Crystal Vision

Decoding Converters

The ADDEC 12 bit decoding converters provide an excellent way to bring a variety of analogue sources into a digital environment.

Used with sources generated by cameras, tape machines or graphics generators, they can convert different analogue signals (PAL/NTSC composite, Y/C or YUV) to SDI, making them ideal for multi-applications and resulting in reductions in cost and rack space. The ability to select Betacam chrominance levels for YUV inputs - giving 700mV for 75% colour bars instead of the standard 700mV for 100% bars - increases the range of systems with which they can be used.

The SDI output is superb, thanks to data sampled at 54Mbit per second, the five line comb decoder and the 12 bit A to D which reduces quantising noise. Input sources can be of any quality from full broadcast to VHS, with damaged or jittery signals accepted.

The internal video proc-amp allows adjustment of gains and levels for further picture improvements.

The 100mm x 266mm modules fit in Crystal Vision's standard frames allowing them to be freely mixed with any product from the range. Taking up very little space, 24 boards can be housed in 4U, 12 in 2U, six in 1U or two in a desk top box.

There is a decoding converter to suit every application and budget.

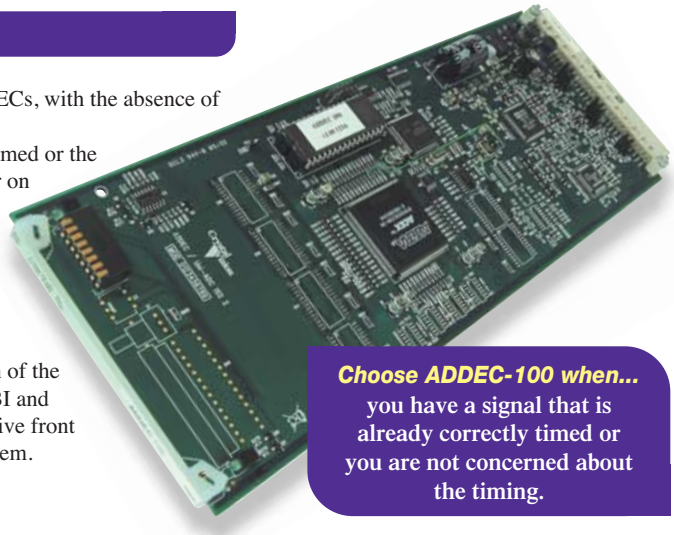
ADDEC-100

The ADDEC-100 offers the same excellent output quality as the other ADDECs, with the absence of any timing adjustments making it the lower cost option.

You should choose the ADDEC-100 if your signal is already correctly timed or the timing is unimportant to you, perhaps with timing correction happening later on in your system. For VHS sources where the timing needs to be repaired, the ADDEC-200 or ADDEC-300 should be considered instead.

Four different frame rear modules (RM01, RM24, RM25 and RM27) provide outputs to suit you, with a maximum of four SDI available, dependent on the input format and the rear module fitted. An input loop-through is available on all rear modules except the RM01.

Basic parameters are adjustable from the board edge, including selection of the input format, pedestal setting, Betacam levels, passing or blanking of the VBI and remote or local control. All further adjustments are available by using an active front panel on the frame, a remote control panel or the Statesman PC Control System.



Choose ADDEC-100 when...
you have a signal that is already correctly timed or you are not concerned about the timing.

ADDEC-200

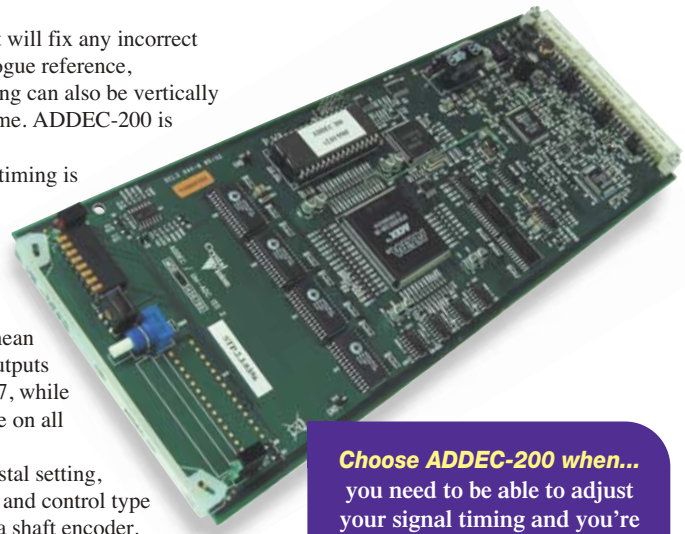
The mid-range ADDEC-200 includes an on-board framestore synchroniser as well as output timing adjustments, and gives basic board edge control.

