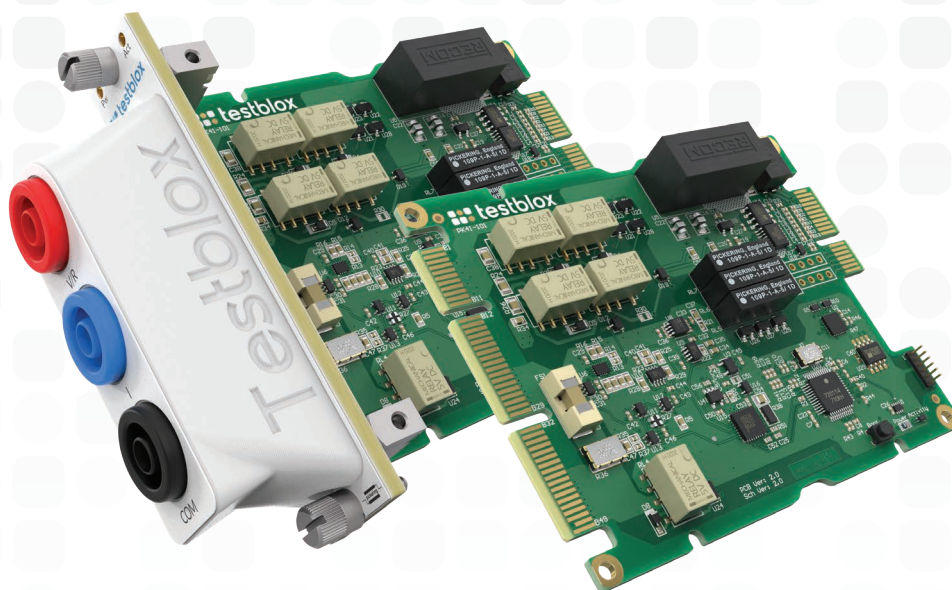




Testblox PK41-101

4.5 Digit Digital Multimeter



The PK41-101 is a compact Testblox digital multimeter for voltage, current, resistance, diode and continuity measurements in automated functional test systems.

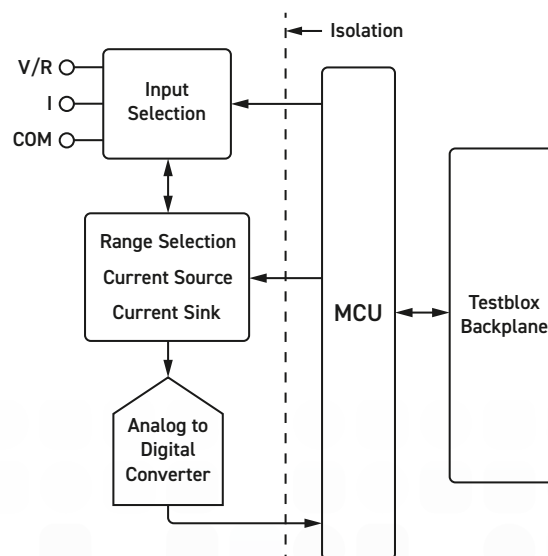
The on-board microprocessor performs auto-ranging, auto-zeroing and self calibration so results require little software overhead. Measurements are done with a high precision ADC, providing the

highest accuracy at slower speeds while allowing for faster sampling for waveform capture and analysis.

The PK41-101 is available with a front panel allowing measurements to be made using 4mm banana connectors. Alternatively it can be supplied without a front panel so user connections can be made directly to the module's edge connector. The module also has the facility to connect to the Testblox analog backplane, allowing measurements to be made directly from Testblox switching modules.

Functionality

- 4.5 Digit Accuracy
- DC Voltage Measurement Ranges of $\pm 6\text{ V}$ and $\pm 60\text{ V}$
- AC Voltage Measurements Ranges of 6 Vrms and 60 Vrms
- Fused DC/AC Current Measurement up to 3 A
- 2-Wire Resistance Measurement from $0.1\ \Omega$ up to $10\text{ M}\Omega$
- Diode Test & Continuity Functions
- Direct Connection to Switching Over the Testblox Analog Backplane



