

MULTI-CHANNEL BATTERY TEST SYSTEM

BX IRV 16™

Multi-Channel Internal Resistance & Open-Circuit Voltage Measurement System

Precision Battery Testing | Modular 16-Channel Architecture | Industrial Connectivity

16

MEASUREMENT CHANNELS

2 × 8

MULTIPLEXER CARD SLOTS

IR + OCV

MEASURED PARAMETERS



BXTRONICS PVT LTD

Industrial Electronics · Embedded Systems · Precision Measurement Systems

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PRODUCT OVERVIEW

BX IRV 16™ — Intelligent Battery Measurement Platform

BX IRV 16™ is an industrial measurement platform developed for battery test applications that require Internal Resistance (IR) and Open-Circuit Voltage (OCV) measurement across multiple test points. The instrument combines a rack-format industrial enclosure, an operator-oriented front panel and a modular multiplexer architecture that can be configured for up to 16 measurement channels.

Ethernet with Modbus TCP allows the platform to be integrated into industrial automation, supervisory and test-software environments, while Bluetooth Low Energy (BLE) provides an additional wireless access option. BX IRV 16™ is designed, developed and manufactured by BXtronics Pvt Ltd in India.



IR Measurement

Internal resistance measurement.



OCV Measurement

Open-circuit voltage measurement.



16 Channels

2 × 8-channel multiplexer cards.



Connectivity

Ethernet, Modbus TCP and BLE.



BX IRV 16™ — front view

One platform. Two critical battery parameters. Modular multi-channel architecture.

Refer to the final technical datasheet for detailed specifications.

WHY IR + OCV MATTER

Two Critical Parameters for Battery Evaluation

Ω Internal Resistance (IR) 01

Internal resistance is an important electrical characteristic used for evaluating battery condition, cell consistency, electrical losses and production quality.

- Condition and consistency evaluation
- Cell-to-cell comparison within a pack
- Electrical loss assessment
- Production and quality-related screening

V Open-Circuit Voltage (OCV) 02

Open-circuit voltage provides the voltage of the battery or cell under open-circuit conditions and can be used as an important parameter for battery characterization and screening.

- Characterization under open-circuit conditions
- Cell screening and sorting workflows
- Reference parameter for test records
- Combined evaluation together with IR

CONCEPTUAL MEASUREMENT FLOW

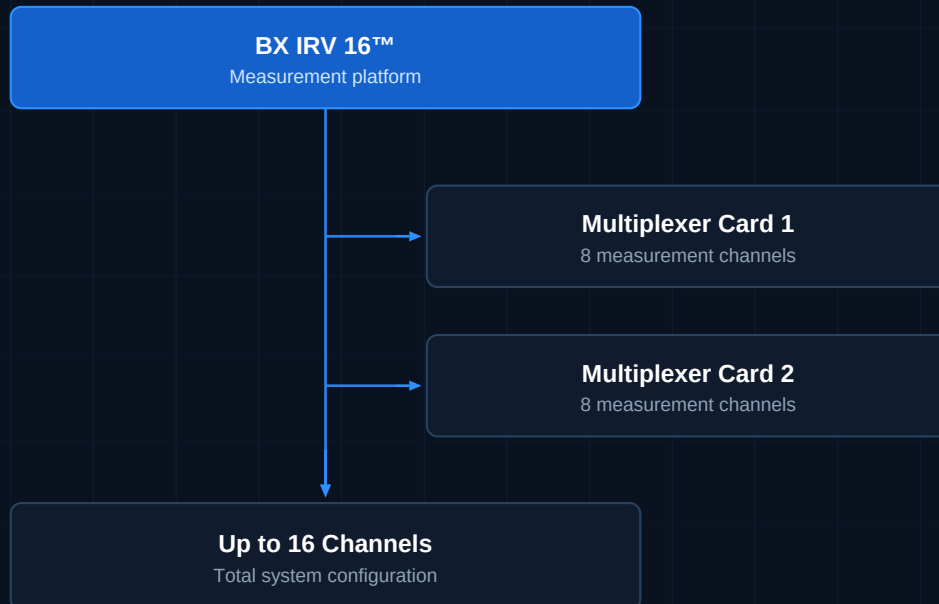


NOTE

Conceptual representation of the measurement flow. No measurement values are shown. Measurement ranges, resolution and accuracy: refer to the final technical datasheet for detailed specifications.