The synchroniser allows untimed inputs to be timed to the local syncs. It will fix any incorrect frame rates as well as any delays by taking its timing from the external analogue reference, automatically synchronising sources between 0 and 2 fields. The output timing can also be vertically offset with respect to the reference by any number of lines up to a whole frame. ADDEC-200 is ideal for correcting the timing instability of a VHS source.

Without a reference, the ADDEC-200 can operate in delay mode where timing is derived from the analogue input. A fixed delay of up to two fields can be added to compensate for the processing delay caused by a DVE, chroma keyer or standards converter. An audio follow pulse allows ADDEC-200 to be used with an external tracking audio delay, and means that an audio delay can track the video delay through the board.

Five different rear modules (RM01, RM23, RM24, RM25 and RM27) mean you can configure just the outputs you need, with a maximum of four SDI outputs available. An input loop-through is available on the RM24, RM25 and RM27, while you can distribute your reference by using the Black and Burst loop available on all rear modules except the RM01.

Simple board edge control allows the selection of the input format, pedestal setting, Betacam levels, passing or blanking of the VBI, synchroniser or delay mode and control type via piano switches. The output timing can additionally be adjusted by using a shaft encoder. All other adjustments (including gains and levels) must be done remotely, using a frame active front panel, remote control panel or the GUIs offered by the Statesman software.



Choose ADDEC-200 when...
you need to be able to adjust your signal timing and you're happy using remote control.

ADDEC-300

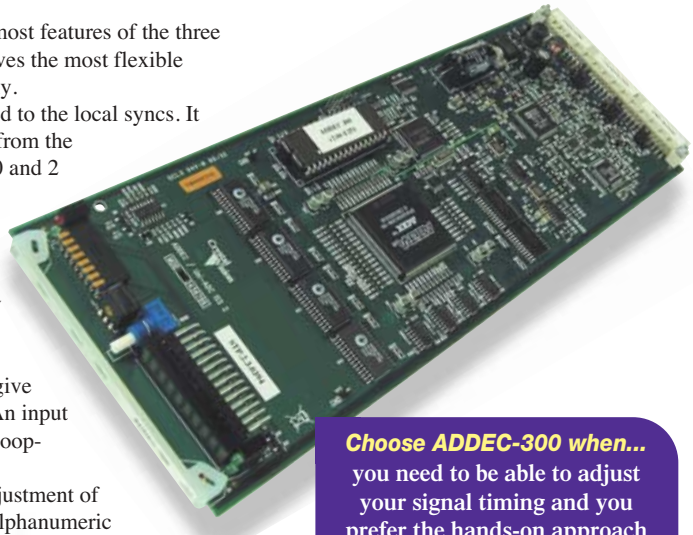
The ADDEC-300 is for people who like board edge control and offers the most features of the three products. It includes a synchroniser and adjustment of output timing and gives the most flexible control, with any adjustments available at the board edge as well as remotely.

The on-board framestore synchroniser allows untimed inputs to be timed to the local syncs. It will fix any incorrect frame rates as well as any delays by taking its timing from the external analogue reference, automatically synchronising sources between 0 and 2 fields. The output timing can also be vertically offset with respect to the reference by any number of lines up to a whole frame. ADDEC-300 is ideal for correcting the timing instability of a VHS source.

In the absence of a reference, the ADDEC-300 can operate in delay mode where the timing is derived from the analogue input and a fixed delay of up to two fields can be added. The audio follow pulse allows an audio delay to track the video delay through the board.