Architecture of the PK41-101 Multimeter



Specifications

Voltage measurement	
DC voltage ranges	±6 V, ±60 V
AC voltage ranges	6 Vrms, 60 Vrms
Input impedance	10 MΩ
Typical DC voltage accuracy	0.1 % of range
Typical AC voltage accuracy	0.1 % for sine wave. Crest factor of 1.41
Typical AC RMS settling time	Approximately 1 second
Current measurement	
Maximum current	±3 A, fused
Current shunt	5 mΩ
DC current target accuracy	±1 mA on the 3 A range
AC current range	Sine-wave RMS; bandwidth and accuracy TBD
Current range note	Single shunt range is optimized for higher current measurements; low-current accuracy is TBD

Resistance measurement	
Measurement mode	2-wire, autoranging
Overall range	0.1 Ω to 10 MΩ
50 Ω range	50 mA maximum burden
100 Ω range	25 mA maximum burden
1 kΩ range	2.5 mA maximum burden
10 kΩ range	0.25 mA maximum burden
100 kΩ range	0.025 mA maximum burden
1 MΩ range	2.5 μA maximum burden
5 MΩ range	0.5 μA maximum burden
10 MΩ range	0.05 μA maximum burden
Resistance accuracy	TBD
Diode and continuity	
Diode test	Supported; source current, measurement range and voltage limits TBD
Continuity	Supported; threshold and response time TBD
Isolation and common mode	
Functional isolation	1.5 kV
DC common mode rejection	TBD
AC common mode rejection	TBD

Power Requirements	
Input Voltage Range	TBD
Current	TBD



Specifications

Mechanical/Environmental	
Module Dimensions	90 mm x 69 mm (without front panel)
Module Weight	<100 g
Connector Durability (mating life):	
Backplane Connector	>100 cycles
Front-edge Connector	>100 cycles
Front-panel Connector	>100 cycles
Module insertion and removal	Modules are not hot swappable
Environmental:	
Operating Temperature	0 °C to +55 °C
Storage Temperature	-20 °C to +75 °C
Relative Humidity	Up to 90 % non-condensing
Maximum altitude	5000 m

Safety & CE Compliance	
Modules are fully CE compliant and meet applicable EU directives	
Low-voltage safety	EN61010-1:2010
EMC Immunity	EN61326-1:2013
Emissions	EN55011:2009+A1:2010

Product Order Codes

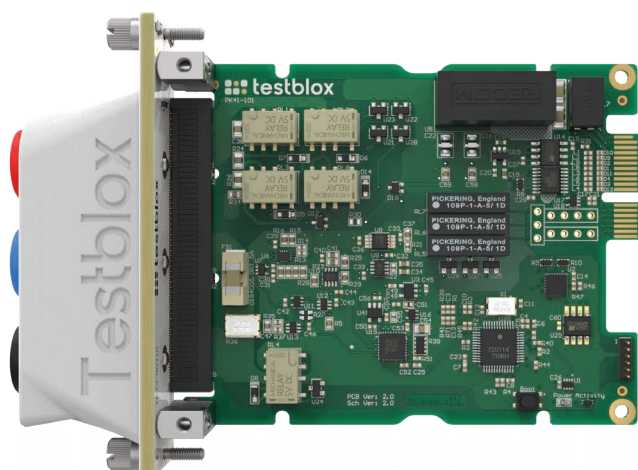
Testblox 4.5 Digit DMM with I/O edge connector **PK41-101-000**

Testblox 4.5 Digit DMM with 3x Female 4 mm Banana front panel connectors **PK41-101-203**

