Avionics
IFF-7300S
IFF/TACAN AUTOMATED TEST SYSTEM

AEROFLEX
A passion for performance.

Configurable Automated Test System for IFF Transponders/Interrogators and TACAN Interrogators

- Tests TACAN interrogators and simulates ground beacons
- Tests MARK XIIA IFF transponders and interrogators
- Direct-connect to UUT T/R or antenna ports
- Large Touch-screen color display
- Manual or automated testing
- Automatic UUT control via MIL 1553, ARINC 429, and other serial or discrete interfaces

The IFF-7300S is comprised of three major components.

- **ATB-7300S** Control/Interface Unit
- **IFF-45TS** IFF/TACAN Test Set
- **Power Supply** DC/AC

ATB-7300S

The ATB-7300S provides control/monitor of the IFF-45TS, UUT LRU, control head and indicators, via a color touch screen display. The ATB-7300S internal architecture is modular and PXI based. Data bus emulation and test are provided, in addition to synchro/resolver, analog and digital I/O. General purpose instrument configurations with high performance front panel oscilloscope and DMM connections are also provided.

Automated control is facilitated via THORsi, a powerful Aeroflex test executive. The UUT control interface is provided via a Test Unit Adapter cable set. Individual Test Program Sets are available for each LRU. TPS test scripts provide return-to-service, depot-level repair, calibration and verification capability. Automatic and manual test modes are supported.

IFF-45TS

The IFF-45TS AIMS certified bench, lab, manufacturing and depot test instrument tests both transponders and interrogators.

Transponder - 1, 2, 3/A, C, S, 4, 5

Interrogator - 1, 2, 3/A, C, S, 4, 5

DME/TACAN

Crypto Support

- KIT-1C/KIR-1C
- KIT-1A/KIR-1A
- KIV-78
- KIV-6
- KIV-77

AC and DC Power Supplies

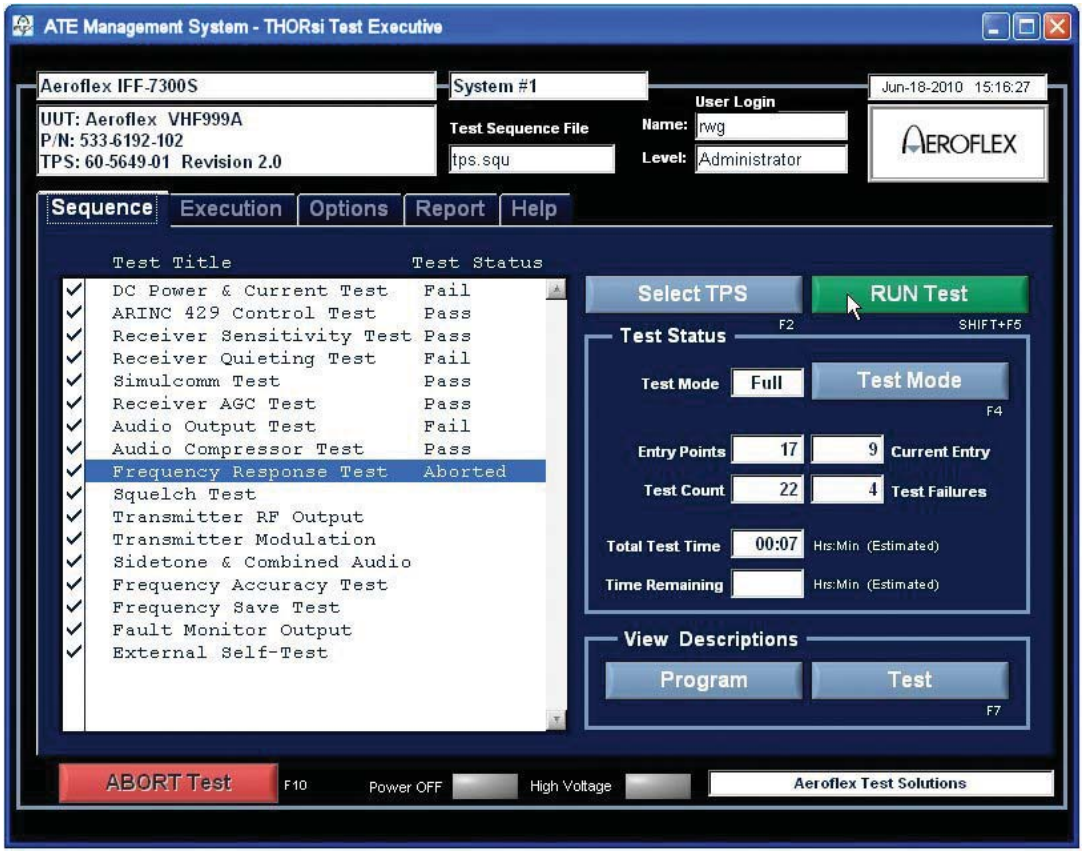
Provides DC (standard) and 400 Hz AC (optional) power for the LRU UUT, eliminating the requirement for an external power supply.