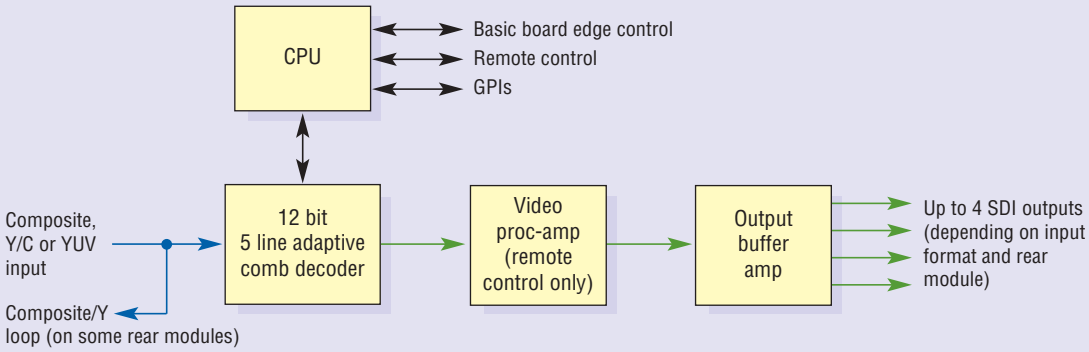
Five different rear modules (RM01, RM23, RM24, RM25 and RM27) give you the outputs you need, with a maximum of four SDI outputs available. An input loop is available on the RM24, RM25 and RM27, while a Black and Burst loop-through is available on all rear modules except the RM01.

There is an extensive set of controls on the board edge, allowing the adjustment of levels and gains along with other options. The inclusion of a ten character alphanumeric board edge display makes diagnosis and adjustment easy. Other control options include an active frame front panel, remote control panel and Statesman PC control software.

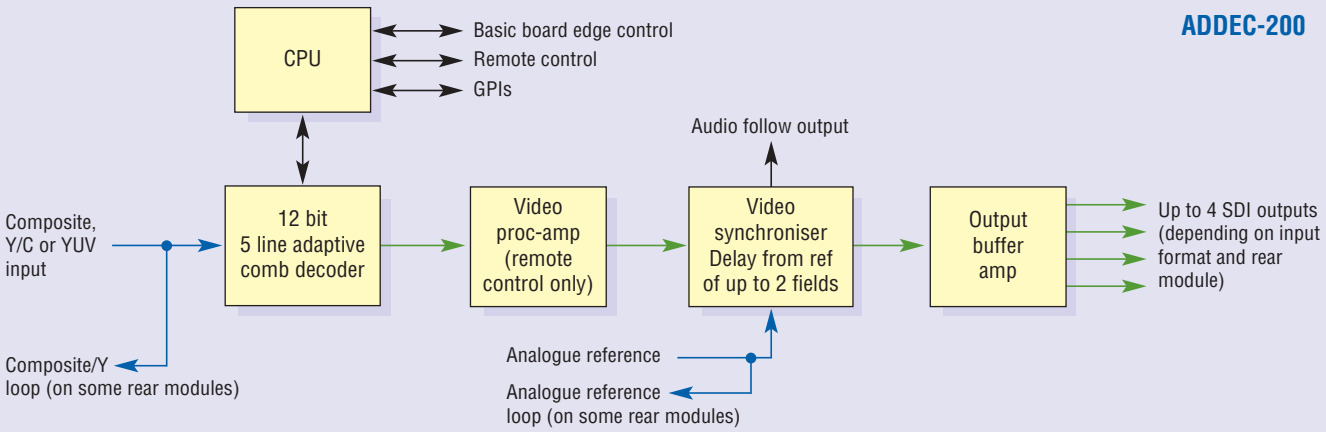


Choose ADDEC-300 when...
you need to be able to adjust your signal timing and you prefer the hands-on approach of full board edge control.

