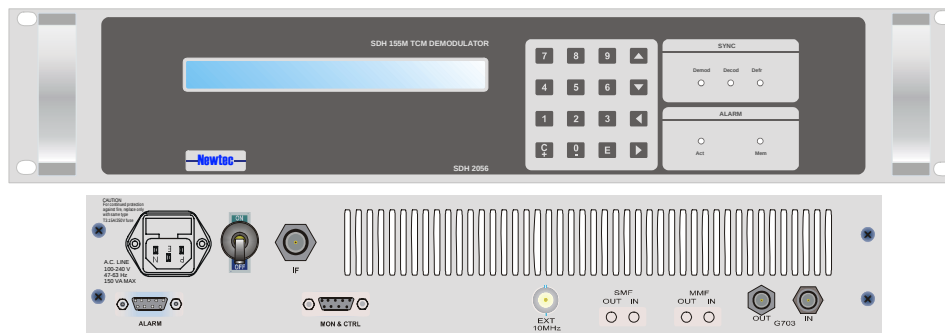




• DESCRIPTION

The Satellite Modulator (NTC/2155) and Demodulator (NTC/2056) allow transmission of an SDH 155.52 Mbit/s signal over a 72 MHz satellite transponder.

A very robust synchronisation method is used for carrier, clock, decoder and deframer while many system parameters are monitored.

The Eb/No indication is quite unique for its accuracy and large dynamic range (6-20 dB !) which allows a very good estimate of the available link margin in the earth station.

The NTC/2056 provides Electrical G703, Optical Multi Mode and Optical Single-Mode output signals at its baseband outputs.

Three options are available for Doppler Buffer output clocking : Internal Clock, Locked on Satellite or external via the baseband input interface (Elec. G703, Multi-Mode Opt. or Single-Mode Opt.)

All control and monitoring parameters are available locally on the frontpanel (LCD display and keyboard) and remotely via an RS485 interface (or RS232).

A summary alarm contact output is available for station alarm monitoring.

• APPLICATIONS

Thanks to the 8PSK FEC8/9 modulation scheme, the SDH Satellite Modulator (NTC/2155) and Demodulator (NTC/2056) allows the fully transparent transmission of 155.52 Mbit/s over a 72 MHz satellite transponder.

Although initially designed for cable restoration, this combination is very often used for high data rate (transcontinental) IP backbones and in earthquake sensitive regions where communications are an absolute requisite under all circumstances and must be free from any terrestrial multi-hopper mishap during the data journey

In combination with the modulator (NTC/2155), the equipment gives an excellent performance of BER and synchronization.

• FEATURES

- Specially adapted for B-ISDN, SDH (SONET) and fiber network restoration
- Rate : 155.52 Mbit/s STM-1/OC-3
- Bandwidth requirements : 72 MHz transponder
- 6D-Trellis inner coder rate 8/9 Reed Solomon RS (255, 235) outer coder
- Excellent performance in combination with Satellite Modulator NTC/2155
- BER = $1E-10$ for Eb/No = 8.1 dB (typ)
- Robust synchronization
- Unique Ebi/No monitoring (from 6 to 20 dB !!)
- Internal PRBS detector
- Standard equipped with Electrical G703,
- Multi- and Single- Mode Optical Interfaces
- Local & remote M&C access to all menus through a
 - * RS-485/RS-232 (RMCP v1 protocol)
 - * 10/100 Base-T Ethernet port (RMCP v1 protocol)
- 50 or 75 Ohm IF input selectable (in combination with the NTC/2142 IF to L-band converter, L-band input for the demodulator becomes possible)
- User-programmable menu structure
- Action Keys (group of commands under single button)
- Real-time clock for alarm occurrence logging
- Internal test-generator and detector (PRBS counter)
- highly reliable Newtec design
- CE label

• DATA SUMMARY

INTERFACE

IF INPUT :

nominal signal level	: -24 ± 10 dBm
level noise	: -105 to -126 dBm/Hz
frequency range	: 100-180 MHz
centre frequency setting	: 140 ± 2.5 MHz
return loss	: > 18 dB (50 Ohm-N(F))

DATA OUTPUTS :

interface	: G703 (BNC-F) : Optical Multi-Mode (SC) : Optical Single-Mode (SC)
frequency	: 155.52 MHz ± 20 ppm

