Revised D Protocol

An extension that allows us to use the same basic protocol contents over a normal asynchronous port (232, 422, 485) is available and is commonly called the "D" protocol.

The "D" protocol has some added overhead to improve the reliability of transmissions. The format for a message is:

Word 1	Word 2	Word 3	Word 4	Word 5	Word 6	Word 7
Synch Byte	Address	Command 1	Command 2	Data 1	Data 2	Check Sum

All values below are shown in hexadecimal (base 16).

The synchronization byte is always $FF.

The address is the logical address of the receiver/driver being controlled.

Command 1 and 2 are as follows:
are as follows:

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Command 1	Sense	Reserved	Reserved	Auto / Manual Scan	Camera On / Off	Iris Close	Iris Open	Focus Near
Command 2	Focus Far	Zoom Wide	Zoom Tele	Down	Up	Left	Right	Always 0

The sense bit (command 1 bit 7) indicates the meaning of bits 4 and 3. If the sense bit is on and bits 4 and 3 are on the command will enable autoscan and turn the camera on. If the sense bit is off and bits 4 and 3 are on the command will enable manual scan and turn the camera off. Of course, if either bit 4 or bit 3 are off then no action will be taken for those features.

The reserved bits (6 and 5) should be set to 0.

Word 5 contains the pan speed. Pan speed is in the range $00 (stop) to $3F (high speed) and $FF for "turbo" speed. Turbo speed is the maximum speed the device can obtain and is considered separately because it is not generally a smooth step from high speed to turbo. That is, going from one speed to the next usually looks smooth and will provide for smooth motion with the exception of going into and out of turbo speed.

Word 6 contains the tilt speed. Tilt speed is in the range $00 (stop) to $3F (maximum speed).

Word 7 is the check sum. The check sum is the sum of bytes (excluding the synchronization byte) modulo 256.

In addition to the "PTZ" commands shown above, there are control commands that allow you access to the more advanced features of some equipment.

The response to one of these commands is four bytes long. The first byte is the synchronization character (FF), the second byte is the receiver address, the third byte contains the alarm information and the fourth byte is the check sum.

Command	Word 3	Word 4	Word 5	Word 6
Set Preset	00	03	00	01 to 20
Clear Preset	00	05	00	01 to 20
Go To Preset	00	07	00	01 to 20
Flip (180° about)	00	07	00	21
Go To Zero Pan	00	07	00	22
Set Auxiliary	00	09	00	01 to 08
Clear Auxiliary	00	0B	00	01 to 08
Remote Reset	00	0F	00	00
Set Zone Start	00	11	00	01 to 08
Set Zone End	00	13	00	01 to 08
Write Char. To Screen	00	15	X Position 00 to 28	ASCII Value
Clear Screen	00	17	00	00
Alarm Acknowledge	00	19	00	Alarm No.
Zone Scan On	00	1B	00	00
Zone Scan Off	00	1D	00	00
Set Pattern Start	00	1F	00	00
Set Pattern Stop	00	21	00	00
Run Pattern	00	23	00	00
Set Zoom Speed	00	25	00	00 to 03
Set Focus Speed	00	27	00	00 to 03

Example messages (all message values are in hexadecimal):

Message to send	Message
Receiver 2, Left 1/2 speed	FF, 02, 00, 04, 20, 00, 26
Receiver 2, Stop	FF, 02, 00, 00, 00, 00, 02

Note: the check sum calculation for the last message looks like this:

0A	00001010		
88	10001000		
Subtotal	10010010	92	
90	10010000		
Subtotal	00100010	22	(modulo 256 allows the high bit to roll off)

00	00000000		
Subtotal	00100010	22	
40	01000000		
	01100010	62	Final check sum value