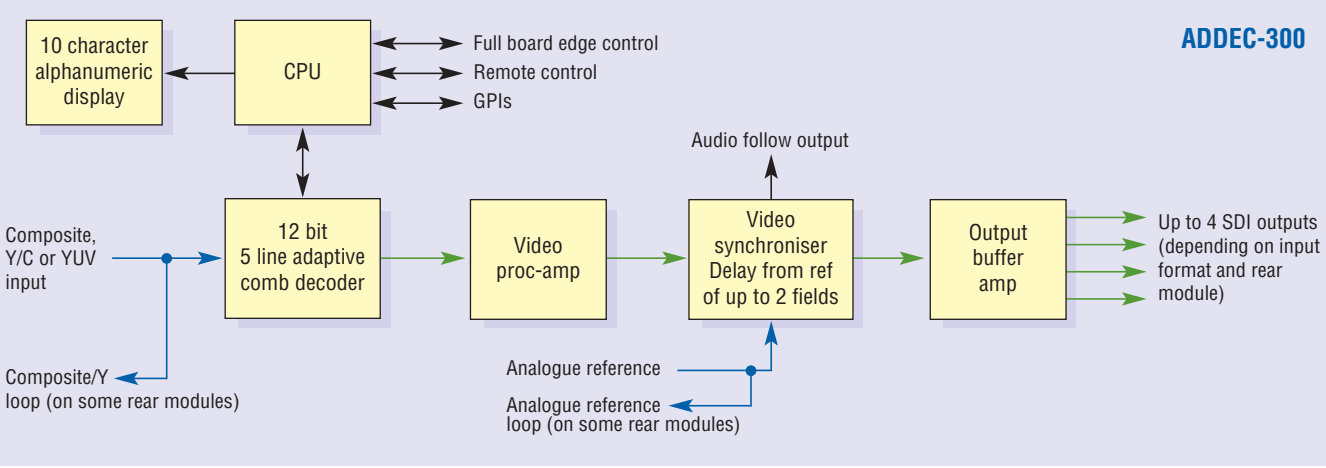
ADDEC-100

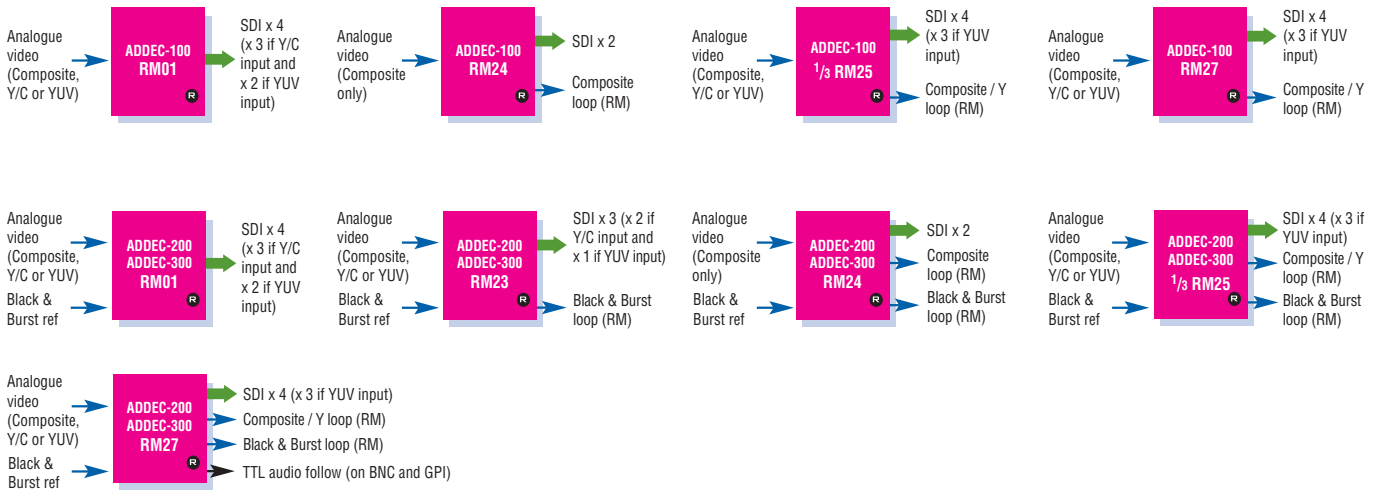


ADDEC-200

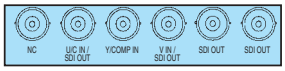


ADDEC-300

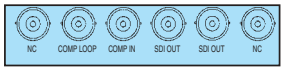




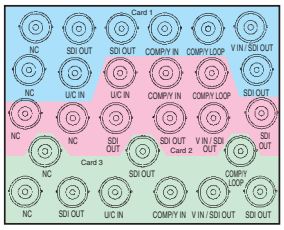
SPECIFICATION



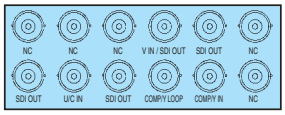
RM01 used with ADDEC-100



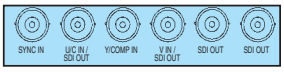
RM24 used with ADDEC-100



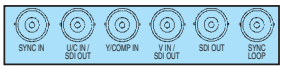
RM25 used with ADDEC-100



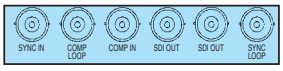
RM27 used with ADDEC-100



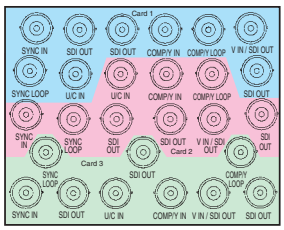
RM01 used with ADDEC-200 and ADDEC-300



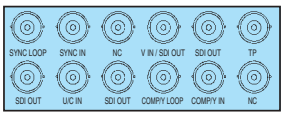
RM23 used with ADDEC-200 and ADDEC-300



RM24 used with ADDEC-200 and ADDEC-300



RM25 used with ADDEC-200 and ADDEC-300



RM27 used with ADDEC-200 and ADDEC-300

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MECHANICAL
Standard Crystal Vision modules 266mm x 100mm
Weight: 200g
Power consumption: 6 Watts

ANALOGUE INPUT
Composite, Y/C or YUV component video input, 1 volt with syncs (Composite input only with RM24 frame rear module)
PAL and NTSC Y/C
Switchable Betacam levels on YUV input
625 line PAL or 525 line NTSC

ANALOGUE REFERENCE (ADDEC-200 AND ADDEC-300)
Analogue Black and Burst, mixed syncs or video reference
Amplitude of syncs 150mV to 4V
Link on PCB selects 75Ohm termination or high impedance for loop-through

VIDEO OUTPUTS
SDI 270Mbit to EBU 3267-E and SMPTE 259M with inserted EDH
Maximum of four SDI outputs depending on the input format and the rear module fitted
RM01 gives four outputs with composite input, three outputs with Y/C input and two outputs with YUV input