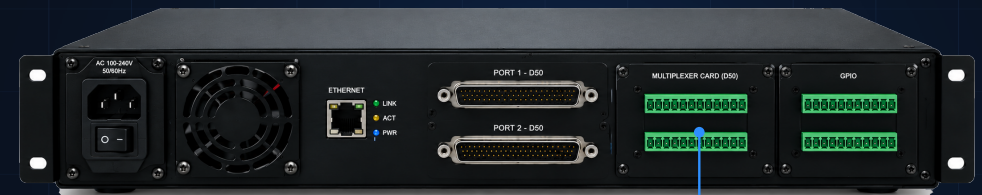
SYSTEM ARCHITECTURE

Modular 16-Channel Measurement Architecture



8 channels with one multiplexer card,
16 channels with two multiplexer cards.

REAR-SIDE MULTIPLEXER SECTION



MULTIPLEXER CARD (D50)
Rear-side multiplexer-card section

The rear-side architecture allows the multiplexer cards to be fitted into the system. Each multiplexer card provides eight measurement channels, so a system fitted with two cards is configured for up to 16 channels. Channel configuration can therefore be selected according to the requirements of the application.

2 × 8-Channel Multiplexer Cards = Up to 16 Measurement Channels

Channel count is configuration dependent. Refer to the final technical datasheet for detailed specifications.

CHANNEL EXPANSION

Plug-In Multiplexer Architecture

The measurement channels of BX IRV 16™ are provided by plug-in multiplexer cards. Each card contributes eight channels, and the rear-side multiplexer-card section accepts two cards, giving a system configured for up to 16 measurement channels.

