 3 dB = 0x3A : 4.5 dB = 0x3B : 6 dB = 0x3C : 7.5 dB = 0x3D : 9 dB = 0x3E : 10.5 dB		
ceS	Inquiry Exposure Control	ce'#	'#' = '0' to 'E'

TABLE 4. COHU DSP CAMERA COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
DSP COMMANDS (cont.)			
cB##	Set Back Light Compensation ## = 0x30 : OFF 0x31 : ON		
cB'x'	Set Back Light Compensation Speed 'f' : fast 's' : slow		
cB'y'	Set Back Light Compensation increment/ decrement 'i' : increased 'd' : decreased		

TABLE 5. COHU DSP CAMERA RESPONSE STATUS FORMAT

BYTE	DATA	DESCRIPTION
0	F8h	Start of message
1	Camera Address	0x01 to 0xDF <u>Note:</u> 0xFF (Broadcast Address) used to access a camera regardless the camera address
2	c	Message type
3	W	White Balance Status
4	30 hex – 31 hex	30 = Auto 31 = Manual
5	S	Shutter Status
6	30 hex – 3F hex	30 = Auto 31 = 1/2 32 = 1/4 33 = 1/8 34 = 1/15 35 = 1/30 36 = 1/60 37 = 1/120 38 = 1/180 39 = 1/250 3A = 1/500 3B = 1/1000 3C = 1/2000 3D = 1/4000 3E = 1/10000 3F = 1/30000
7	Y	Wide Dynamic Range Status
8	30 hex – 31 hex	30 = Off 31 = On
9	M	Day Night Mode
10	30 hex – 32 hex	30 = Day/Night in Auto mode 31 = in Day mode 32 = in Night mode
11	D	Digital Zoom Mode
12	30 hex – 33 hex	30 = Off 31 = 2X 32 = 5X 33 = 10X

TABLE 5. COHU DSP RESPONSE MESSAGE FORMAT (cont.)

BYTE	DATA	DESCRIPTION
13	L	Latch status
14	30hex – 37hex	LS nibble is four bits of status Bit Value 0/1 B0 = Manual Iris/Auto Iris (1/0) B1 = Camera Power On/Off (1/0) B2 = Lens Speed Fast/Slow (1/0) B3 = Not Used
15	A	Aux status
16	30hex – 37hex	LS nibble is four bits of status Bit Value 0/1 B0 = Auto/Manual Focus (1/0) B1 = Auto Integration/Manual Integration (1/0) B2 = Not used B3 = Not Used
17	X	Misc. statuses
18	30hex – 37hex	LS nibble is four bits of status Bit Value 0/1 B0 = Not Used B1 = Low Pressure (1) B2 = Video Loss (1) B3 = Not Used
19	H	Home status
20	10 hex – 3E hex 60 hex – 70 hex I	Home Position Preset is inactive (camera is not at a preset position)
21	P	Camera Communication Protocol
22	30hex – 37hex	30 (Cohu) 31 (American Dynamics) 32 (Pelco D) 33 (Javelin) 34 (Philips) 35 (Vicon)
23	v	Video Type
24	30hex – 31hex	30 (NTSC) 31 (PAL)

TABLE 5. COHU DSP RESPONSE MESSAGE FORMAT (cont.)

BYTE	DATA	DESCRIPTION
25	p	Line Lock Phase Status
26	30hex – 36hex	'0' (Camera is in Crystal mode) '1' (Line Lock – Phase 0 mode – 0 degree) '2' (Line Lock – Phase 1 mode – 30 degree) '3' (Line Lock – Phase 2 mode – 60 degree) '4' (Line Lock – Phase 3 mode – 90 degree) '5' (Line Lock – Phase 4 mode –120 degree) '6' (Line Lock – Phase 5 mode –150 degree)
27	F	Video Status
28	o or O	'o' (Video Live mode) 'O' (Video Freeze mode)
29	C	Camera Head Comm. Baud Rate
30	0 to 3	'0' 4800 '1' 9600 '2' 19.2K '3' 38.4K
31	n	Poll Camera Head ON/OFF Status
32	0 to 1	'0' No Poll '1' Poll
33	s	Progressive Scan
34	o or O	'o' Off 'O' On
35	0 of 1	'0' Set on the Odd Field '1' Set on the Even Field
36	w	White Balance Environment Status
37	30 hex – 31 hex	30 = Indoor 31 = Outdoor
38	B	Back Light Compensation Mode
39	30 hex – 31 hex	30 = OFF 31 = ON
n+39	CHECKSUM	End of message

