

Crystal Vision

REFGEN



Analogue and digital black generator

REFGEN brings real flexibility. With the ability to output both analogue and digital reference signals at the same time, REFGEN is ideal for creating offset timing references from the station master or for generating the master reference in applications that do not require a broadcast accurate reference.

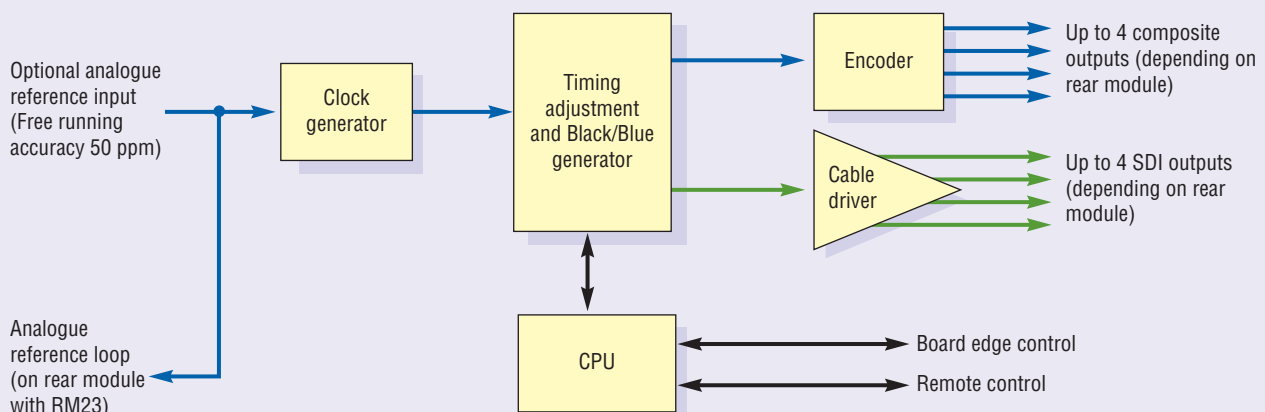
By producing up to four analogue and four digital reference signals simultaneously, REFGEN has the capability to send eight reference signals to a wide variety of broadcast equipment, including to those products that require a digital reference. The extensive number of outputs available also brings cost-savings by reducing the need for additional distribution amplifiers in the system.

REFGEN's reference signals are either free running or timed to an analogue input. When free running REFGEN does not have a reference and provides the fundamental system timing signal, with the output reference timed to an on board clock generator. When locked to an analogue input, REFGEN is used to either provide a digital reference or to provide a second analogue reference locked to the first but with a fixed delay. Many studio systems rely on multiple references with an offset between them and REFGEN provides a simple way of achieving this, with a full two fields of adjustment by line and pixel.

While a black reference output is the industry standard and set as REFGEN's default, a blue output can alternatively be selected by those engineers who like the more obvious signal present indication given by a blue screen. The quality of the SDI reference is excellent with virtually no output jitter when used both with and without an analogue reference.

The 100mm x 266mm module fits in the standard frames (available in 2U, 1U and desk top box) alongside any other product from the Indigo interface and keying range. The outputs can be configured to suit you, with the opportunity to choose from four different frame rear modules. The RM01 gives two SDI and three composite outputs, while the RM02 gives four SDI with three composite. You'll get the maximum four SDI and four composite outputs if you use the RM18, while the RM23 provides two SDI and two composite outputs, along with an external reference loop-through which is not reliant on the board and will therefore still be present should REFGEN be removed. REFGEN can be controlled manually from board edge or remotely using an integrated control panel on the AE frames, the VisionPanel remote control panel, Statesman Lite PC software, VisionWeb web browser control or SNMP.

- Analogue and digital black generator
- Flexible: can output analogue and digital reference signals at the same time
- Ideal for creating offset timing references from the station master or for generating master reference in applications that do not require broadcast accurate reference
- Up to four composite and four SDI outputs
- Choice of blue or black outputs
- Reference signals are free running or timed to an analogue input
- Space-saving: 100mm x 266mm module allows 12 REFGEN in 2U (six in 1U and two in desk top box)
- Flexible control, from board edge to PC software



SPECIFICATION

MECHANICAL

Standard Crystal Vision module
266mm x 100mm

Weight: 225g

Power consumption: 12 Watts

REFERENCE INPUT (OPTIONAL)

Analogue Black & Burst, mixed syncs or video

Amplitude of syncs 100mV to 4V

PCB link selects 75 ohm termination or high impedance with loop-through

TIMING

In synchroniser mode REFGEN takes its timing from the external analogue reference and will automatically lock its output to this. A delay of between 0 and 2 fields in lines and pixels can be added to the output reference with respect to the external reference