EXTERNAL CLOCK INPUT :

interface	: G703 (BNC-F) : Optical Multi-Mode (SC) : Optical Single-Mode (SC)
frequency	: 155.52 MHz ± 20 ppm

MONITOR & CONTROL INTERFACES :

connector	: 9 pin sub-D (F)
electrical	: RS485 or RS232

ALARM INTERFACE :

connector	: 9 pin sub-D (F)
electrical	: switch-over contact

MECHANICAL :

19" subrack, 8.8cm height

POWER SUPPLY :

90-130/180-260V, 60 VA	TEMPERATURE :
operational	: 0°/+40°C
storage	: -40°/+70°

• PERFORMANCE

BIT RATES :

user (Mbit/s)	: 155.52
transmission (Mbaud)	: 63.283
bandwidth 3dB (MHz)	: 63.283

FUNCTIONS :

synchronous descrambling (V.35)	
Reed Solomon (255,235) outer coding	
RS Frame - Unique Word detection	
Trellis inner (rate 8/9) decoding	
8PSK demodulation	
buffer size	: 0 to 13 msec ptp
Test Data Receiver	: PRBS 2 ²³ -1

BER PERFORMANCE : (BER : 1E-10 is reference)

modem loopback

BER	Ebi/No (dB)	Co+No/No (dB)
	THEO. SPEC. TYP.	THEO. SPEC. TYP.
1E-7	7.2 8.2 7.7	11.3 12.3 11.7
1E-10	7.6 8.6 8.1	11.7 12.7 12.1

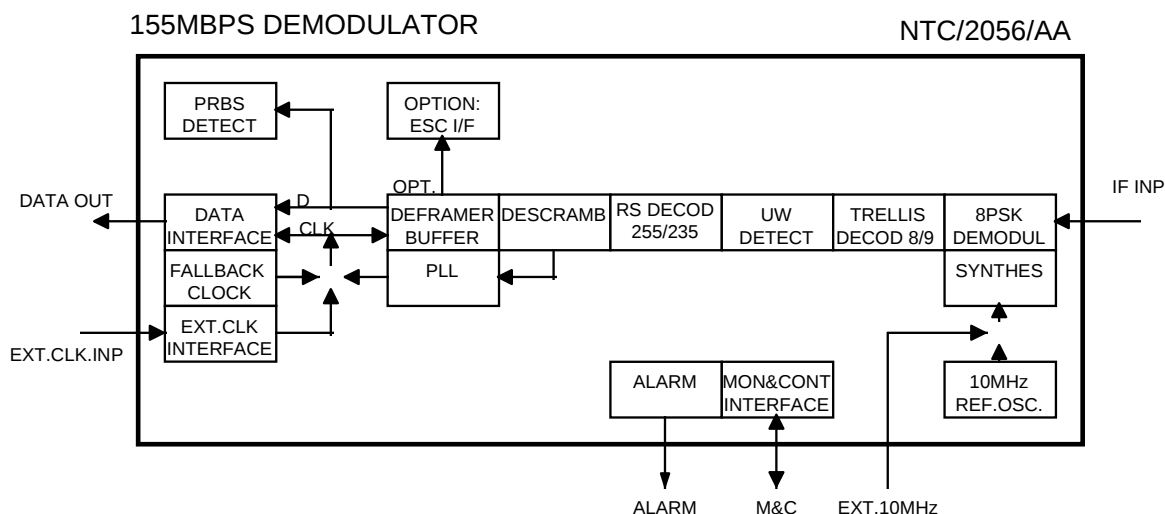
SYNCHRONISATION (DEMOD-DECOD-DEFRAMER)

aver. acquis. time (sec)	: 0.5+0.05 * (CAR/50kHz)
	CAR=CAR.ACQ.RANGE
max. acquisition range	: 5000 kHz ptp
clock freq. offset	: < ± 20 ppm
Ebi/No	: 7.8 dB
average time sync loss	: > 24 hours
at Ebi/No > 7.8 dB	

INTERNAL 10 MHZ

stability	: ± 10 ppm
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- **BLOCK DIAGRAM**



• TECHNICAL LITERATURE & REFERENCES (ALSO AVAILABLE ON OUR WEBSITE)

Other related products

NTC/2142	Agile IF to L-band up/down converter
NTC/2155	SDH 8PSK IF-satellite Modulator
NTC/2505/ZL	Outdoor Frequency Converter Unit Housing
NTC/3736/xx	Frequency block up converter modules L-band to 50 MHz-18.4 GHz

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