2.3 COHU ID COMMANDS

TABLE 6. COHU ID COMMANDS

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
ID. COMMANDS			
dIE	Enable ID display		
dIe'x'	Enable ID Line # x = '1' Line 1 = '2' Line 2		
dID	Disable ID display		
dId'x'	Disable ID Line # x = '1' Line 1 = '2' Line 2		
dIT	Display ID on top of screen		
dIB	Display ID on bottom of screen		
dAE	Enable Alarm display		
dAe'x'	Enable Alarm Line # x = '1' Line 1 = '2' Line 2 = '3' Line 3		
dAD	Disable Alarm # display		
dAd'x'	Disable Alarm Line # x = '1' Line 1 = '2' Line 2 = '3' Line 3		
dAB	Enable Alarm Blinking		
dAb	Disable Alarm Blinking		
dL#DATA	Set content of ID messages # = '1' : line 1 (ID line 1) # = '2' : line 2 (ID line 2) # = '3' : line 3 (Alarm ID 1 – not programmable – reserved to display <i>LOW PRESSURE ALARM</i>) # = '4' : line 4 (Alarm ID 2) # = '5' : line 5 (Alarm ID 3) DATA = 24 ASCII characters		
dP##DATA	Store Preset ID display in the receiver <i>Note:</i> Preset ID will be displayed when a preset is executed, and disappears when a P/T/Z/F command is executed. ## = 10h to 3Eh (first 48 positions) = 60h to 70h (last 16 positions) DATA = 24 ASCII characters		

TABLE 6. COHU ID COMMANDS (cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>ID. COMMANDS</u> <u>(cont.)</u>			
dST#s	Set Sector ID Text # = Sector Number (31H to 40H) s = 24 ASCII characters		
dSS#s	Set Sector ID State # = Sector Number (31H to 40H) s = State ('1'=On; '0'=Off)		
cdSc	Get ID Control Data, i.e Enable, Top, Alarm Blink ...	dC# # = Control Byte(xxx11111)	
cdSI#	Get ID messages # = '1', '2', '3', '4', '5'	dL#DATA	
cdS##	Get Preset## ID stored in camera ## = 10hto 3Eh (first 47 positions) = 60hto 70h (last 17 positions)	dP##DATA	Return Preset ID of the requested Preset Note: For iView(3955) the last position 70h is reserved for the Last P/T Position, so that P/t will go there upon power-up. Therefore there is no Preset ID for Preset 70h
cdSS##	Get Sector ## ID stored in camera ## = 31hex to 40hex (16 sectors)	dST##DATA	
cdSs##	Get Sector ID State ## = Sector Number (31hex to 40hex)	dSS#s s = State ('1'=On; '0'=Off)	
dME	Maintenance Display Enable -Temperature data and Pressure data		
dMD	Maintenance Display Disable		
dIC	Clear All ID data, including Preset IDs		
dp#	Pan Tilt Position Display # = 'E' Enable 'D' Disable 'T' TimeOut the display 't' Displayed always		

TABLE 6. COHU ID COMMAND/RESPONSE DATA (cont.)

