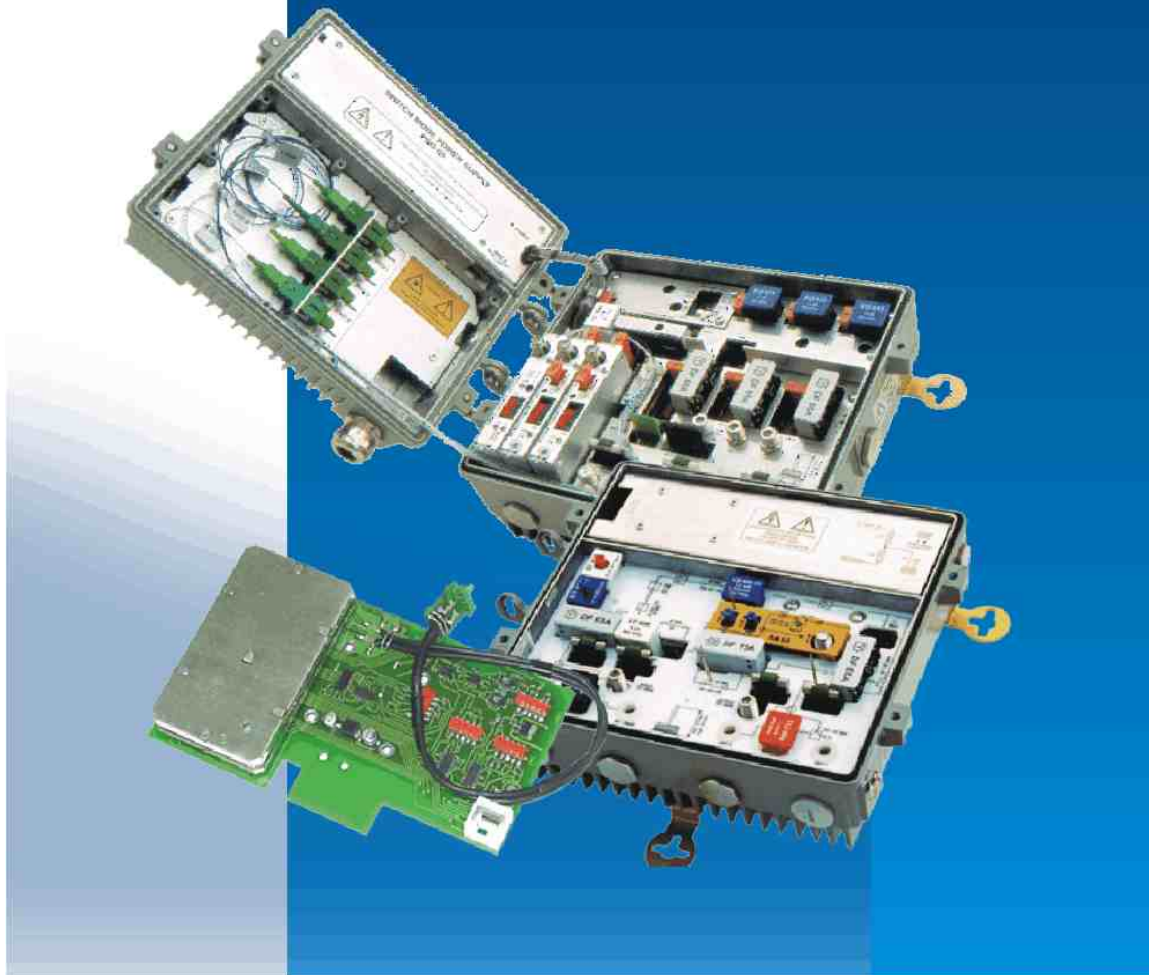




VECTOR



***NMS transponders
for distribution node GAMMA
and telecommunication amplifier BETA***

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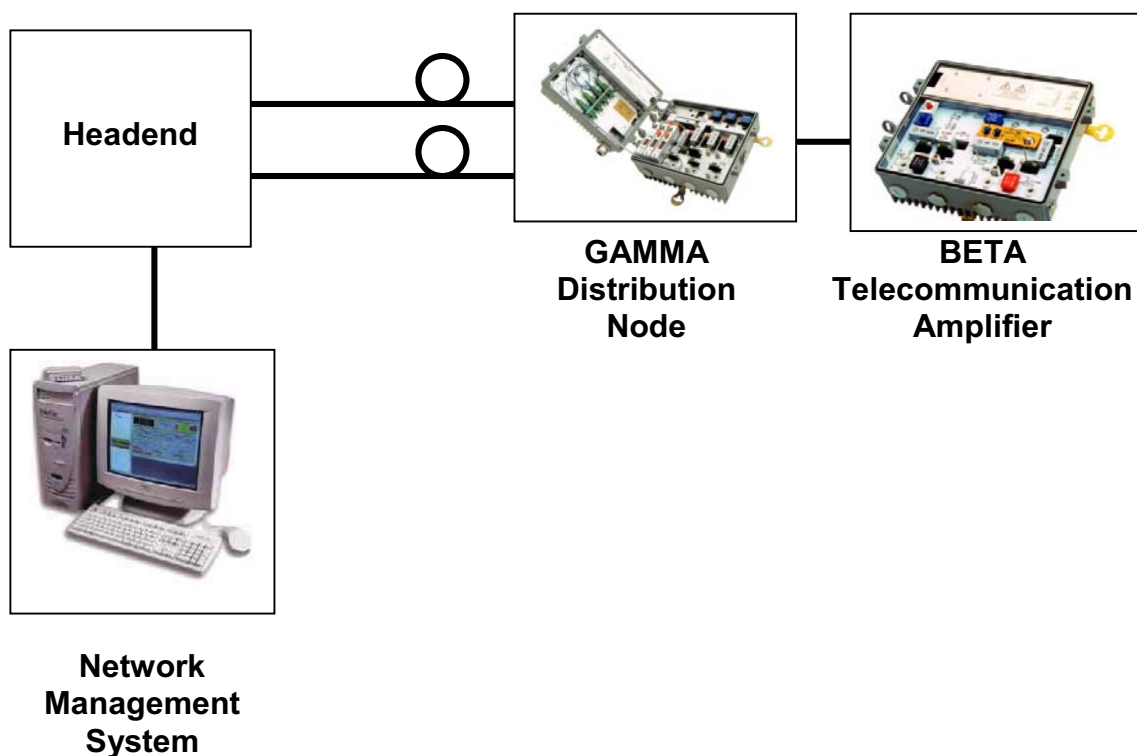
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INTRODUCTION

In today's demanding market reliability of the network becomes one of the key factors in achieving the advantage over the competition. Quick alerting of the faults in the network ensures increase of network reliability, availability and service quality which means higher level of customer satisfaction.

The HFC network today carries many advanced interactive, revenue generating services. Plant management systems significantly help to improve network's performance, making you more competitive. Being competitive means improving "the bottom line" by optimizing network performance and field engineering staff. Effective and proactive network monitoring not only allows your field staff to target potential problem areas before they become problems, but also assess probable cause and improve work force administration assignments.

The solution for all mentioned above aspects are the NMS transponders to be installed in the optical node GAMMA and telecommunications amplifier BETA to allow fully featured monitoring and control. AM Communications' FlexStat II and FlexStat III represent a major advance in status monitoring functionality and implementation. The modules are a business card size units, which contain a frequency agile RF modem, an on-board programmable microcomputer with downloadable firmware, a basic digital and analog I/O system with external expansion capability, a local control port for applications requiring a craft interface and self-contained RF/EMI shielding.



MONITORING CAPABILITIES OF VECTOR PRODUCTS

Broadband distribution node GAMMA is prepared to work with different Network Management Systems and has the facility to be remotely monitored and controlled.



Monitoring capabilities of GAMMA are as follow:

- remote control of 3-state (0, 6, >35dB) ingress switches associated with each RF output port
- indication about opening the housing
- remote DC current and voltage measurement
- remote AC voltage measurement (RMS value in the specified range 35-65V AC)
- remote ORT laser current bias measurement (both for primary and secondary ORT)
- remote ORT optical output power measurement (both for primary and secondary ORT)
- remote OFR or OSR optical input power measurement (in OSR case both primary and secondary optical input power is measured)
- remote switch on/off of the optical receiver(s) or choosing the "auto-switch" option for OSR receiver dependent on the optical input power feeding the photodiodes
- indication about which optical receiver (primary or secondary) is active
- remote measurement of control voltage from AGC circuit
- remote measurement of the temperature within the housing
- remote measurement of the RF carrier received by the transponder
- remote measurement of the RF carrier transmitted by the transponder

Broadband telecommunication amplifier BETA is prepared to work with different Network Management Systems and has the facility to be remotely monitored and controlled.