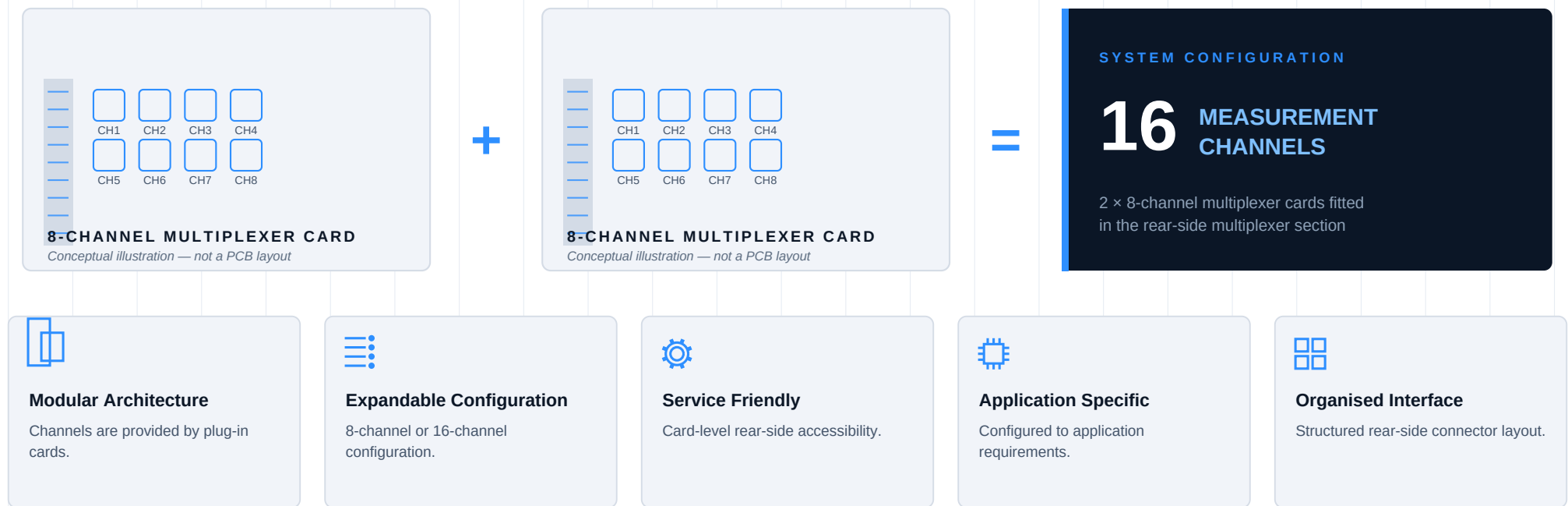


ILLUSTRATION NOTE

The multiplexer cards shown on this page are conceptual illustrations used to explain the modular channel architecture. They do not represent the actual PCB design, component placement or connector detail. Card configuration and channel assignment are configuration dependent.

16-CHANNEL TESTING

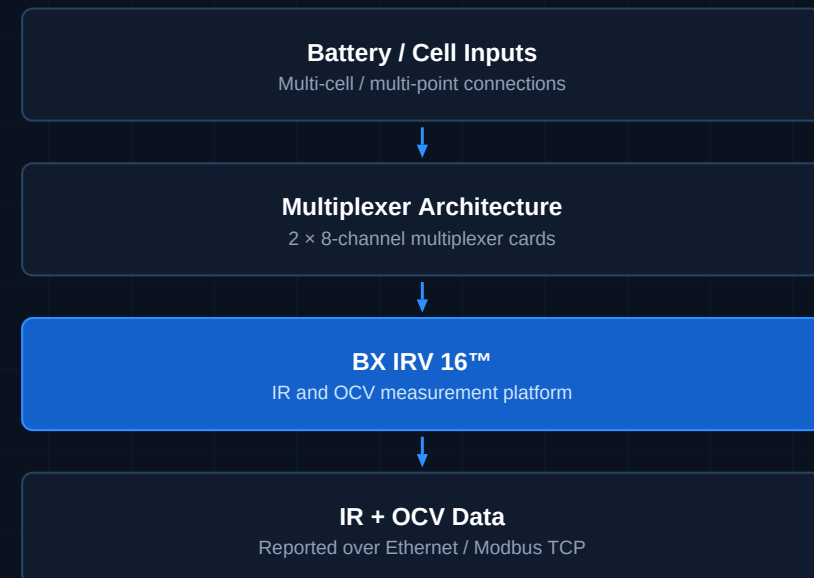
Built for Multi-Channel Battery Testing

CHANNEL MAP — CH01 ... CH16

CH01	CH02	CH03	CH04
CH05	CH06	CH07	CH08
CH09	CH10	CH11	CH12
CH13	CH14	CH15	CH16

Channel availability: 8 channels with one multiplexer card,
16 channels with two multiplexer cards. Configuration dependent.

MEASUREMENT FLOW



Designed for structured multi-channel measurement and automated test integration.

Channel sequencing, measurement timing and test-routine behaviour are configuration dependent. Refer to the final technical datasheet.

FRONT PANEL

Engineered for Operator-Friendly Testing



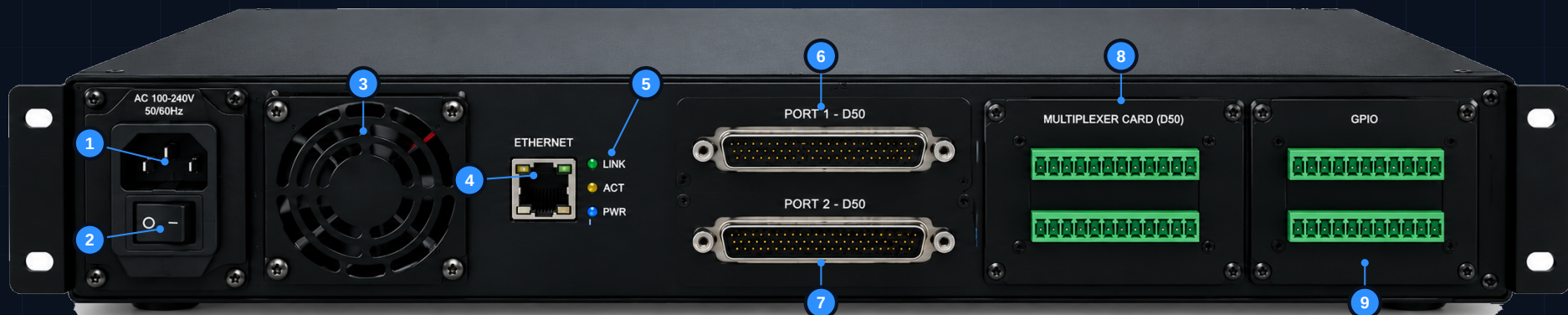
BX IRV 16™ — front panel. Display content shown is illustrative.