Single-Module USB Type-C Backplane **TB92-001**

Three-Module USB Type-C Horizontal Backplane **TB93-003-001**

Four-Module USB-Type-C Vertical Backplane **TB94-004-001**

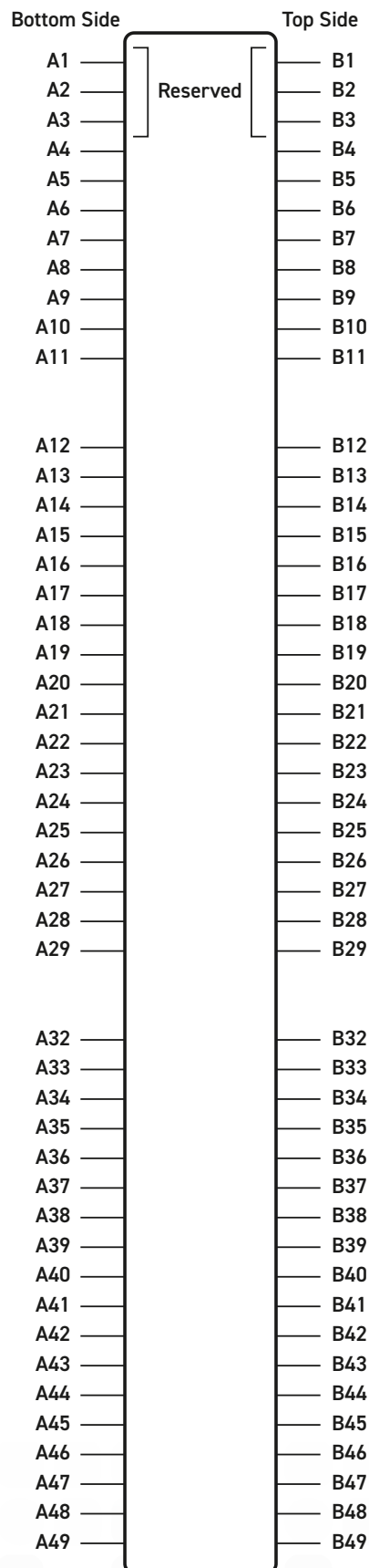




Pinout - Front Edge Connector

Pinout for Front Connector - PK41-101-000

Pin A1 - Reserved	Pin B1 - Reserved
Pin A2 - Reserved	Pin B2 - Reserved
Pin A3 - Reserved	Pin B3 - Reserved
Pin A4 - Reserved	Pin B4 - Reserved
Pin A5 - Volts In	Pin B5 - Volts In
Pin A6 - Volts In	Pin B6 - Volts In
Pin A7 - Volts In	Pin B7 - Volts In
Pin A8 - Volts In	Pin B8 - Volts In
Pin A9 - Volts In	Pin B9 - Volts In
Pin A10 - Volts In	Pin B10 - Volts In
Pin A11 - Volts In	Pin B11 - Volts In
Pin A12 - NC	Pin B12 - NC
Pin A13 - NC	Pin B13 - NC
Pin A14 - NC	Pin B14 - NC
Pin A15 - NC	Pin B15 - NC
Pin A16 - NC	Pin B16 - NC
Pin A17 - NC	Pin B17 - NC
Pin A18 - NC	Pin B18 - NC
Pin A19 - NC	Pin B19 - NC
Pin A20 - NC	Pin B20 - NC
Pin A21 - NC	Pin B21 - NC
Pin A22 - NC	Pin B22 - NC
Pin A23 - Current In	Pin B23 - Current In
Pin A24 - Current In	Pin B24 - Current In
Pin A25 - Current In	Pin B25 - Current In
Pin A26 - Current In	Pin B26 - Current In
Pin A27 - Current In	Pin B27 - Current In
Pin A28 - Current In	Pin B28 - Current In
Pin A29 - Current In	Pin B29 - Current In
Pin A32 - NC	Pin B32 - NC
Pin A33 - NC	Pin B33 - NC
Pin A34 - NC	Pin B34 - NC
Pin A35 - NC	Pin B35 - NC
Pin A36 - NC	Pin B36 - NC
Pin A37 - NC	Pin B37 - NC
Pin A38 - NC	Pin B38 - NC
Pin A39 - NC	Pin B39 - NC
Pin A40 - NC	Pin B40 - NC
Pin A41 - NC	Pin B41 - NC
Pin A42 - NC	Pin B42 - NC
Pin A43 - Common	Pin B43 - Common
Pin A44 - Common	Pin B44 - Common
Pin A45 - Common	Pin B45 - Common
Pin A46 - Common	Pin B46 - Common
Pin A47 - Common	Pin B47 - Common
Pin A48 - Common	Pin B48 - Common
Pin A49 - Common	Pin B49 - Common



Pinout Diagram for Front Edge Connector



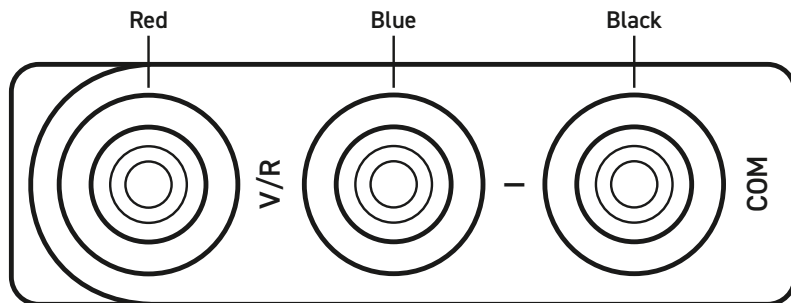
Pinout - Using 3 Connector Interface Board