THORsi

The THORsi Test Executive is part of the ATE management system produced by Aeroflex. This powerful test executive features an MS Windows based graphical user interface environment designed for test program set management in both run-time and development modes of operation.

Features of the Main Panel

The main panel shown below is the primary user interface. It controls sequence file operations, user login/logout, selection and execution of test program sets, and the display and printing of test results.

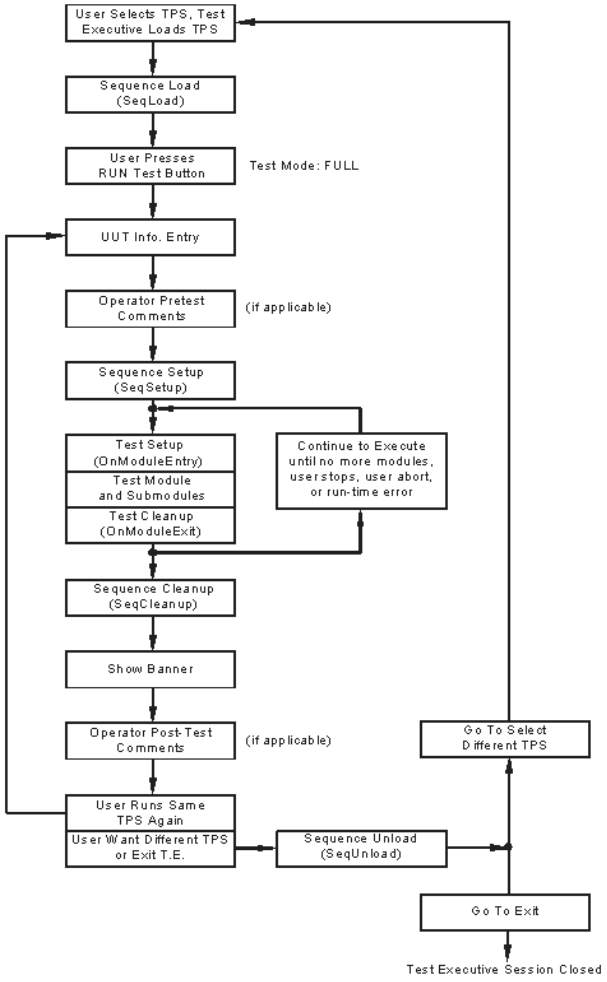


TPS Execution Models

The Test Executive can execute a test sequence in one of two ways, *Full* test or *Partial* test.