- | | | |
|--|--|---|
| <p>01 BXtronics Branding
Front-panel brand identification.</p> <p>02 IR Measurement Display
IR: internal resistance reading.</p> <p>03 OCV / Voltage Display
V: voltage / OCV reading.</p> <p>04 Function Keys F1–F4
Four front-panel function controls.</p> | <p>05 SCALE Control
Front-panel rotary control.</p> <p>06 SET Control
Front-panel rotary control.</p> <p>07 ZERO Control
Front-panel rotary control.</p> <p>08 ENTER Control
Front-panel rotary control.</p> | <p>09 STATUS Indication
Status indicator group.</p> <p>10 POWER Indication
Power indicator group.</p> <p>11 Measurement Terminals
Front-panel measurement terminals.</p> |
|--|--|---|

Only visually identifiable front-panel elements are described. Display technology, operating modes and control functions: refer to the final technical datasheet for detailed specifications.

REAR PANEL

Industrial Connectivity & Expansion



BX IRV 16™ — rear panel

01 AC 100–240 V, 50/60 Hz Input
Rear-panel AC power inlet.

02 Power Switch
Rear-panel power switch.

03 Cooling Fan
Rear-panel cooling fan aperture.

04 Ethernet
RJ45 Ethernet interface.

05 Link / ACT / PWR Indicators
LINK, ACT and PWR indications.

06 PORT 1 – D50
D50 interface, rear panel.

07 PORT 2 – D50
D50 interface, rear panel.

08 Multiplexer Card (D50)
Multiplexer-card section, 2 slots.

09 GPIO
Rear-panel GPIO section.

NOTE

Rear-panel elements are described as marked on the product. Interface assignment, pin configuration and functional scope of the D50 ports, multiplexer-card section and GPIO section are defined in the BX IRV 16™ product documentation. Refer to the final technical datasheet for detailed specifications.