Pinout for 3 Connector Interface - PK41-101-203

Red Connector - Voltage In

Blue Connector - Current In

Black Connector - Common

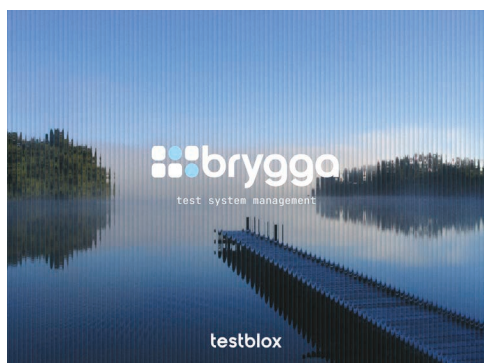


3x 4 mm Banana Connectors
as viewed from front of module



About Testblox

Testblox is an integrated, modular instrumentation platform designed specifically for automated functional test. Its playing-card-sized modules can be embedded inside standard test fixtures, bringing measurement, switching, power, and I/O closer to the device under test. This reduces rack space, cabling, and overall system complexity while providing the reliability and support expected in production ATE.



The Testblox portfolio includes analog and digital I/O, digital multimeters, power supplies, DUT communication, and a broad selection of switching modules, including multiplexers, matrices and general-purpose relays. Electrically isolated modules help prevent ground loops and simplify integration. Engineers can control Testblox systems using Brygga Test Management Software, Python, LabVIEW or C#, with a consistent software model across the platform.

Modules can be used individually with a single-module backplane or combined together with three- or four-module backplanes to create a test system tailored to the application. DUT signals are available directly from each module's front-edge connector or through standard D-sub cabling.

Testblox is a multi-vendor platform developed through complementary expertise. Testblox AB provides the core architecture, backplanes, system software and selected I/O; Wireflow contributes multifunction I/O and power-supply technology; and Pickering Interfaces contributes switching and measurement expertise. Together, they deliver specialist instrumentation through a common form factor, electrical interface and software workflow.

Designed and manufactured in Europe, Testblox modules are backed by a three-year warranty and a commitment to more than 20 years of hardware availability—providing a compact, cost-effective platform built for long-term automated test.

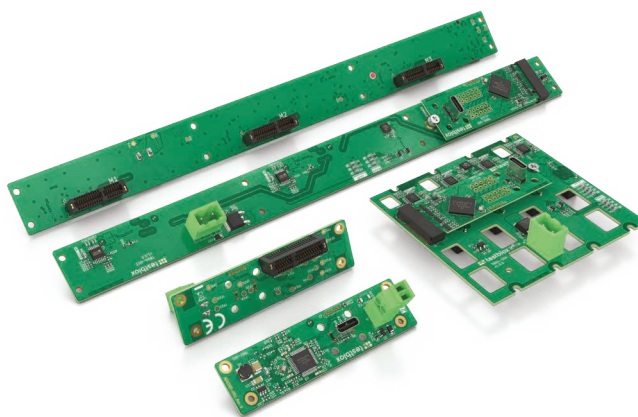
For more information, visit: www.testblox.com





Testblox Backplanes

Every Testblox system requires a backplane. Choose a one-, three- or four-module backplane to bring compact measurement, switching, power and I/O into your test fixture, with a USB-C connection to the host computer.



Backplane	Part Number	Typical Use
Single-Module USB-C Backplane	TB92-001	A single instrument in a compact fixture
Three-Module Horizontal USB-C Backplane	TB94-003-001	A low-profile arrangement of instruments
Four-Module Vertical USB-C Backplane	TB94-004-001	More instruments within a small footprint

USB communication and system power

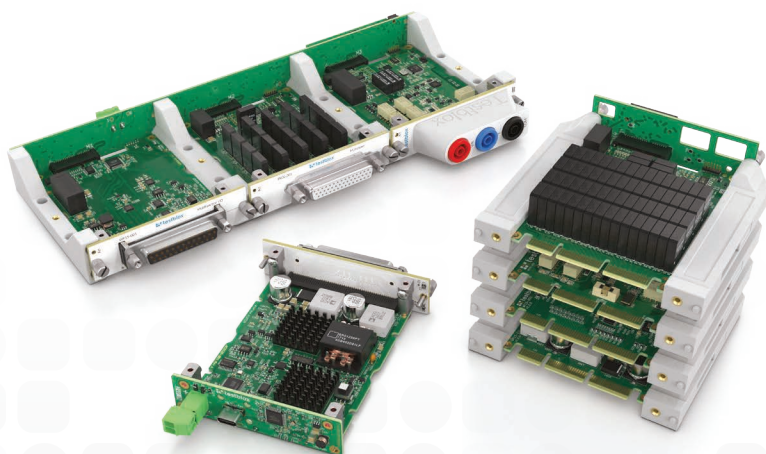
Control the system using USB Full Speed at 12 Mbit/s through a USB Type-C connector.