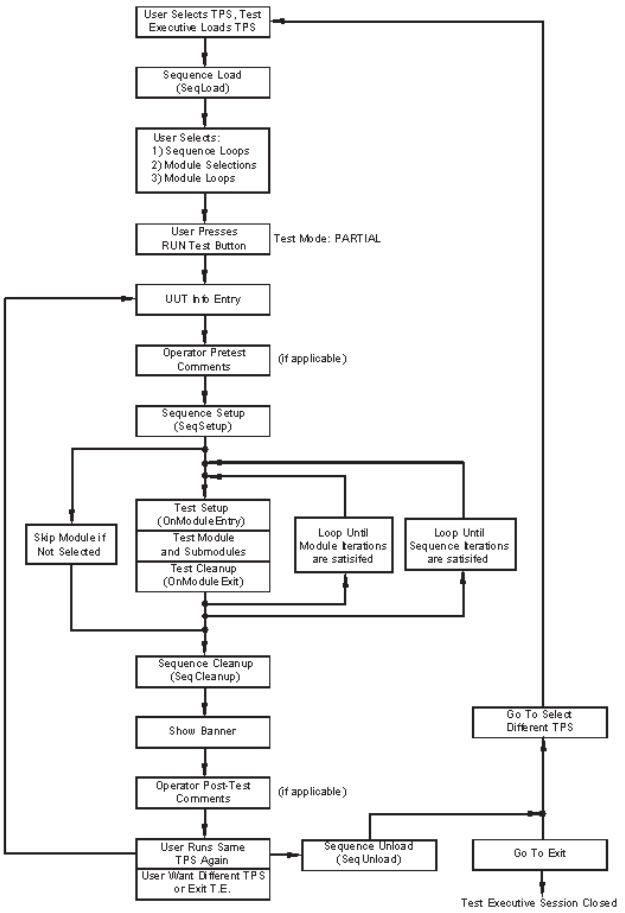
Full Test

Loads and executes a full test run. No sequence looping, module selection or module looping is allowed. The TPS will execute from first module to last module according to the test sequence file definition.



Partial Test

Loads a TPS and executes a partial test run. Partial testing allows the system operator to customize the test flow of the TPS. Sequence looping, module selection and module looping are allowed in combination. The TPS will execute from the first selected module to the last selected module according to system operator choices and settings.



Windows Graphical User Interface

The GUI allows the technician to display multiple instrument windows for IFF-45TS control, TACAN and IFF test panel control, and the THORsi test executive.

SPECIFICATION

GENERAL

Temp Range

-10º C to 55º C

Altitude

3000 meters, max.

Warmup (for specified accuracy)

45 minutes

Size

19.25" wide, 17" high, 24.5" deep

(49 cm x 43.2 cm x 62.2 cm)

Weight

120 lbs. (54.4 kg) with DC power supply

150 lbs. (68 kg) with AC/DC power supply

Safety Compliance

UC 61010-1

CSA C22.2 No. 61010-1

EN 61010-1

EMC

MIL-PRF-28800F

EN 61326-1 Class A

EN 6100-3-2

EN 6100-3-3

IFF-45TS

MODES OF OPERATION

Transponder Testing 1, 2, 3/A, C, S, 4, 5

Interrogator Testing 1, 2, 3/A, C, S, 4, 5

DME/TACAN Testing G/A, INV G/A, BG/A, BA/A, A/A, INV A/A

SIGNAL GENERATOR

Frequency Range

955 to 1223 MHz, 10 kHz resolution

OUTPUT AMPLITUDE

Direct Port

0.0 dBm to -110.0 dBm (into 50 Ω) in 0.1 dB increments

Accuracy @25° ±5°

0.0 dBm to -80.0 dBm	*±0.5 dB*
<-80.0 dBm to -100 dBm	*±[0.5 dB + 0.05 dB per dB below -80 dBm][1]*
<-100.0 dBm	*±[3.0 dB + 0.70 dB per dB below -100 dBm][2]*

Accuracy over full temp

0.0 dBm to -80.0 dBm	*±1.0 dB*
<-80.0 dBm to -100 dBm	*±[1.0 dB + 0.10 dB per dB below -80 dBm][2]*
<-100.0 dBm	*±[3.0 dB + 0.70 dB per dB below -100 dBm][2]*

Antenna Port

+30.0 dBm to -60.0 dBm (into 50 ohms) in 0.1 dB increments

Accuracy @25° ±5°

Power ≥-30.0 dBm	*±1.0 dB*
Power <-30.0 dBm	*±[1.0 dB + 0.033 dB per dB below -30 dBm][2]*

Accuracy over full temp

Power ≥-30.0 dBm	*±2.0 dB*
Power <-30.0 dBm	*±[2.0 dB + 0.066 dB per dB below -30 dBm][2]*

