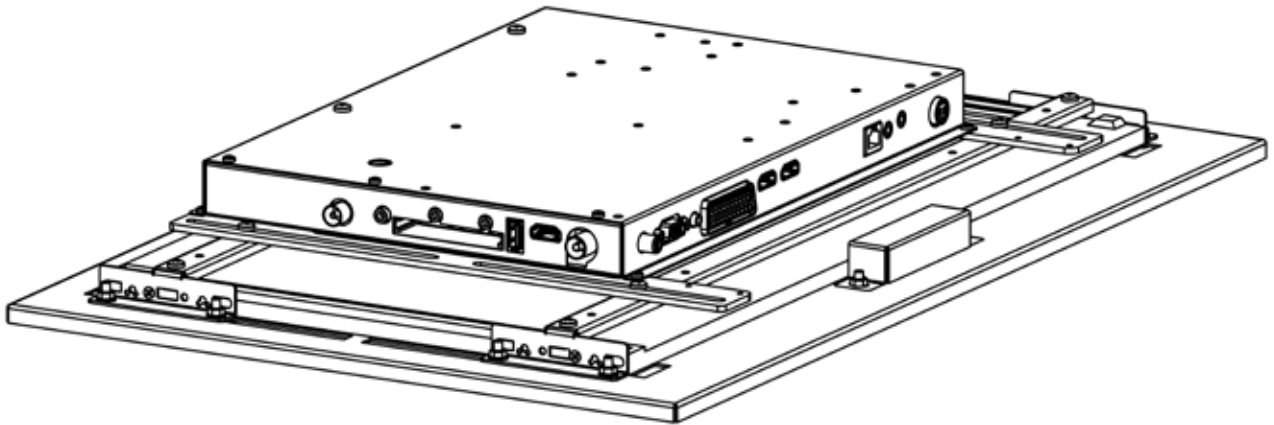


TileVision® Interface Connections and Control Codes

TV/27/FR1



IR Link Out & In

These enable control of external equipment via the IR sensor on the TileVision® and control of the TileVision® from a remote location.



RJ12 Connector

This connector allows the TileVision® to be integrated with Interactive Hotel TV Systems.



RS-232 Port

This DB9 connector allows the TileVision® to receive command codes from Home Automation Systems.



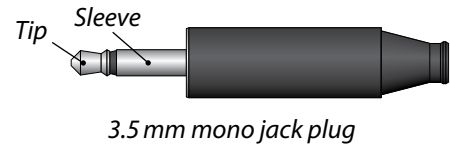
IR Link Out

The IR Link Out is a 3.5mm mono jack socket. The IR signal sensed by the TileVision® is outputted from this socket to an IR emitter. This will enable the remote control of external equipment, such as a DVD player, from the TileVision®.

IR Link Out Connections – IR Emitter

IR emitter LED positive terminal to the Tip.

IR emitter LED negative terminal to the Sleeve.



IR Link In

The IR Link In is a 3.5mm stereo jack socket. This socket allows an auxiliary IR sensor to be connected to the TileVision® to enable remote control of the TileVision® from a different point other than the front of the TileVision®.

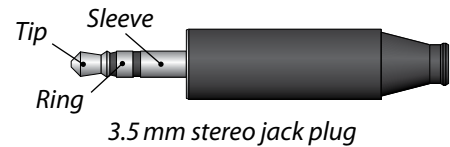
IR Link In Connections – IR Receiver

The TileVision® interface will supply +5v DC to power the IR sensor.

IR sensor +5v DC terminal to the Tip.

IR sensor signal output terminal to the Ring.

IR sensor negative terminal to the Sleeve.

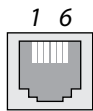


RJ12 Connector

This connector is for Hotel TV System Integration. The RJ12 allows command codes to pass to and from the TileVision®. The RJ12 pin assignment is internally configurable, to allow the connection of various Hotel TV Systems.

RJ12 Connector – Standard Configuration

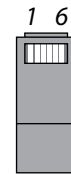
Pin No	Function
1	Not Connected
2	Command code from the external equipment to the TileVision® (0V/5V nominal)
3	Not Connected
4	TileVision® On signal from the TileVision® to the external equipment (On = 5V, Standby = 0V nominal)
5	0V – DC ground
6	Demodulated IR signal from the TileVision® IR sensor to the external equipment (0v/5v nominal)



Connector on the Interface PCB



Male RJ12 connector – front view



Male RJ12 connector – top view

IR Remote Control

The IR remote control uses the NEC protocol.