RM25 and RM27 give four outputs with composite or Y/C input and three outputs with YUV input
RM23 gives three outputs with composite input, two outputs with Y/C input and one output with YUV input
RM24 gives two outputs
Black and Burst rear module loop-through available with ADDEC-200 and ADDEC-300 when using RM23, RM24, RM25 and RM27 - loop does not need ADDEC to be fitted as rear module has all circuitry required
Composite rear module loop-through available when using RM24; composite or Y rear module loop-through available when using RM25 or RM27 - loop does not need ADDEC to be fitted
<500ps 1kHz jitter and <800ps broadband jitter from stable 300mV Black and Burst reference

TTL audio follow on ADDEC-200 and ADDEC-300. TTL output (0.7V to 5V). On BNC (RM27 only) or available from the D-Type on rear of frame. Pulse length shows delay through store (0 to 40mS)

ANALOGUE PERFORMANCE
Sampling: 12 bit precision 54Mbits (four times oversampling)
Exceptional performance is achieved by a 12 bit five line adaptive comb decoder
Frequency response: +/- 0.5dB to 5.5MHz
Differential phase and gain <1.5°, <1.5%
Signal to Noise: <-60dB
Blanking: To analogue PAL/NTSC specifications, with selectable VBI blanking PAL lines 7 to 22 and 319 to 335. NTSC lines 10 to 20 and 273 to 282

VIDEO TIMING ADJUSTMENTS (ADDEC-200 AND ADDEC-300)
With a video timing reference the timing of the output (with respect to the reference in) may be adjusted by any number of lines up to a whole video frame. Horizontal timing adjustment is also possible in 37nS steps
With no video timing reference the delay from input to output is set by the same timing adjustments

DELAY THROUGH BOARD
3 lines min - 2 fields + 3 lines max (ADDEC-200 and ADDEC-300)
3 lines (ADDEC-100)