Pulse Formats

Transponder/Interrogator	*1, 2, 3/A, C, S*
Secure Modes	*4, 5*
Modes 3/A, C, S comply with RTCA/DO-181C; Modes 1, 2,4, 5 comply with DOD AIMS 03-1000A	
DME/TACAN	*G/A, A/A, INVERSE G/A, INVERSE A/A, BEACON G/A, BEACON A/A*

Pulse Position Deviations

XPDR		*±1 μs*
INT	*Non-Mode 5*	*±1 μs*
INT	*Mode 5*	*±0.25 μs*
	Accuracy [XPDR/INT]	*±10 ns*
*TACAN**		*±12.0 μs*
	Accuracy [TACAN]	*±50 ns*

Pulse Width Deviations

XPDR/INT		*±0.5 μs*
	Accuracy [XPDR/INT]	*±10 ns*
TACAN		*±5.5 μs*
	Accuracy [TACAN]	*±50 ns*

NOTES

*[1] Hence, for a power setting of -85 dBm, the accuracy will be ±[0.5 + 0.05*5], or ±0.75 dB, and for a power setting of -95 dBm, the accuracy will be ±[0.5 + 0.05*15], or ±[1.25 dB]*

[2] As per example above

** Pulse overlap not allowed*

Pulse Amplitude

XPDR/INT	*+5 to -15 dB*
TACAN	*±5.5 μs*

Interference Pulse Characteristics (1 or 2 pulses)

Position		*1st pulse relative to reference pulse*
Offset range		
	XPDR	*-44 μs to 400 μs*
	INT	*-1 μs to 400 μs*
	Accuracy	*±10 ns*

Interference Pulse Spacing (multiple pulse interference mode)

Range		*0 to the end of the 1st pulse range*
	Max 2nd pulse position	*400 μs - 1st pulse position*
	Accuracy	*±10 ns*

Range Delay

Range		
	DME/TACAN	*-1 to 400.00 nmi*
	INT	*0 to 400.00 nmi*
	Accuracy	*±0.05 nmi*

Diversity

Timing (either channel)	*0 to ±1 μs, ±10 ns accuracy*
Amplitude Variation	*±20 dB between outputs for specified accuracy*

Echo

Timing (either channel)	*0 to -1000 ns, <10 ns resolution, ±10 ns accuracy*
DME/TACAN	*30 nmi, fixed*
Amplitude Variation	*+5 to -15 dB, relative to PI*

Channel Signal Assignment

Transponder Test	*Top/Bottom*
Interrogator Test	*Sum/Difference*
TACAN	*Top/Bottom*

Interrogation Generator

Independent/Unique Interrogations 1-12	
Fixed Mode	
SIF Mode	*1-10000 PRF*
Mode 5	*1-1200 PRF*
Mode S	*1-2500 PRF*
Mode 4	*1-3500 PRF*
Double/Supermode	
Spacing between interrogations	
(slaved delay)	*0-400 μs*
Pair generation rate	*1-400 PRF*
Supermode interrogations	*2 interrogations*
Burst Mode	
Bursts/trigger	*1-1000 or infinite*
Interrogations/burst	*1-2500*
Interrogation rate	
(within a burst)	*1-2500 PRF*
Spacing between	
burst sequences	*0.1-20 sec*
Interlaced Mode	
Interlace ratio	*1:1 - 1:63*
Group rate	*1-400 PRF*

Replay Generator

Independent/Unique Replies	*1-12*
Data and Range	*Individually configured*
Selectable Modes	*1,2,3/A,C,S,4,5*
Selectable Efficiency	*1-100%*

Spectral Purity Residual Level

Harmonics	
Direct	*<50 dBc*
Antenna	*<40 dBc*
Spurious	
(>modulation BW)	*<60 dBc, 350-1800 MHz*
Phase Noise	*<80 dBc/Hz @ 100 kHz*

SIGNAL RECEIVER MEASUREMENTS

Frequency Range

1020 to 1155 MHz

Input Amplitude

Pulse Power Measurements	**25 ± 0.5°C**	**-10° to 55°C**
Direct +30 dBm to +66 dBm	± 0.5 dBm	± 1 dB
Antenna -40 to +30 dBm	± 1 dB	± 2 dB
Resolution	0.01 dB	0.01 dB

