

**Aumictech**

Test & measurement • bought, sold, repaired, calibrated

Data Sheet

August 15, 2026

ABACO SYSTEMS / SBS / GREENSPRING

Abaco Systems / SBS / Greenspring IP-Altera / IP-Altera-RO Digital I/O IndustryPack Module

The Abaco Systems IP-Altera / IP-Altera-RO is a single-wide IndustryPack module that delivers 28 programmable digital I/O lines for custom protocol implementation and non-standard signal interfacing. Built around an Altera 10K40-3 FPGA, this module combines 20 differential I/O lines with 8 TTL I/O lines, each with independently programmable direction. The design integrates LineSafe ESD protection on TTL channels and socketed termination resistors on differential lines, making it ideal for aerospace and satellite test applications requiring flexible digital I/O control. Compatibility & Integration Requires user-supplied Altera Development System for custom design implementation. Supplied design file-set includes IndustryPack bus control interface, example digital I/O implementation, interrupt handling, and ID PROM logic. Aumictech offers NIST-traceable calibration and repair for the Abaco Systems IP-Altera / IP-Altera-RO.

**MODEL****Abaco Systems /
SBS / Greenspring
IP-Altera-RO****CALIBRATION****Available on
request****CONDITION****Used****STATUS****In stock****RFQ / SKU****IP-Altera-RO****LISTING**<https://aumictechlabs.com/products/ip-altera-ro-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Abaco Systems IP-Altera / IP-Altera-RO is a single-wide IndustryPack module that delivers 28 programmable digital I/O lines for custom protocol implementation and non-standard signal

interfacing. Built around an Altera 10K40-3 FPGA, this module combines 20 differential I/O lines with 8 TTL I/O lines, each with independently programmable direction. The design integrates LineSafe ESD protection on TTL channels and socketed termination resistors on differential lines, making it ideal for aerospace and satellite test applications requiring flexible digital I/O control.

Technical Specifications

Digital I/O Architecture: 28 total lines - 20 differential, 8 TTL

FPGA: Altera 10K40-3

Bus Interface: 32 MHz IP Specification with 1 wait state

Programmability: I/O direction configurable per line

Reference Output: 1.5 V on designated pin for differential receiver biasing

Form Factor: Single-wide IndustryPack

Key Features

Differential I/O lines feature individual output enable bits and socketed termination resistors

TTL I/O lines include tri-state buffers and LineSafe ESD protection

Altera 7.1 design file-set with schematic, ACF, simulation, and vector files on included 3.5-inch High-Density floppy disk

Design kit (IP-Altera-422) includes 50-pin ribbon cable, terminal block, printed schematics, Bill of Materials, assembly drawing, and User's Manual

Royalty-free license to modify and use supplied design files

Typical Applications

Satellite and aerospace test environments

Custom digital protocol implementation

Non-standard communication interface development

Systems requiring programmable differential and TTL signal routing

Compatibility & Integration

Requires user-supplied Altera Development System for custom design implementation. Supplied design file-set includes IndustryPack bus control interface, example digital I/O implementation, interrupt handling, and ID PROM logic.

IPALTERARO Characteristics / Specifications

PARAMETER	VALUE
Model	IP-Altera-RO
Instrument Type	Altera FPGA IndustryPack
Card Format	single wide IndustryPack ANSI VITA 4
Logic Device Class	Altera programmable logic
Module Width	single wide
Mezzanine Standard	ANSI VITA 4 IndustryPack
Carrier Interface	IndustryPack logic interface
Related Model	IP-Altera-TTL
Product Line	Greenspring SBS Abaco Altera IP family
Configuration Class	user configurable FPGA
Catalog Form	IndustryPack modular I/O
Operating Class	commercial IndustryPack module
Host Bus Width Class	IndustryPack 16-bit style logic interface
Id Prom	IndustryPack ID PROM supported class
Dimensions Typical Ip	1.800 by 3.900 by 0.340 inches maximum
Programming Model	user logic in Altera device
Family Purpose	custom digital I/O and state machines
Mechanical Height Class	single wide IP
Connector Class	IndustryPack I/O and logic connectors
Logic Connector	IndustryPack logic interfaceIOConnector: IndustryPack 50-pin I/O class
Module Width Class	single wide unless noted
Typical Length	3.900 inches
Typical Width	1.800 inches

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	IP-Altera-R0
Instrument Type	Altera FPGA IndustryPack
Card Format	single wide IndustryPack ANSI VITA 4
Logic Device Class	Altera programmable logic
Module Width	single wide
Mezzanine Standard	ANSI VITA 4 IndustryPack
Carrier Interface	IndustryPack logic interface
Related Model	IP-Altera-TTL
Product Line	Greenspring SBS Abaco Altera IP family
Configuration Class	user configurable FPGA
Catalog Form	IndustryPack modular I/O
Operating Class	commercial IndustryPack module
Host Bus Width Class	IndustryPack 16-bit style logic interface
Id Prom	IndustryPack ID PROM supported class
Dimensions Typical Ip	1.800 by 3.900 by 0.340 inches maximum
Programming Model	user logic in Altera device
Family Purpose	custom digital I/O and state machines
Mechanical Height Class	single wide IP
Connector Class	IndustryPack I/O and logic connectors
Logic Connector	IndustryPack logic interfaceIOConnector: IndustryPack 50-pin I/O class
Module Width Class	single wide unless noted
Typical Length	3.900 inches
Typical Width	1.800 inches
Notes	
From Greenspring SBS Abaco IP-Altera-R0 product listings. Device density pinout and R0 configuration file identity are assembly specific per OEM documentation.	

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 15, 2026

Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.