Headend Systems

Model 6275
Frequency Agile Demodulator

Description

The Model 6275 Demodulator is a high-performance, frequency agile demodulator designed for CATV, off-air as well as IF applications. Your headend will deliver superior quality video signals free from quadrature distortion by using the demodulator's synchronous detection capability. The Model 6275 Demodulator's IF section uses SAW filter technology to provide optimum VSB detection performance. In addition to providing off-air demodulation for primary applications, the Model 6275 Demodulator is ideal for backup of existing fixed channel demodulators. The Model 6275 Demodulator can also be used as a CATV headend signal monitor for loss detection and quality assurance of delivered video.

Features

- Tuner covers all range from 55.25 MHz to 801.25 MHz
- Predefined Channels for CATV and off-air
- Random access, search or single up/down tuning
- HRC/IRC offset tuning with storage capability
- Demodulation with automatic frequency tilt correction (+/- 2 dB)
- 2 Video outputs with auto AGC or manually adjustable between -3 dB and +3 dB
- Audio Line output, adjustable between -6 dB and +6 dB
- Simultaneous outputs provided for BTSC L&R, SAP, wideband and 4.5 MHz audio
- Headphone output on the front (BTSC/SAP selection and level via soft keys)
- ZRP function, line selectable
- Keyboard and LCD Control
- Full monitoring and control with ROSA™/TNCS via SNMP
- Full range 100-240 V AC power supply or -48 V DC power supply

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Operation

The Model 6275 Demodulator receives off-air or cable signals, processes them, and provides a complete set of interface features for the demodulated outputs. These include two buffered baseband video signals and demodulated audio. Additionally, the Model 6275 Demodulator provides balanced stereo audio, selectable mono or SAP outputs, and a front panel headphone jack for monitoring the audio output.

Applications

In Demod/Remod headend applications, off-air signals are integrated with CATV signals. This is accomplished by using the separate video and audio outputs from the Model 6275 Demodulator as inputs to conventional modulators.
The audio output from the Model 6275 Demodulator is directly compatible with either the 4.5 MHz subcarrier input or baseband audio inputs of most common CATV modulators. The subcarrier interface is preferred to maintain optimum BTSC stereo audio performance. For mono audio applications, the baseband audio is available from the left and right XLR connector on the Model 6275 Demodulator rear panel. This connector interfaces to the baseband audio input on the modulator.
Additional applications of the Model 6275 Demodulator include:

- Baseband signal delivery out of digital trunking
- Backup for existing fixed channel demodulators
- Headend performance monitoring for FCC Proof of Performance measurements
- Headend interconnections—source and hub headend interface capability
- Headend signal loss monitoring via Status Monitoring and Control (SNMP)

Technical Details

Tuner and IF Functions

The Model 6275 Demodulator provides frequency agile tuning for broadcast and cable applications. In broadcast mode, the Model 6275 Demodulator covers channels 2 through 69. In cable mode, the demodulator tunes to EIA channels 2 through 125. As an additional input, an external IF can be applied for demodulation. This feature allows demodulation of signals when used in digital IF transport applications.

Video Functions

Synchronous video detection is a standard feature of the demodulator. This capability provides precise demodulation of the Vestigial Sideband Signal (VSB) transmission format, and allows video signal quality to be accurately measured. The television signal depth of modulation is measured using the zero carrier reference pulse. This pulse momentarily switches off the picture carrier to simulate 100% modulation. Both this level and the sync tip level provide the scaling necessary to measure depth of modulation.
Another feature is the automatic frequency compensation. In case the received signal has an in-band frequency slope (due to long cables or other external causes), the unit can equalize the signal and make sure that the frequency response after demodulation will be flat.

Audio Functions

All possible audio outputs are simultaneously available at the rear. These modes are:

- Stereo, where stereo outputs on L and R are provided on the rear panel.
- Mono, where both the L and R rear panel connectors carry mono (L+R) audio regardless of whether stereo is present.
- SAP, where a separate connector provides the signal when it is available.
- SAP/Mono, where SAP is on a separate connector and Mono is available on both L and R connectors.

Audio Outputs

Four types of audio signal outputs are available at the rear panel. They include:

- 4.5 MHz subcarrier
- Composite, wideband BTSC format
- Baseband, discrete L, R, or mono audio
- SAP, discrete mono audio

Remote Operation

As one of the first demodulators on the market to have this feature, the Model 6275 Demodulator can be controlled remotely via SNMP over Ethernet. This allows the operator to integrate this unit into any kind of management system using the SNMP interface capabilities. The unit also fits entirely in the ROSA/TNCS system.