Pulse to Pulse Spacing

XPDR/INT	
Non-Mode 5	*±0.3 μs*
Mode 5	*±0.0625 μs*
Accuracy	*±10 ns*
TACAN	*±0.5 μs*
Accuracy	*±50 ns*

Pulse Width

XPDR/INT	*±0.200 μs*
Accuracy	*±10 ns*
TACAN	*±0.5 μs*
Accuracy	*±50 ns*

Reply Delay

Accuracy	*±20 ns*

Reply Delay Jitter

Accuracy	*±20 ns*

Frequency

Accuracy	*±50 kHz*

% Reply

Range	*0-100% for each interrogation type*
Resolution	*0.0125% (for sample size = 8000)*
Sample Size	*1-8000 interrogations*

SPECIFIC APPLICATION

TACAN/DME

Pulse Width

Range (50% to 50%)	*3.5 μs to 9.0 μs*
Accuracy	*±0.1 μs*

Velocity

Range	*0 to 9999 Kts*
Accuracy	*±0.001%*

Acceleration

Range	*0 to 400 ft/s/s*
Accuracy	*±0.05% of setting*

Squitter

Range	*10 to 8000 Hz*
Accuracy	*10 Hz or 2%, whichever is greater*
Distribution	*Compliant with ARINC 568 @ 2700 Hz*

A/A Interrogation Rate

Range	*0 to 3999 Hz*
Resolution	*1 Hz*
Accuracy	*±0.1% ±1 count*

Secure IFF Compatibility

Appliqué Interface (standard)
KIV-77 - AIMS Type B, Mode 4/5

Appliqué Interface (optional upgrade)
KIV-78 - AIMS Type A, Mode 4/5
KIV-6 - Mode 4

External Crypto Interface (optional upgrade)
KIT-1(A/C)/KIR-1(A/C) cables (external power cable)

Mode 4 Internal Crypto Simulator (standard)
Word A/B

Mode 5 Internal Crypto Simulator (standard)
As defined by the U.S. Navy Mode 5 Program Office

INTERFACE SIGNALS

Analog Signal Ports (programmable output) 2

Programmable Sources Various	
Level	*±1 V into 50 Ω*

Trigger Out (front panel)

Programmable Source	*TX timing ref, RX detection*
Level	*3.3 V logic*

Trigger In (front panel)

Functions	*Interrogation Trigger*
	Reply Trigger
Level	*3.3 or 5 V logic*

Programmable Outputs

15, rear panel, 3.3 V

Programmable Inputs

15, rear panel, 3.3. or 5 V

Suppression Out

Amplitude into 2 KΩ	*12 V or 80 V*
Variable Pulse Width	*0.25 µs - 300 µs*

Suppression In

Amplitude	*24 V nominal*
Impedance	*2 KΩ*
Action	*Inhibits response to incoming signal*