All backplanes use an external 24 V supply through a pluggable screw terminal. Check the selected backplane datasheet for power requirements; the system is not powered by the USB-C connection.

Mounting inside the fixture

Testblox mounting accessories support and retain modules while allowing individual modules to be removed for maintenance. Choose the mounting accessory to suit the backplane and the fixture connection method. You are also free to print your own with the files available on testblox.com. DUT signals connect through each module's front-edge connector or an available D-sub front panel.

Accessory	Application
TB82-003	Module guides for the Three-Module Horizontal Backplane
TB82-001	Module guides for one module in the Four-Module Vertical Backplane
TB82-002	Module guides for four modules in the Four-Module Vertical Backplane



Before ordering, check module count, fixture clearance, DUT connectors, power budget and required mounting accessories. Refer to the individual module specifications for module-to-backplane isolation ratings.

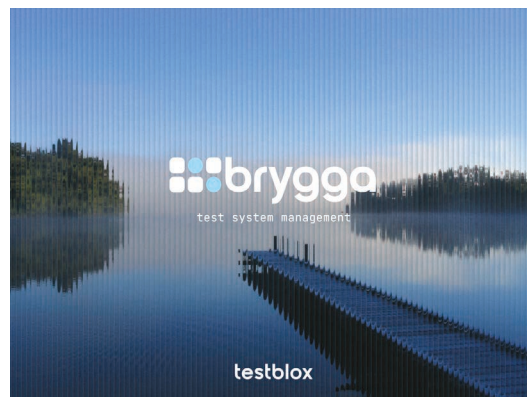


Testblox Software

Use Brygga Test Management Software to discover, configure and interactively test your Testblox system, then use the APIs and module simulation to develop your automated test application.

Brygga system setup and interactive control

Bring up hardware without writing code. Brygga Test Management Software combines system discovery, configuration, module test panels and firmware management in one test system management interface, helping you check connections and exercise instruments before automating a test.



Task	What you can do with Brygga
Discover and locate	Automatically discover connected backplanes and modules. Activate module front panel LEDs to match software entries to physical hardware.
View the system	See backplanes, installed modules, slot positions and connection status together.
Name and configure	Assign hardware and channel aliases shared with the API. Set module ranges, channels, limits and start-up states where supported.
Measure and control	Use module-specific test panels to take measurements, control outputs and operate switches without writing software.
Update firmware	Identify available firmware updates and install them on selected systems or modules.

APIs for automated test development

Integrate Testblox into your own test software using drivers, APIs and example programs. Windows and Linux support, together with Python, NI LabVIEW and C# integration, lets you use familiar development tools. Hardware and channel aliases assigned in Brygga carry through to the API, helping you use recognizable names in your test code. Refer to the software documentation for supported operating-system versions and module-specific functionality.

Module simulation

Configure simulated modules offline and develop your application before the hardware arrives. Simulation is intended to provide representative signal data, so you can exercise configuration, API calls and application logic while fixture development continues.

Software downloads and documentation: testblox.com/software



Testblox Support & Services

Testblox combines a three-year warranty, long-term hardware availability and technical support to help you build and maintain production test systems throughout their working life.

Three year warranty and long term availability

Testblox modules are backed by a three-year warranty and a commitment to more than 20 years of hardware availability. This helps protect your test system investment and reduces the disruption associated with premature product obsolescence.

Contact Testblox to discuss lifecycle requirements, product availability and support for your application. Refer to the published warranty terms for coverage and the process for arranging service.



Technical help from setup to troubleshooting

Use the Testblox technical support forums to ask questions, share solutions and discuss hardware, software and system integration. For an issue that needs direct assistance, or includes confidential application information, contact the support team by email.

Contact or resource	Where to go
Technical support forums	https://forum.testblox.com/
Technical support and service enquiries	support@testblox.com
Product information	https://testblox.com/ or call:

Help us resolve your issue

Include the module and backplane order codes, serial numbers, software and firmware versions, host operating system, and a short description of the problem. Attach relevant error messages, logs and a simple example that reproduces the issue. Keep confidential data out of public forum posts.