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Specifications

RF Input	
Connector	F-type, 75 Ω
Frequency	55.25 MHz to 801.25 MHz
Input level	-16 dBmV to 27 dBmV
Tuning	Auto Scan By channel number, both for Cable and Off Air
Step size	Fine tuning per 62.5 kHz
IF Input	
Connector	F-type, 75 Ω
Level	30 dBmV

Outputs	
Video output	
Number of outputs	2
Connector	BNC, 75 Ω
Level	1 Vpp baseband video into 75 Ω
Level adjust	
Manual	±3 dB
Automatic	AGC based on sync amplitude
Frequency compensation	
Manual	±2 dB
Automatic	Based on burst amplitude
Differential Gain	<3% typical
Differential Phase	<3 deg typical
Frequency response	±0.7 dB (100 kHz -3.58 MHz), ±2 dB (3.58 - 4.1 MHz)
Chroma /Luma delay	Within 30 ns typical
S/N (weighted)	>51 dB typical (at 0 dBmV input) >55 dB typical (at 10 dBmV input)
Audio output	
Signal	Mono, Separate L/R (Stereo) and SAP
Connector	3 x Male XLR (separate L and R and SAP)
Level	Balanced 0 dBm, 600 Ω
Level adjust	At 0 dBm: -3 dB to +3 dB in 0.5 dB steps Offset selectable of +6 dB
Frequency response	50 Hz to 12 kHz (stereo mode)
Stereo separation	>20 dB @ 1 kHz
THD	2% maximum, 1 kHz to 12 kHz
S/N	>53 dB typical at 0 dBmV input
Composite audio output	
Signal	L-R, pilot, L+R, SAP
Connector	BNC
Level	10 mV/kHz (typical bandwidth 110 kHz +/- 1 dB)
Bandwidth	110 kHz typical
4.5 MHz Subcarrier output	
Connector	F, 75 Ω
Level	40 dBmV typical

Front Panel Monitoring	
Type	Audio
Connector	Headphone stereo jack

Remote Control	
Type	10 Base-T
Protocol	SNMP

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Specifications – continued

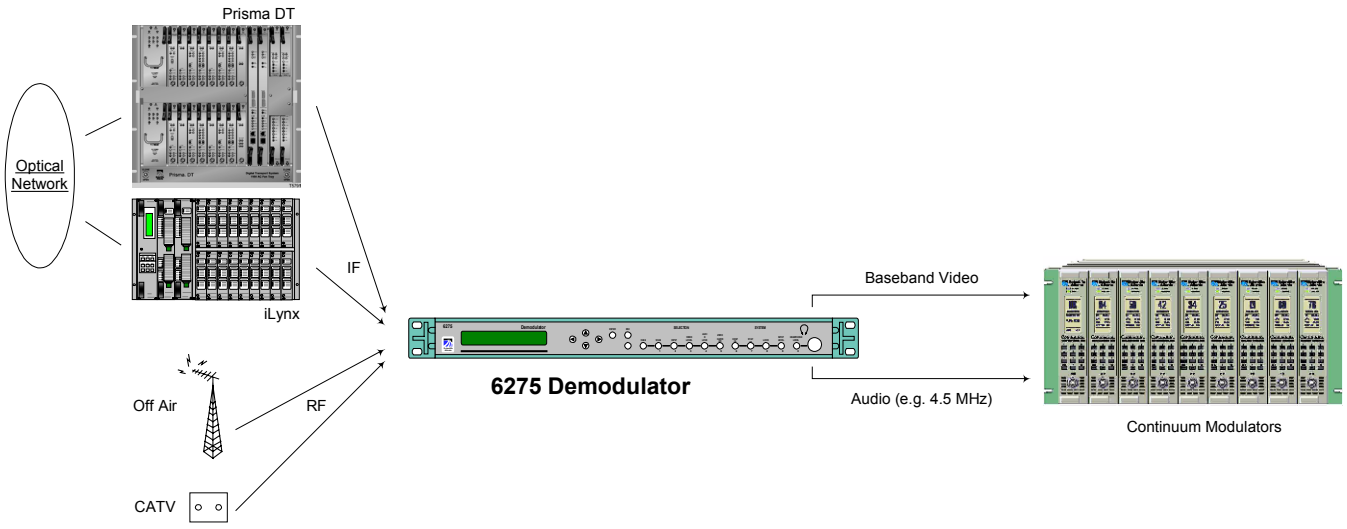
Environmental Specifications	
Operating temperature	+32°F to +122°F (0°C to +50°C)
Storage temperature	-4°F to +158°F (-20°C to +70°C)
Power supply (nominal)	100 to 240 V AC; 47 - 63 Hz or -48 V DC
Power consumption (nominal)	16 W (nominal)

Mechanical Specifications	
Height	1 RU
Width	19” / 482 mm
Depth	18.5” / 470 mm
Weight	Approx. 9.35 lbs / 4.24 kg

Ordering Information

Name	Part Number
Model 6275 Frequency Agile Demodulator (AC version)	4004330
Model 6275 Frequency Agile Demodulator (DC version)	4003286

Application



Europe & Asia
+32 56 445 000 or +49-6173-928-0
www.saeurope.com
Americas
1-800-722-2009 or 770-236-6900
www.scientificatlanta.com

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