COMMAND	DESCRIPTION
dN#	North Position Display # = 'E' Enable 'D' Disable 'T' Use TimeOut to clear the display 't' Displayed always '0' Displayed 8 Zones equally '1' Displayed 16 Zones equally 'I' Displayed A/Z/N with IDs 'i' Displayed A/Z/N not with IDs
dC#	Upload ID Control Data i.e Enable, Top, Alarm Blink ... to camera # = Control Byte(xxx11111)
dL#<DATA>	Upload ID messages # = '1', '2', '3', '4', '5' DATA = 24 ASCII characters
dP##<DATA>	Upload Preset## ID to camera ## = 10hex to 3Ehex (first 48 positions) = 60hex to 70hex (last 16 positions)

2.4 COHU MAINTENANCE COMMANDS

TABLE 7. COHU MAINTENANCE COMMANDS

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>MAINTENANCE COMMANDS</u>			
mPS	Query the current internal pressure data	'mPxx.x'	xx.x: 2 digits-ASCII data and 1digit decimal For example: 10.5
mTS	Query the current internal temperature data	'mTxx'	xx: 2 digits-ASCII data in degree C For example: 30 degree C
mtS	Query the trigger temperature setting for the heater	'mtxx'	xx: 2 digits-ASCII data in degree C from 20 to 45 in degree C
mt'xx'	Set the trigger temperature for the heater to be turned ON/OFF xx: 2 digits-ASCII data in degree from 20 to 45 in degree C		
mH'xx.x''yy.y'	Set thresholds for Pressure Low/High Alarm		xx.x, yy.y: 2 digits-ASCII data and 1digit decimal From 00.0 to 12.7 For example: 10.512.0
mh'aa''bb'	Set thresholds for Temperature Low/High Alarm		aa, bb: 2 digits-ASCII data in degree C From 00 to 70 For example: 1040
mHS	Query thresholds setting for Pressure Low/High and Temperature Low/High Alarm	mH'xx.x''yy.y''aa''bb'	See above for parameters
mS'xxxxxxx'	Set Camera Serial Number 'x' = '0' to '9'		
mSs	Query Camera Serial Number data	mS'xxxxxxx'	'x' = '0' to '9'
mFH	Set Pan Tilt to find Home Position		

TABLE 7. COHU MAINTENANCE COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>MAINTENANCE COMMANDS (cont.)</u>			
mf'x'	Video Mode Preset (Freeze/Live) when go to a preset '#' = '0' (OFF - Live) = '1' (ON - Frozen)		
mfS	Query Video Mode Preset	mf'x# '#' = '0' (OFF - Live) = '1' (ON – Frozen)	
mwr'#####d'##'	Set Wiper Run Time and Delay Time <i>(Note: for 3960 Only)</i> ##### = '0000' to '9999' Run Time in Se ## = '00' to '99' Delay Time in Sec		
mw?	Inquiry Wiper Run Time and Delay Time <i>(Note: for 3960 Only)</i>	mwr'#####d'##'	##### = '0000' to '9999' Run Time in Sec ## = '00' to '99' Delay Time in Sec
mWW'##'w'\$\$'m'% 'f'***'	Set Wash function - Wash Time, Wipe Time, Operation Mode, and Auto Mode Freq <i>(Note: for 3960 Only)</i> ## = '00' to '99' Wash Time in Sec \$\$ = '00' to '99' Wipe Time in Sec % = '0' Wash Mode - Auto = '1' Wash Mode – Manual *** = '001' to '010' Auto Wash Cycles in Minute		

TABLE 7. COHU MAINTENANCE COMMANDS (Cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
<u>MAINTENANCE COMMANDS (cont.)</u>			
mW?	Inquiry Wash function status <i>(Note: for 3960 Only)</i>	mWW'##'w'\$'\$m'% 'f'***'	See above description
mWh	Set Wash Home Position		
mWH'aaa''bbb'	Set thresholds for Washer Fluid Low/High Alarm		aaa, bbb: 3 digits-ASCII data to indicate from 000% to 100% For example: 050090
mWHS	Inquiry thresholds setting for Washer Fluid Low/High Alarm	mWH'aaa''bbb'	aaa, bbb: 3 digits-ASCII data to indicate from 000% to 100% For example: 050090
mWLS	Inquiry Washer Fluid Level	mWL'aaa'	aaa: 3 digits-ASCII data to indicate from 000% to 100% For example: 050
ma#	Alarm Statuses Cleared # = Bit Value 0/1 B0 = Cabinet Alarm B1 = Enclosure Alarm B2 = Video Loss Alarm B3 = Temperature Alarm B4 = Pressure Alarm B5 = Local/Remote Alarm B6 = Washer Fluid B7 = Reserved		
mNs	Set True North Offset		
mNc	Clear True North Offset		
mNS	Inquiry True North Offset data	mNpppp	pppp: 4-digit ASCII value ranges from 0000 to 3599

