

ESS3000

Multi-Mode Satellite Receiver

FEATURES

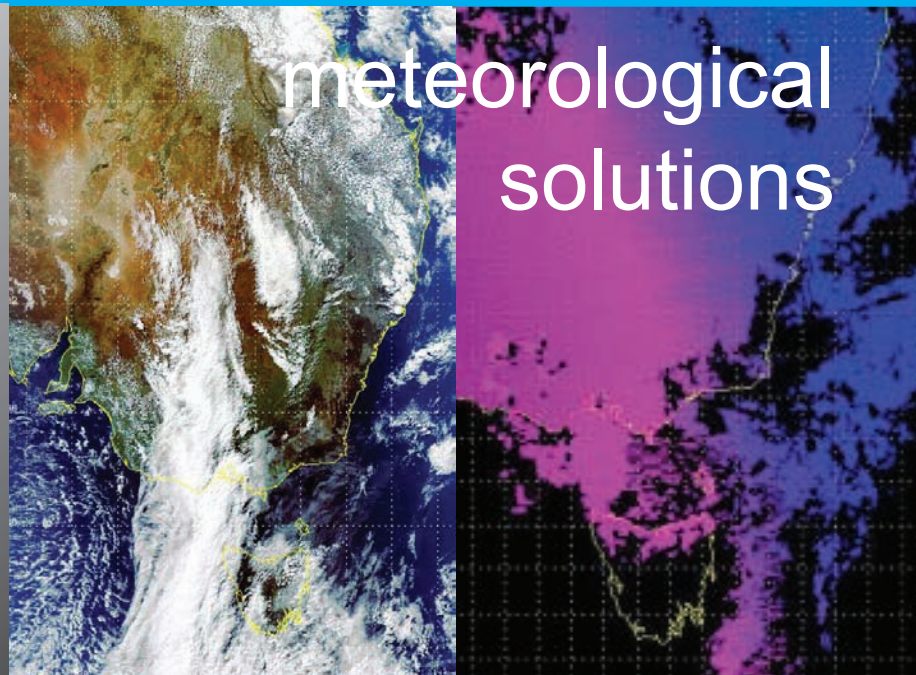
- Fully digital operation
- Upgrade via software configuration
- TCP/IP interface
- Very low demodulation loss (0.6dB)
- HDD drive housing
- Multi-mode satellite capability
- TTL Compatible Clock and Data outputs.
- Ethernet and Serial port command and status links.

The ESS3000 is an all-digital, multi-mode receiver. It performs all the demodulation tasks required to recover raw digital data from weather satellite transmissions.

The ESS3000 is designed to process data from current and future generations of meteorological and remote sensing satellites. New satellite formats can be implemented by software download, thus making upgrading easy.

Special attention has been paid to reducing the demodulation loss of the receiver to less than 0.6dB, ensuring that near theoretical maximum performance is achieved.

RECEIVER



The ESS3000 is an all-digital, multi-mode satellite receiver.

SPECIAL FEATURES:

A significant diversion from traditional satellite demodulator design is the use of TCP/IP over 100 Mbit/sec Ethernet as the primary data output mechanism.

This approach allows a tighter integration of the demodulator output to the follow-on processing tasks, which are typically handled in software.

Another advantage of this approach is that the receiver may be controlled remotely over a TCP/IP network.

The receiver is fully in-field software upgradeable, leading to an extended product life span allowing the support of other and future satellite downlink modes.



SATELLITES RECEIVED BY THE ESS3000

Satellite	Symbol Rate (Msym/s)	Coding	Modulation
Terra	13.125	NRZ-L	OU-QPSK
Aqua	15	NRZ-M	O-QPSK
NOAA HRPT	0.665400	Biphase-L	PSK-67 Deg.
FY1 CHRPT	1.330800	NRZ-L	PSK-67 Deg.
FY2	0.660000	NRZ-L	BPSK
GOES GVAR	2.111360	NRZ-S	BPSK
METOP HRIT	3.500000	NRZ-L	QPSK
MTSAT HRIT	3.500000	PCM/NRZ-M	QPSK
MTSAT LRIT	0.150000	PCM/NRZ-M	BPSK
FY3 HRPT	4.300000	PCM	QPSK
FY3 MPT	18.30000	PCM	QPSK

FUTURE CONFIGURATIONS

The ESS3000 is specifically designed to allow for new configurations to ensure that future satellites within the downlink range of the receiver can be accommodated through a software upgrade. An inbuilt Linux computer simplifies uploading of new configurations. The unique design of the RF front end, utilising optimised filter selection and high speed FPGA based processing, maximises possible configurations. This also allows the receiver to be used for custom applications such as TT&C links with proprietary formats.

TECHNICAL SPECIFICATIONS

Parameter	Specification
Performance	0.6db from theoretical, typical
Input	Dual switched 140 MHz + Doppler +/- 10 KHz IF, -50 dBm +/-10 dB
Output 1	TCP/IP network connection
Output 2	RS232 (for command and status)
Output Parameters (other than data)	Lock, RF level, Viterbi BER, Estimated SNR, Doppler offset
Control Inputs (via TCP/IP or serial port)	Satellite (sets demod type, rate etc), bit rate, test mode
Front Panel Display (2 line LCD)	Signal strength, lock, satellite type, demod type, command and traffic indicators