INDUSTRIAL COMMUNICATION

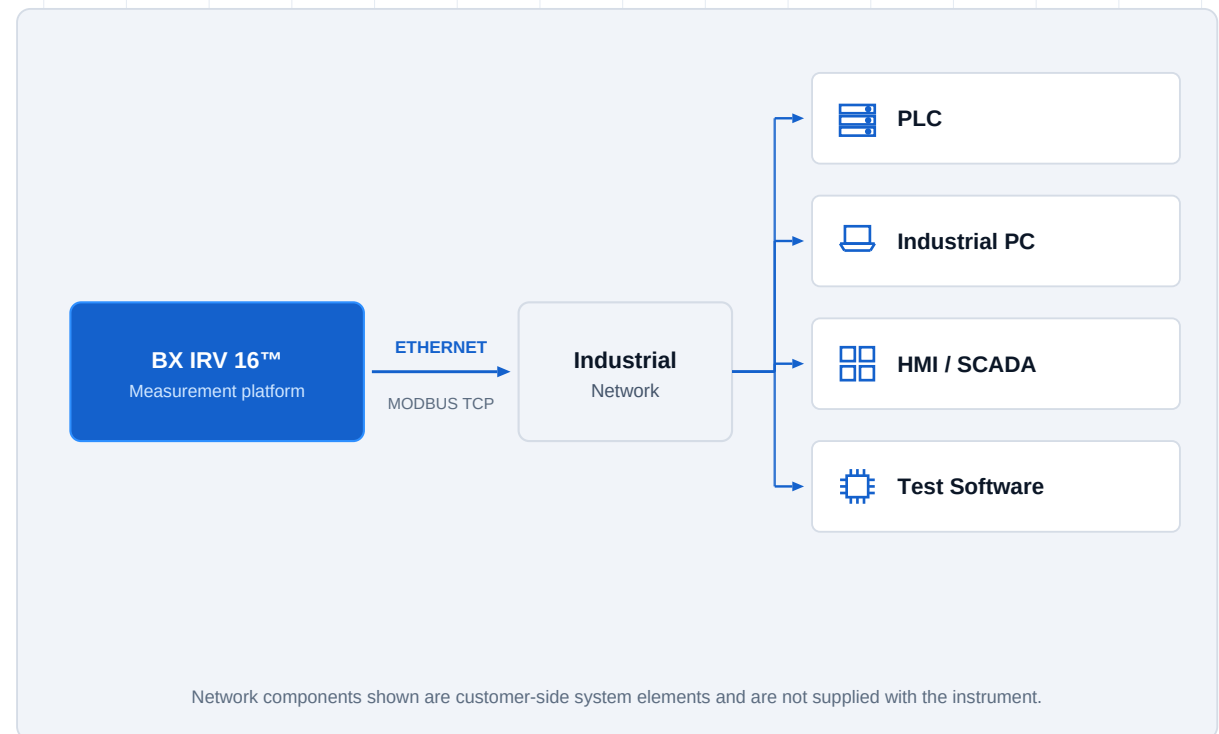
Connected for Industrial Automation

BX IRV 16™ can be integrated with industrial automation and supervisory systems using Ethernet-based communication and the Modbus TCP protocol. This allows the measurement platform to operate as part of a structured test installation rather than as a stand-alone instrument.

INTEGRATION CHARACTERISTICS

- Ethernet interface on the rear panel
- Modbus TCP communication
- Connection to industrial network infrastructure
- Suitable for PLC, PC, HMI, SCADA and test-software environments

TYPICAL COMMUNICATION ARCHITECTURE



NOTE

Communication parameters and register mapping are defined in the BX IRV 16™ communication documentation. IP configuration, port assignment and protocol timing: refer to the final technical datasheet for detailed specifications.

WIRELESS CONNECTIVITY

Wireless Access with BLE

BX IRV 16™ supports Bluetooth Low Energy (BLE) as a convenient wireless connectivity option. Depending on the configuration, BLE can be used for suitable configuration, monitoring, service, commissioning or application-specific interface purposes alongside the wired Ethernet interface.

TYPICAL USE

- Configuration access during commissioning
- Local monitoring of the measurement platform
- Service and maintenance interaction
- Application-specific interfaces

WIRELESS ACCESS ARCHITECTURE



NOTE

BLE range, data rate, mobile application availability, interface scope and cloud-related functions are not specified in this document. Configuration dependent. Refer to the final technical datasheet for detailed specifications.