FREEZE FUNCTIONS (ADDEC-200 AND ADDEC-300)
Manual freeze allows the ADDEC to be used as a simple still store. Selecting single field output can counteract any flicker caused by the interlacing of two fields. Either field can be selected

VIDEO GAIN AND LEVEL ADJUSTMENTS
Luma gain
Chroma gain
U gain
V gain
Black level
Chroma phase (NTSC hue)
Adjustable remotely with ADDEC-100 and ADDEC-200, and either locally or remotely on ADDEC-300

LED INDICATION OF:
Analogue input present
Analogue reference present (ADDEC-200 and ADDEC-300)
Power supplies okay
Store frozen

GPI INPUT LEVELS
Electrically: Will tolerate 0V to 30V, pulled up to +5V through 10kOhm

GPI OUTPUT LEVELS
Electrically: Open collector transistors 30V, 220Ohm current limit resistors. Pulled up to +5V through 10kOhm

GPI INPUTS
Recall presets 0 to 15

GPI OUTPUTS
Video input present
Audio follow output (ADDEC-200 and ADDEC-300)

LOCAL CONTROL
Piano switches select:
Input format (composite, Y/C or YUV)
Pedestal on/off
Normal/Betacam levels (YUV only)
VBI passed/blanked
Synchroniser mode/delay mode (ADDEC-200 and ADDEC-300)
Board edge/remote control

ADDEC-200 uses a shaft encoder to adjust delay or output timing
ADDEC-300 uses a shaft encoder to access menus for a number of functions using the aid of a ten character alphanumeric display. These include adjustment of video gains and levels

REMOTE CONTROL
Control from frame active front panel and remote panel
Statesman allows control from any PC on a network

ORDERING INFORMATION

ADDEC-100	12 bit PAL/NTSC, Y/C or YUV to SDI decoding converter
ADDEC-200	12 bit PAL/NTSC, Y/C or YUV to SDI decoding converter with framestore and output timing adjustment
ADDEC-300	12 bit PAL/NTSC, Y/C or YUV to SDI decoding converter with framestore, output timing adjustment and full board edge control
Indigo 4	4U frame with passive front panel for up to 24 Crystal Vision modules
Indigo 4S	4U frame with passive front panel fitted with Statesman CPU for up to 24 Crystal Vision modules
Indigo 2	2U frame with passive front panel for up to 12 Crystal Vision modules
Indigo 2A	2U frame with active front panel for up to 12 Crystal Vision modules
Indigo 2S	2U frame with passive front panel fitted with Statesman CPU for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules
Indigo 1A	1U frame with active front panel for up to six Crystal Vision modules
Indigo 1S	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTA	Desk top box with active front panel for up to two Crystal Vision modules
Indigo DTS	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
RM01	Single slot frame rear module. Allows maximum number of ADDECs in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to four SDI outputs (three if Y/C input and two if YUV input)
RM23	Single slot frame rear module. Allows maximum number of ADDECs in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Not used with ADDEC-100. Gives access to three SDI outputs (two if Y/C input and one if YUV input) and a Black and Burst rear module loop-through
RM24	Single slot frame rear module. Allows maximum number of ADDECs in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Composite only input. Gives access to two SDI outputs and a composite rear module loop-through with the ADDEC-100. Gives access to two SDI outputs and both Black and Burst and composite rear module loop-throughs with the ADDEC-200 and ADDEC-300
RM25	Four slot frame rear module. One rear module used for three ADDECs, allowing 18 ADDECs in 4U and nine in 2U. Gives access to four SDI outputs (three if YUV input) and a composite or Y rear module loop-through with the ADDEC-100. Gives access to four SDI outputs (three if YUV input), a Black and Burst rear module loop-through, and a composite or Y rear module loop with the ADDEC-200 and ADDEC-300
RM27	Two slot frame rear module. Allows 12 ADDECs in 4U, six in 2U, three in 1U and one in desk top box. Gives access to four SDI outputs (three if YUV input) and a composite or Y rear module loop-through with the ADDEC-100. Gives access to four SDI outputs (three if YUV input), a Black and Burst rear module loop-through, a composite or Y rear module loop, and a TTL audio follow with the ADDEC-200 and ADDEC-300
REMIND	19" remote control panel
Statesman	PC Control System