2.5 COHU POSITION COMMANDS

TABLE 8. COHU POSITION COMMANDS

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
QUERY POSITION PAN/TILT ZOOM/FOCUS/IRIS			
P?	Std. Legacy Pan/Tilt Position request	Ppppttt	ppp = 12 bit data of Pan (000 to FFF) Format: 303030-3F3F3F ttt = 12 bit data of Tilt (000-FFF) Format: 303030-3F3F3F
V?	Std. Legacy Zoom/Focus Position request	vzzzfff	zzz = 12 bit data of Zoom (000 to FFF) Format: 303030-3F3F3F Zoom Wide Max = 000 Zoom Tele Max = FFF fff = 12 bit data of Focus (000-FFF) Format: 303030-3F3F3F For iDome,iView/iView2 focus always 000
ciS	Iris Position Inquiry	cibbb	bbb = 12 bit data (000-FFF) Format: 303030-3F3F3F Iris Open Max = F40 (0x3F 0x34 0x00) Iris Close Max = 040 (0x30 0x34 0x00)
cPS	Pan/Tilt Actual Position request	cPppptttt	pppp = Pan data in ASCII (0000 to 3599) tttt = Tilt data in ASCII iDome (1200 to 0150) iView (0950 to 0050) iView2 (2050 to 0150)
GOTO A POSITION PAN/TILT ZOOM/FOCUS/IRIS			
STD. LEGACY STANDARD GOTO A POSITION			

TABLE 8. COHU POSITION COMMANDS (cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
paaabbb	Goto a Pan/Tilt Position aaa = 12 bit data of Pan (000 to FFF) Format: 303030-3F3F3F bbb = 12 bit data of Tilt (000-FFF) Format: 303030-3F3F3F		
vzzzfff	Goto Zoom/Focus Position zzz = 12 bit data of Zoom (000 to FFF) Format: 303030-3F3F3F Zoom Wide Max = 000 Zoom Tele Max = FFF fff = 12 bit data of Focus (000-FFF) Format: 303030-3F3F3F For iDome,iView/iView2 focus always 000		
cibbb	Iris Position Inquiry bbb = 12 bit data (000-FFF) Format: 303030-3F3F3F Iris Open Max = F40 (0x3F 0x34 0x00) Iris Close Max = 040 (0x30 0x34 0x00)		
ACTUAL PAN/ TILT GOTO A POSITION			
cpaaaabbbb	Goto a Actual Pan/Tilt Position		aaaa = Pan data in ASCII (0000 to 3599) bbbb = Tilt data in ASCII iDome (1200 to 0150) iView (0950 to 0050) iView2 (2050 to 0150)

TABLE 8. COHU POSITION COMMANDS (cont.)

COMMAND	DESCRIPTION	RESPONSE	DESCRIPTION
GET ACTUAL PRESETS POSITION DATA			
*pp##	Get Preset data stored in camera ## = 10hex to 3Ehex (first 48 positions) = 60hex to 70hex (last 16 positions)	pP##pppppttttzzzzffff	ppppp = Pan Preset Position data ttttt = Tilt Preset Position data zzzz data = Zoom Preset Position data ffff = Focus Preset Position data