For a full listing of the IR remote control codes refer to page 4.

Command Codes via the RJ12 Connector

The codes in the table below are the codes that will be sent to the TileVision via the RJ12 connector.

The voltage levels that are accepted as an input on pin 2 of the RJ12 connector (command code from external equipment to the TileVision®) are:

HIGH + 5 volts DC LOW 0 volts DC

Important: When the input on pin 2 of the RJ12 connector is inactive/idle it must be held **HIGH**. If pin 2 of the RJ12 connector is held low, all subsequent command codes via the RJ12 connector and via the TileVision® IR receiver (sent from the TileVision® IR remote control) will fail and the TileVision® will be non responsive.

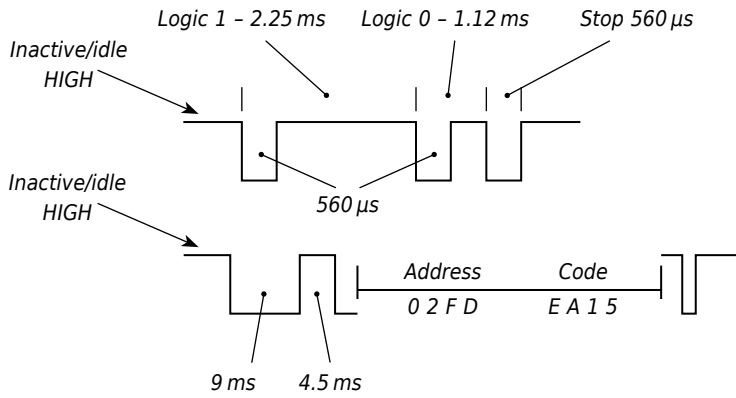
Pin 5 of the RJ12 connector is DC ground.

The code sequence sent to the RJ12 connector is a DEMODULATED NEC protocol format.

First Start Pulse LOW 9.0 ms. Second Start Pulse HIGH 4.5 ms.

Logic 1 = LOW 560 μs HIGH 1.69 ms. Logic 0 = LOW 560 μs HIGH 560 μs.

Stop Pulse LOW 560 μs.



RJ 12 Connector Code Listing (Hex) Address 02FD

Function	Code	Check Sum	Function	Code	Check Sum
Power ON	EA	15	INFO	05	FA
Power OFF	FA	05	Zoom	15	EA
Power TOGGLE	B0	4F	Mute	41	BE
Source	10	EF	P. Mode	B4	4B
DTV	9E	61	S. Mode	B5	4A
ATV	8E	71	Sleep	35	CA
AV	DE	21	FAV	01	FE
SCART	EB	14	PVR List	75	8A
Component	7E	81	⏪	74	8B
PC-RGB	AE	51	⏩	31	CE
HDMI 1	CE	31	■	21	DE
HDMI 2	1B	E4	Rec / Home	84	7B
HDMI 3	0B	F4	⏪	F4	0B
Media Player	8C	73	⏩	D4	2B
0	65	9A	▶ /	61	9E
1	24	DB	Exit	B1	4E
2	34	CB	Timeshift	E0	1F
3	F0	0F	Menu	E4	1B
4	E1	1E	Back	90	6F
5	D1	2E	EPG	51	AE
6	C1	3E	SUB.T	44	BB
7	81	7E	Audio	11	EE
8	54	AB	TTX / Mix	95	6A
9	C4	3B	Index	80	7F
Volume Up	A0	5F	Reveal	94	6B
Volume Down	04	FB	Cancel	70	8F
Channel Up	55	AA	Hold	A1	5E
Channel Down	A5	5A	Size	F5	0A
Page Up	60	9F	List	40	BF
Page Down	85	7A	RED	64	9B
Left	C0	3F	GREEN	A4	5B
Right	50	AF	YELLOW	25	DA
OK	20	DF	BLUE	E5	1A
Up	71	8E			
Down	D0	2F			

The above codes are sent LEAST significant bit first.