IFF-45TS GENERAL

Frequency/Time Reference

2.5 ppm composed of 1 ppm/year aging and 1 ppm accuracy over Temp

External Reference Input

10 dBm nominal

VSWR

Direct	*1.2:1 over frequency range*
Antenna	*2.5:1 over frequency range*

ATB-7300S CONTROL/INTERFACE

SYNCHRO/RESOLVER INTERFACE

Card Format	*Single 3U Slot PXI*
Input Channels	
Input format	*Synchro or Resolver 8 channels*
Resolution	*16 bit (Up to 24 bit for two-speed mode)*
Accuracy	*±1 arc minute for single speed inputs (±1 arc minute divided by gear ratio for two-speed)*
Tracking Rate	*150 RPS @ 400 Hz*
Bandwidth	*40 Hz @ 400 Hz*
Input Voltage	*Resolver: 2-28 V L-L or 90 V L-L*
Synchro	*11.8 V L-L or 90 V L-L*
Isolation	*Transformer*
Input Impedance	*26 V L-L or less: 40 kΩ min. 90 V L-L: 100 kΩ min.*
Reference/Input	*2-115 Vrms, @ 5 ma max Transformer isolated*
Frequency	*400 Hz*
Phase shift:	*The synthetic reference circuit automatically compensates for phase shifts between the transducer excitations and outputup to ±60°*
Velocity, Digital	*16 bit resolution; Linearity: 0.1%*
Two-speed ratio	*Programmable from 2 to 255*
Output Channels	
Output format	*Synchro or Resolver 6 channels*
Resolution	*16 bits (0.0055°)*
	Accuracy: 30 arc seconds (0.008°) at 0.3 VA
	±1 arc minute (0.017°) at 1.2 VA. No load to full load
Two-Speed ratio	*Programmable from 2 to 255*
Rotation	*Programmable Start and Stop angles. 0 rps to 13.5 rps with a resolution of 0.15°/sec.*
	Stepping rate is 16 bits to 3.4 rps, then is automatically reduced to 14 bits up to 13.5 rps
Isolation	*Transformer*
Output voltage	*2-90 V L-L*
Output load	*1.2 VA max./Channel. Short circuit protected (5000 Ω reactive at 90 V L-L; Synchro, 90 Ω reactive at 11.8 Synchro, 110 Ω reactive at 11.8 V L-L Resolver)*
Regulation	*5% max. No load to Full load*
Reference voltage	*2-26 VAC, 115 VAC Transformer Isolated*
Reference frequency	*400 Hz Reference current: 0.5 ma max./Channel*
Phase shift	*5° max. between output and reference*
Settling time	*Less than 100 microseconds*
Reference Supply	*Voltage: 2-28 Vrms programmable, resolution 0.1 Vrms*
Frequency	*400 Hz ±1 Hz*
Regulation	*10 % max. No load to full load*
Output power	*5 VA max. @ 40° min. inductive*

ARINC DATA BUS INTERFACE

Card Format	*Single 3U Slot PXI*
Internal wrap around testing	
Input Channels	
Input Format	*ARINC 429: 4 channels*
	ARINC 582: 4 channels
	ARINC 561-568: 1 channel
ARINC 429/582 Data	
Structure	*32 bits*
Logic 1	
	Line A +5 V ±1 V
	Line B -5 V ±1 V
Logic 0	*Line A -5 V ±1 V*
	Line B -5 V ±1 V
Clock Rate	
582	*11 kHz ±3.5 kHz*
429 Low Speed	*12.5 kHz ±3.5 kHz*
429 Hi Speed	*100 kHz ±3.5 kHz*
Programmable interrupt generation	
Bit assignment	*Programmable*
FIFO depth	*512 words*
Label memory	*256 words*
TACAN Data Monitored	*Distance, Bearing, Range Rate, Stored Control, Time to Station BIT Station Word*
ARINC 561/568 Data	
Structure	*6 wire, clock, sync, data*
Logic 1	*+12 V ±2 V*
Logic 0	*0 V ±1 V*
Clock Rate	*11 kHz ±3.5 kHz*
Load	*600 Ω*
Distance	*Label 201*

Output Channels

Output Format	ARINC 429: 4 channels
	ARINC 582: 4 channels
	ARINC 561/568: 1 channel
ARINC 429/582 Data	
Structure	32 bits
Logic 1	
	Line A +5 V ±1 V
	Line B -5 V ±1 V
Logic 0	Line A -5 V ±1 V
	Line B -5 V ±1 V
Clock Rate	
582	11 kHz ±3.5 kHz
429 Low Speed	12.5 kHz ±3.5 kHz
429 Hi Speed	100 kHz ±3.5 kHz
Programmable interrupt generation	
Bit assignment	Programmable
FIFO depth	512 words
Label memory	256 words
TACAN Data Generated	Distance, Bearing, Range Rate, Stored Control, Time to Station BIT Station Word
ARINC 561/568 Data	
Structure	6 wire, clock, sync, data
Logic 1	+12 V ±2 V
Logic 0	0 V ±1 V
Clock Rate	11 kHz ±3.5 kHz
Load	600 Ω
Distance Data Generated	Label 201

MIL STD 1553B DATA BUS INTERFACE

Card Format	Single 3U Slot PXI

General

Compliant	MIL-STD-1553B notice 4
Channels	2 dual-redundant (A) (B)
Coupling	Direct or Transformer
Function	1 BC, 32 RT & 1 BM or
Time synchronization	IRG-B
Receive timestamp resolution	1 µs
Internal Memory	64K words
Message formats	BC-RT, RT-BC, RT-RT, Broadcast, Control

