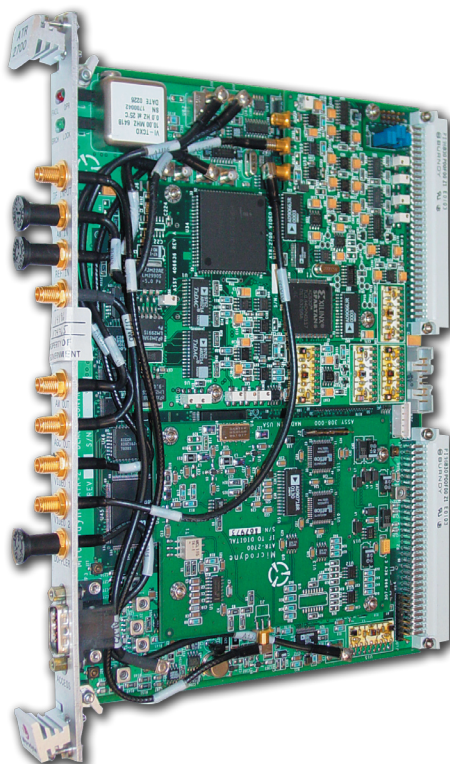


Technical Bulletin

ATR-2770 Series

Digital IF Filter/Demodulator
Ground Products/Microdyne



FEATURES

- High Dynamic Range -50 to -5 dBm
- Three SAW 1st IF Filters for Maximum Unwanted Signal Rejection
- Digital FIR Filter Design Incorporates 20 Standard IF Filter bandwidths and 19 Video Filter bandwidths. Other IF and Video Filters can be added with Software
- DSP based Multimode Demodulator includes FM, PM, BPSK, QPSK, FQPSK*
- Data rates to 20 Mbps, 40 Mbps QPSK
- Linear AGC System with AM Output for Antenna Tracking
- Incorporates a 20 Mbps Bit Synchronizer (optional)

DESCRIPTION

The ATR-2770 is a self contained IF Filter Amplifier/Demodulator designed to process any 70 MHz down converted RF signal.

The unit incorporates Digital FIR Filter Technology to provide the user with 20 preprogrammed IF filters and the capability to upgrade or change the filters with software.

Digital DSP Technology provides full Multimode Demodulation Capability including FM, PM, BPSK, QPSK, FQPSK*, with data rates to 20 Mbps.

Optional 20 Mbps Bit Synchronizer



communications

SPECIFICATIONS

Input Specifications

Input Frequency	70 MHz
Input Impedance	50 Ω , VSWR = 2.0:1 Max
Input Level	50 dBm to -5 dBm

IF Specifications

IF Center Frequency	70 MHz
IF Filter Type	Digital FIR Implementation
IF Filter Bandwidths:	20, 15, 10, 7.5, 6, 5, 4, 3.3, 3, 2.4, 2, 1.5, 1.0, 0.75, 0.5, 0.375, 0.300 MHz, 150, 100, 50 kHz

Reference Oscillator Specifications			
	Internal	External	Output
Frequency	10 MHz	5 or 10 MHz	10 MHz
Frequency Stability	± 1.5 ppm	N/A	± 2 ppm if internal crystal is used
Level	N/A	0 dBm	0 dBm

Temperature Range 0 to 50°C

Mode	FM	PM	BPSK	QPSK FQPSK*
Loop Bandwidth Programmable	1 to 100 Hz	100 to 3 kHz	100 to 3 kHz	100 to 3 kHz
Maximum Bit Rate NRZ-L	17 Mbps	20 Mbps	20 Mbps	20 Mbps/Channel

Type	Signal	Connector	Level
In	IF In	J10 SMA	-10 dBm
In	REF In	J3 SMA	0 dBm
Out	REF Out	J4 SMA	0 dBm
Out	Envelope AM	J5 SMA	1.7 Vpp 50% AM
Out	Doppler Out	J9 SMA	2 Vpp
Out	AGC Out	J6 SMA	0 to 8V
Out	Ch1 Video	J4 SMA	0 to 8V
Out	CH2 Video	J3 SMA	0 to 8V
Out	Soft Decision	D-sub pins 1-7	TTL
I/O	Inter-module Link	D-sub pins 8-13	0 to 5V

AGC Specifications

AGC Type	Envelope Detector
AGC Time Constant	1 ms

AM Specifications

AM Output Level	1.7V p-p @ 50% AM
AM Output Impedance	50 Ohms

Video Output Specifications

Number of Video Outputs	2
Output Impedance	75 Ω , opt. 50 Ω
Nominal Output	4 Vpp
Maximum Output	8 V pp
Coupling	AC or DC
Gain Adjustment	.63 dB in 1 dB steps
Distortion	0.5% max at nominal 1.0% max at max output
Video Filter Types	Digital FIR Implementation
Video Filter Bandwidths	15, 10, 7.5, 5, 3.75, 3, 2.5, 2, 1.65, 1.5, 1.2, 1, 0.75, 0.5, 0.375, 0.250, 0.187, 0.150 MHz (Others available. Consult factory.)

Digital Output Specifications

Digital Soft Decision I	3-bits TTL
Digital Soft Decision Q	3-bits TTL
Soft Decision Clock	1-bits TTL

AM Output Specifications

AM Output Level	2 Vpp for 50 % AM
FM/BPSK/QPSK mode	Non-Coherent AM
PM mode during Acquisition	Non-Coherent AM
PM mode after Acquisition	Envelope or Coherent
Frequency Response	Low end response determined by AGC TC High-end 50 kHz max 40 Watts nominal

Size	Dual Slot 6U "B" size card
Altitude	Operating to 15,000 ft
Altitude Storage	Storage to 30,000 ft
Operating Temperature	0 to 50 degree C
Storage Temperature	-20 to 60 degree C
Humidity	20% to 90% non-condensing
Power	50 Watts nominal



L-3 Communications Telemetry-East/Microdyne

1515 Grundy's Lane, P.O. Box 729 • Bristol, PA 19007

Telephone: (267) 545-7000 • Fax: (267) 545-0100

E-Mail: sales/mktg@L-3com.com • www.L-3com.com/te