In free running mode the output reference is timed to an on board clock generator. Free running accuracy of 50 ppm

Switching between free running and synchroniser mode is automatic when external reference is added or removed

REFERENCE OUTPUTS

Selectable black or blue output

Maximum of four SDI and four analogue composite outputs (two SDI and three composite with frame rear module RM01, four SDI and three composite with RM02, four SDI and four composite with RM18 and two SDI and two composite with RM23)

SDI 270Mbit to EBU Tech 3267-E and SMPTE 259M. Will drive >200m Belden 8281 or equivalent

Reference rear module loop-through available with RM23 - loop does not need REFGEN to be fitted as rear module has all circuitry required. Reference board loop-through available with RM02 and RM18 - loop needs REFGEN to be fitted

LOCAL CONTROL

Board edge adjustment of output colour (black or blue), output standard, delay in lines and delay in pixels

Ten character alphanumeric display

LED INDICATION OF:

External reference analogue sync input present

Power supplies okay

REMOTE CONTROL AND MONITORING

Control from integrated control panel on AE frames and remote panel

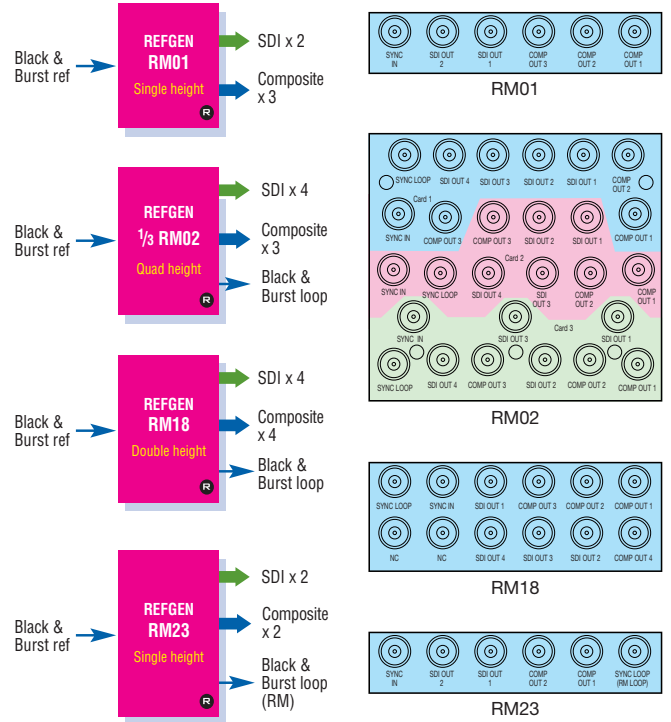
Statesman Lite allows control from any PC on a network

VisionWeb Control is available via the web server on the frame and allows operation using a standard web browser on a PC or tablet

SNMP monitoring and control available as a frame option

Control using ASCII and JSON protocols

REAR MODULE CONNECTIONS



ORDERING INFORMATION

REFGEN	Analogue and digital black generator
Indigo 2AE	2U frame with active front panel featuring smart CPU and integrated control panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with active front panel featuring smart CPU for up to 12 Crystal Vision modules
Indigo 1AE	1U frame with active front panel featuring smart CPU and integrated control panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1AE-DP
Indigo 1SE	1U frame with active front panel featuring smart CPU for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1SE-DP
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with active front panel featuring smart CPU for up to two Crystal Vision modules
RM01	Single slot frame rear module. Allows maximum number of REFGEN in frame (12 in 2U, six in 1U, two in desk top box). Gives access to two SDI outputs and three composite outputs
RM02	Four slot frame rear module. One rear module used for three REFGEN, allowing nine REFGEN in 2U. Gives access to four SDI outputs, three composite outputs and a Black and Burst board loop-through
RM18	Two slot frame rear module. Allows six REFGEN in 2U, three in 1U and one in desk top box. Gives access to four SDI outputs, four composite outputs and a Black and Burst board loop-through
RM23	Single slot frame rear module. Allows maximum number of REFGEN in frame (12 in 2U, six in 1U, two in desk top box). Gives access to two SDI outputs, two composite outputs and a Black and Burst rear module loop-through
VisionPanel	3U Ethernet remote control panel with touch screen
VisionWeb Control	VisionWeb web browser control included within frame software
Statesman Lite	PC Control System
SNMP	SNMP monitoring and control

Performance and features are subject to change. Figures given are typical measured values. REFGEN0817