Bus Controller

- Automatic Retries
- Programmable gap times
- Frame auto repeat
- Programmable response timeout
- Mode codes, Broadcast mode, Major/Minor frames

Remote Terminal

- Programmable command Illegalization
- Programmable Single Message or double buffering or circular buffering
- Interrupts on mode codes
- BUSY Bit programmable by sub address
- Multiple RT buffers
- Status response

Bus Monitor

- Word monitor
- Selective message monitor
- Bit count error
- Inverted sync error
- Mid-Bit and Mid-Sync
- Programmable response
- Parity error
- Respond with wrong address
- Bi-Phase error
- Response on wrong bus
- Word count error
- Message gap error

OSCILLOSCOPE

Card Format	Single 3U Slot PXI

Input

Channels	2 Isolated Inputs
Sample Rate	250 MS/s real time, 5 GS/s equivalent
Bandwidth	125 MHz
Bandwidth Limit Filter	20 MHz noise filter
Input Voltage	300 V max
Voltage Range	40 mVpp to 40 Vpp
DC Accuracy	±1.5% of input +0.3% of FS +200 µV
Input Coupling	AC, DC, GND
Vertical Resolution	8 bits
Input Impedance	50 Ω or 1 MΩ
Memory	8 MB (32,768 Records)

Trigger

Trigger Modes	Edge, Hysterisis, Window, Video, Digital, Immediate, software
Trigger sources	CH 0, CH 1, Trig, PXI Trig 0-6, PXI Star
Slope	Rising or Falling
Trigger Sensitivity	CH 0 and CH 1 5% FS
Trigger	0.5 Vpp
Time Resolution	40 ps
Rearm Time	2 µs

5 1/2 DIGIT MULTIMETER

Card Format	Single 3U Slot PXI
Auto Ranging	
Resolution	16 to 19 bits (measurement rate dependent)
AD Count	240,000
Measurement Rate	1 to 100 S/s

Voltage DC

Ranges	Resolution	Accuracy (% of reading)
240 mV	1 µV	0.015 + 5 µV
2.4 V	10 µV	0.014 + 8 µV
24 V	100 µV	0.02 + 500 µV
240 V	1 mV	0.02 + 1.2 mV

Voltage AC

Ranges	Resolution	Accuracy (% of reading)
240 mV	1 µV	0.15 + 150 µV
2.4 V	10 µV	0.25 + 10 mV
24 V	100 µV	0.15 + 100 mV
240 V	1 mV	0.25 + 400 mV
Common Mode	>100 db	

Current DC

Ranges	Resolution	Accuracy (% of reading)
2.4 mA	10 nA	0.04 + 7 µA
24 mA	100 nA	0.04 + 9 µA
240 mA	1 µA	0.04 + 60 µA
2.4 A	10 µA	0.06 + 160 µA

Current AC

Ranges	Resolution	Accuracy (% of reading)
2.4 mA	10 nA	0.3 + 20 µA
24 mA	100 nA	0.2 + 100 µA
240 mA	1 µA	0.17 + 1 mA
2.4 A	10 µA	0.31 + 100 µA

Resistance (2 wire)

Ranges	Resolution	Accuracy (% of reading)
240 Ω	1 mΩ	0.02 +100 mΩ
2.4 kΩ	10 mΩ	0.02 + 200 mΩ
24 kΩ	100 mΩ	0.02 + 200 mΩ
240 kΩ	1 Ω	0.06 + 10 Ω
2.4 MΩ	10 Ω	0.06 + 25 Ω
24 MΩ	100 Ω	0.07 + 25 kΩ

POWER SUPPLY

DC SUPPLY

Format	1U Rack
Input Voltage	85 ~ 265 Vac
Input Frequency	47 ~ 63 Hz, single phase
Output Power	750 W
Output Voltage	0 to 40 V DC
Maximum Current	15 A
Regulation	4 mV
Ripple	8 mV RMS
Voltage Programming	
Accuracy	80 mV