2.6 COHU SECTOR/ZONE/TOUR COMMANDS

TABLE 9. COHU SECTOR/ZONE/TOUR COMMANDS

COMMAND SECTOR	DESCRIPTION	RESPONSE	DESCRIPTION
*SC#	Clear Sector Limits # = Sector Number (30H to 40H) If 30H clear all, otherwise clear sector only		
*SL#s	Set Sector Limit # = Sector Number (31H to 40H) s = 'L' -Left Limit or 'R' -Right Limit		
*Sl#	Get Sector Limits # = Sector Number (31H to 40H)	*SS#llllrrrr	llll and rrrr = ASCII 0000 to 3599
<u>PRIVACY ZONE</u>			
*PC#	Clear Privacy Zone Limits # = Zone Number (30H to 38H) If 30H clear all, otherwise clear zone only		
*PL#s	Set Privacy Zone Limit # = Zone Number (31H to 38H) s = 'L' -Left Limit or 'R' -Right Limit		
*Pl#	Get Privacy Zone Limits # = Sector Number (31H to 38H)	*Pp#llllrrrr	llll and rrrr = ASCII 0000 to 3599
*PS#s	Set Privacy Zone State # = Zone Number (31H to 38H) s = State ('1'=On; '0'=Off)		
*Ps#	Get Privacy Zone State # = Sector Number (31H to 38H)	*PS#s	= State ('1'=On; '0'=Off)

TABLE 9. COHU SECTOR/ZONE/TOURING COMMANDS (cont.)

COMMAND TOUR	DESCRIPTION	RESPONSE	DESCRIPTION
*TC#	Clear all preset/dwell data for Tour # # = Tour Number (31H to 38H)		
*TP#<data>	Set tour Presets # = Tour Number (31H to 38H) <data> = 32 preset values in the range 10H to 50H (i.e. 0 to 64) <u>Note:</u> 10h indicates No Preset		
*Tp#	Get tour Presets # = Tour Number (31H to 38H)	*TP#<data>	<data> = 32 preset values in the range of 10H to 50H (0 to 64)
*TD#<data>	Set tour Dwell times # = Tour Number (31H to 38H) <data> = 32 dwell times in the range 10H to 4DH (0 to 60 sec)		
*Td#	Get tour Dwell times # = Tour Number (31H to 38H)	*TD#<data>	<data> = 32 dwell times in the range of 10H to 4DH (0 to 60 sec)
*TS#s	Set Tour State # = Tour Number (31H to 38H) s = State ('0'=Stop; '1'=Start)		
*Ts#	Get Tour State # = Sector Number (31H to 38H)	*TS#s	s = State ('0'=Stop; '1'=Start)

2.7 COHU UPLOAD CAMERA CONFIGURATION COMMANDS

TABLE 10. COHU MISC. COMMANDS - UPLOAD CAMERA CONFIGURATION TO CAMERA

COMMAND	DESCRIPTION
dC#	Upload ID Control Data i.e Enable, Top, Alarm Blink ... to camera # = Control Byte(11111)
dL#<DATA>	Upload ID messages # = '1', '2', '3', '4', '5' DATA = 24 ASCII characters
dP##<DATA>	Upload Preset## ID to camera ## = 10hex to 3Ehex (first 48 positions) = 60hex to 70hex (last 16 positions)
dST##<DATA>	Upload Sector ## ID to camera ## = 31hex to 40hex (16 sectors)
dSS##s	Upload Sector ID State to camera ## = Sector Number (31hex to 40hex) s = State ('1'=On; '0'=Off)
*SS#lllrrrr	Upload Sector Limits to camera # = Sector Number (31H to 40H) lll and rrrr = ASCII 0000 to 3599
*Pp#lllrrrr	Upload Privacy Zone Limits to camera # = Sector Number (31H to 38H) lll and rrrr = ASCII 0000 to 3599
*PS#s	Upload Privacy Zone State to camera # = Sector Number (31H to 38H) s = State ('1'=On; '0'=Off)
*TP#<data>	Upload Tour Presets to camera # = Tour Number (31H to 38H) <data> = 32 preset values in the
*TD#<data>	Upload Tour Dwell times to camera # = Tour Number (31H to 38H) <data> = 32 dwell times in the range of 10H to 4DH (0 to 60 sec)
*TS#s	Upload Tour State to camera # = Sector Number (31H to 38H) s = State ('0'=Stop; '1'=Start)
*pP##pppppttttzzzzffff	Upload Presets data to camera ## = 10hex to 3Ehex (first 48 positions) = 60hex to 70hex (last 16 positions) ppppp = Pan Preset Position data ttttt = Tilt Preset Position data zzzz = Zoom Preset Position data ffff = Focus Preset Position data