Least Significant Bit first - 0 2 F D 0 4 F B							
Address				Code & Check Sum			
0	2	F	D	0	4	F	B
0000	0100	1111	1011	0000	0010	1111	1101
1248	1248	1248	1248	1248	1248	1248	1248
LSB				MSB			

To program an IR remote control to transmit an IR signal to operate the TileVision, the codes in the table below must be entered.

IR Code Listing (Hex) Address 20DF

Function	Code	Check Sum	Function	Code	Check Sum
Power ON	AE	51	INFO	50	AF
Power OFF	AF	50	Zoom	51	AE
Power TOGGLE	0B	F4	Mute	14	EB
Source	01	FE	P. Mode	4B	B4
DTV	E9	16	S. Mode	5B	A4
ATV	E8	17	Sleep	53	AC
AV	ED	12	FAV	10	EF
SCART	EB	14	PVR List	57	A8
Component	E7	18	⏮	47	B8
PC-RGB	EA	15	⏭	13	EC
HDMI 1	EC	13	■	12	ED
HDMI 2	B1	4E	Rec / Home	48	B7
HDMI 3	B0	4F	⏪	4F	B0
Media Player	C8	37	⏩	4D	B2
0	56	A9	▶ /	16	E9
1	42	BD	Exit	1B	E4
2	43	BC	Timeshift	0E	F1
3	0F	F0	Menu	4E	B1
4	1E	E1	Back	09	F6
5	1D	E2	EPG	15	EA
6	1C	E3	SUB. T	44	BB
7	18	E7	Audio	11	EE
8	45	BA	TTX / Mix	59	A6
9	4C	B3	Index	08	F7
Volume Up	0A	F5	Reveal	49	B6
Volume Down	40	BF	Cancel	07	F8
Channel Up	55	AA	Hold	1A	E5
Channel Down	5A	A5	Size	5F	A0
Page Up	06	F9	List	04	FB
Page Down	58	A7	RED	46	B9
Left	0C	F3	GREEN	4A	B5
Right	05	FA	YELLOW	52	AD
OK	02	FD	BLUE	5E	A1
Up	17	E8			
Down	0D	F2			

RS-232 Port

The RS-232 port is a DB9 male connector. This connector allows Home Automation Systems to send command codes directly to the TileVision®.

The TileVision® will only receive RS-232 codes, it does not transmit codes.

To connect to the RS-232 port a DB9 **MALE** connector must be used.

RS-232 Protocol Command Code Sequence

Baud Rate: 38400 A0 F0 55 FF <IR Code> <Check Sum>

Bits: 8 The time of the command sequence must be < 500 ms.

Parity: None The interval time of two continuous command sequences must be > 500 ms.

Stop Bit: 1

RS 232 Code Listing (Hex)

Function	Code	Check Sum	Function	Code	Check Sum
Power ON	AE	51	INFO	50	AF
Power OFF	AF	50	Zoom	51	AE
Power TOGGLE	0B	F4	Mute	14	EB
Source	01	FE	P. Mode	4B	B4
DTV	E9	16	S. Mode	5B	A4
ATV	E8	17	Sleep	53	AC
AV	ED	12	FAV	10	EF
SCART	EB	14	PVR List	57	A8
Component	E7	18	⏪	47	B8
PC-RGB	EA	15	⏩	13	EC
HDMI 1	EC	13	■	12	ED
HDMI 2	B1	4E	Rec / Home	48	B7
HDMI 3	B0	4F	⏪	4F	B0
Media Player	C8	37	⏩	4D	B2
0	56	A9	▶ /	16	E9
1	42	BD	Exit	1B	E4
2	43	BC	Timeshift	0E	F1
3	0F	F0	Menu	4E	B1
4	1E	E1	Back	09	F6
5	1D	E2	EPG	15	EA
6	1C	E3	SUB. T	44	BB
7	18	E7	Audio	11	EE
8	45	BA	TTX / Mix	59	A6
9	4C	B3	Index	08	F7
Volume Up	0A	F5	Reveal	49	B6
Volume Down	40	BF	Cancel	07	F8
Channel Up	55	AA	Hold	1A	E5
Channel Down	5A	A5	Size	5F	A0
Page Up	06	F9	List	04	FB
Page Down	58	A7	RED	46	B9
Left	0C	F3	GREEN	4A	B5
Right	05	FA	YELLOW	52	AD
OK	02	FD	BLUE	5E	A1
Up	17	E8			
Down	0D	F2			



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