AC SUPPLY

Format	2U Rack
Input Voltage	115 Vrms ±10% or 230 Vrms ±10% 115 Vrms ±10 %
Current	<8.5 Arms @ 115 V
	<4.4 Arms @ 230 V
Frequency	47 to 63 Hz
Power Factor	0.97 (typical @ full load)
Efficiency	80%
Output Voltage	Hi: 0 - 300 Vrms
	Low: 0 - 150 Vrms
Accuracy	0.1% FS
Setting Accuracy	(ALC mode ON) 0.1% FS (from 5 V to FS)
Programming Resolution	0.1 V
Max. Current	Hi: 3.25 Arms
	Low: 6.5 Arms
Accuracy	0.5% FS
Peak Current	Hi: 10 A Peak
	Low: 20 A Peak
AC Power	750 VA
Phase Output	1
Distortion	<1% THD
Frequency	16-1000 Hz
Resolution	0.01 Hz (16 - 81.91 Hz),
	0.1 Hz (82.0 - 819.1 Hz)
	1 Hz (820 - 1000 Hz)
Accuracy	0.025%

VERSIONS, OPTIONS AND ACCESSORIES

Base System and Options

90973	IFF7300S-01 Test System with IFF45TS-A (Modes 1, 2, 3/A, 4, C, S) and DC LRU power supply
90974	IFF7300S-02 Test System with IFF45TS-A (Modes 1, 2, 3/A, 4, C, S) and AC/DC LRU power supply
90975	IFF7300S-03 Test System with IFF45TS (Modes 1, 2, 3/A, 4, 5, C, S) and DC LRU power supply. For NATO countries requiring Mode 5.
90976	IFF7300S-04 Test System with IFF45TS (Modes 1, 2, 3/A, 4, 5, C, S) and AC/DC LRU power supply. For NATO countries requiring Mode 5.

Optional Accessories

88631	45TSOPT6 KIV-77 Adapter
89879	45TSOPT8 KIT/KIR Adapter
66075	45TSOPT9 KIV-78 Adapter
90983	IFF7300S-OPT01 MIL-STD-1553 bus control
90984	IFF7300S-OPT02 MIL-STD-1553 bus control with parametric measurement
90986	IFF7300S-OPT04 Synchro/Resolver Receiver (Required for TACAN testing)
90987	IFF7300S-OPT05 Synchro/Resolver Transmitter (Required for TACAN and indicator testing)
91073	IFF7300S-OPT07 TPS Developer Kit, Transponder Software tools and TPS template to support user TPS development. (Refer to separate data sheet.)
91074	IFF7300S-OPT08 TPS Developer Kit, TACAN Software tools and TPS template to support user TPS development.
TBD	IFF7300S-OPT09 TPS Developer Kit, Interrogator Software tools and TPS template to support user TPS development.

Test Program Sets

90977	TPS, AN/APX-72 Transponders, Level 1 testing
88518	TPS, AN/APX-100 Transponders, panel mount variants, Level 1 testing
92014	TPS, AN/APX-100 Transponders, panel mount variants, Level 2 testing
90768	TPS, AN/APX-100 Transponders, remote mount variants, Level 1 testing
92015	TPS, AN/APX-100 Transponders, remote mount variants, Level 2 testing
90997	TPS, AN/APX-100 Transponders, 1553 bus variants, Level 1 testing
90978	TPS, AN/APX-101 Transponders, Level 1 testing
90982	System self-test cables and software

Example Configurations

IFF-7300S for AN/APX-100 testing, panel mount and remote mount
Specify 90973 with 88518, 90768 and 90982

IFF-7300S for AN/APX-101 testing
Specify 90973 with 90983, 90978 and 90982

EXPORT CONTROL:

This product is controlled for export under the International Traffic in Arms Regulations (ITAR). A license from the U.S. Department of State is required prior to the export of this product from the United States.

EXPORT WARNING:

Aeroflex's military products are controlled for export under the International Traffic in Arms Regulations (ITAR) and may not be sold or proposed or offered for sale to certain countries including: Belarus, Burma, China, Cuba, Haiti, Iran, Liberia, Libya, North Korea, Somalia, Syria, Sudan, and Vietnam. See ITAR 126.1 for complete information.

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