Monitoring capabilities of BETA are as follow:

- remote control of 3-state (0, 6, >35dB) ingress switches associated with each RF output port
- indication about opening the housing
- remote DC current and voltage measurement
- remote AC voltage measurement (RMS value in the specified range 25-65V AC)
- remote measurement of the temperature within the housing
- remote measurement of the RF carrier received by the transponder
- remote measurement of the RF carrier transmitted by the transponder

TRANSPONDERS SPECIFICATIONS

FlexStat II

- Fully compatible with all AM status monitoring and performance products
- Frequency agile
- Downloadable firmware
- Firmware can be downloaded locally or via RF
- Wide operating temperature Range
- Proven reliability
- Small size and easy mounting
- Multi channel 8-bit A/D converter
- Serial Peripheral Interface for control of external peripherals and I/O expansion circuits



PARAMETER	VALUE
Receive frequency [MHz]	Agile, 50-53, 73-76, 89-93, 107-110, 456-462
Nominal RF input level [dBuV]	60
Input level range [dBuV]	40-80
Interface rejection [dBc]	0 @ +/-300kHz 20 @ +/-600 kHz
Receiver spurious outputs [dBuV]	45 max., 50-1000MHz
Transmit frequency [MHz]	Agile, 5.5-8, 8-12, 12-18, 18-27, 23-32, 27-40
Frequency tolerance [%]	0.1
Output RF level [dBuV]	105, +/-3dB @ maximum
Output level attenuator [dB]	-6, -12, -18 down from max., +/-2
Bandwidth [kHz]	300 @ -40dBc 500 @ -50 dBc
Transmitter spurious outputs [dBc]	-55 @ max, 5-50MHz
Modulation type	FSK, +/-50kHz nominal
Modulation tolerance [kHz]	37.5 min., 65 max.
Data format	Asynchronous, NRZ, Burst Packet
Data rate [kb]	38.4
Operating temperature [°C]	-40 - +100
Humidity [%]	0 – 90 non-condensing
Analog inputs quantity	20 ¹ 5 ²
Digital inputs quantity	20 ¹ 2 ²
Digital outputs quantity	20 ¹ 2 ²

FlexStat III

- Wide operating frequency range
- Fully compatible with all AM status monitoring and performance products
- SCTE HMS-005/004 compliant
- Downloadable firmware
- Firmware can be downloaded locally or via RF
- Wide operating temperature Range
- Proven reliability
- Small size and easy mounting
- Multi channel 8-bit A/D converter
- Serial Peripheral Interface for control of external peripherals and I/O expansion circuits



PARAMETER	VALUE
Receive frequency [MHz]	Agile, 48-120
Nominal RF input level [dBuV]	60
Input level range [dBuV]	40-80
Interface rejection [dBc]	0 @ +/-300kHz 20 @ +/-600 kHz
Receiver spurious outputs [dBuV]	45 max., 50-1000MHz
Transmit frequency [MHz]	Agile, 5-42
Frequency tolerance [%]	0.1
Output RF level [dBuV]	105, +/-3dB @ maximum
Output level attenuator [dB]	0- -30, 2 dB steps
Bandwidth [kHz]	300 @ -40dBc 500 @ -50 dBc
Transmitter spurious outputs [dBc]	-60 @ max, 5-50MHz
Output match [dB]	12, 5-42MHz
Modulation type	FSK, +/-50kHz nominal
Modulation tolerance [kHz]	+/-2
Data format	Asynchronous, NRZ, Burst Packet
Data rate [kb]	38.4
Operating temperature [°C]	-40 - + 85
Humidity [%]	0 – 90 non-condensing
Temperature range [°C]	-40 - +100
Accuracy/resolution [°C]	+5 / 1
Analog inputs quantity	20 ¹ 5 ²
Digital inputs quantity	20 ¹ 2 ²
Digital outputs quantity	20 ¹ 2 ²

¹ With external multiplexing

² Without external multiplexing