TYPICAL USAGE AREAS

Applications for IR and OCV Measurement



Lithium-Ion Battery Testing



Battery Pack Manufacturing



Cell Screening



Battery Production Lines



R&D Laboratories



Battery Quality Inspection



Incoming Inspection



End-of-Line Testing



Battery Characterization



Automated Test Benches



EV Battery Manufacturing



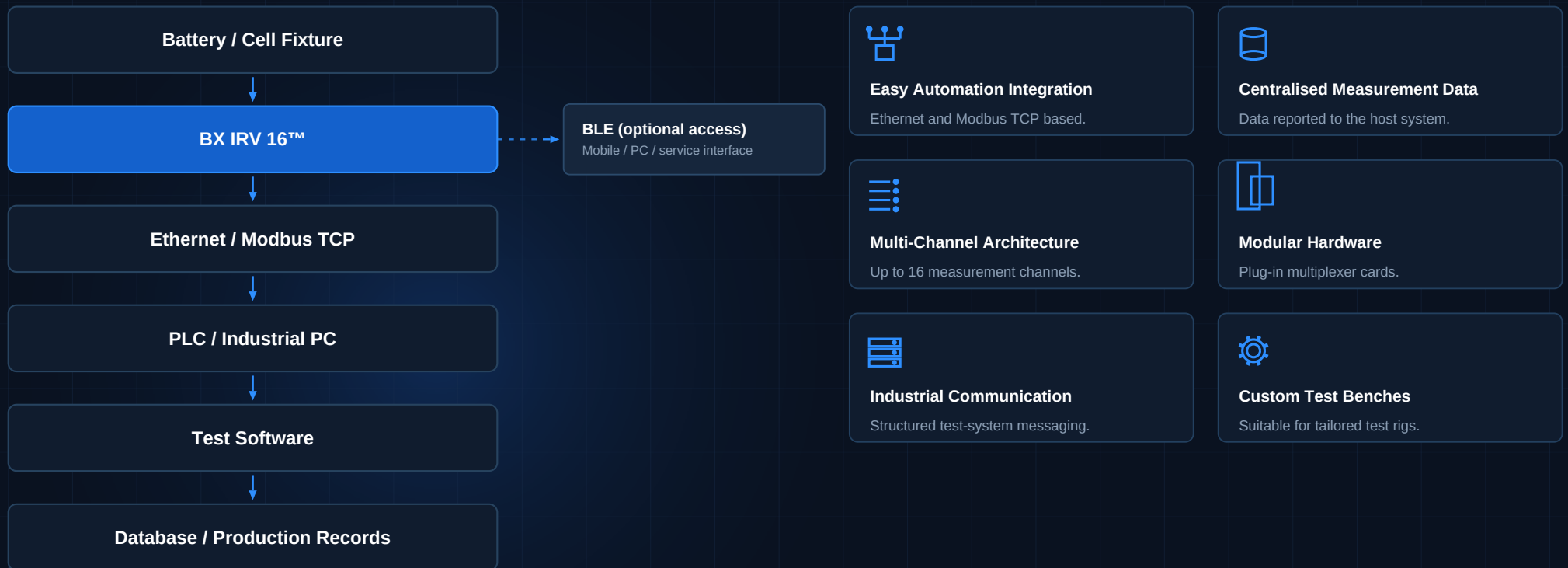
Energy Storage Applications

NOTE

The application areas listed above indicate typical usage contexts for internal resistance and open-circuit voltage measurement. They do not imply certification, qualification or customer approval of any kind. Suitability for a specific application should be confirmed against the final technical datasheet.

SYSTEM ARCHITECTURE

Designed for Test-System Integration



NOTE

PLC, industrial PC, test software, database and production-record systems shown in the architecture are customer-side system components. Database, record-keeping and cloud functions are not claimed as built-in features of BX IRV 16™. Refer to the final technical datasheet for detailed specifications.

COMPANY

Engineered & Manufactured by BXtronics Pvt Ltd

BXtronics Pvt Ltd develops industrial electronics, embedded systems, precision measurement equipment, automation solutions and application-specific test systems.

BX IRV 16™ is the result of in-house product development — from hardware engineering and embedded software through to enclosure design, system architecture and manufacturing. Engineering, development and manufacturing are carried out in India.

✓ In-House Product Development

✓ Electronics R&D

✓ Embedded Systems

✓ Measurement Systems

✓ Industrial Automation

✓ Hardware Engineering

✓ Application-Focused Engineering

✓ Made in India



MADE IN INDIA

Designed, developed and manufactured by
BXtronics Pvt Ltd

PRODUCT	BX IRV 16™
CATEGORY	Battery IR & OCV Measurement System
ARCHITECTURE	2 × 8-channel multiplexer cards
ORIGIN	India

NOTE

Company capability statement. No certification, qualification or third-party approval is claimed in this document.

AT A GLANCE

BX IRV 16™ at a Glance

FEATURE	BX IRV 16™
Internal Resistance (IR) Measurement	Yes
Open-Circuit Voltage (OCV) Measurement	Yes
Maximum Channels	16
Multiplexer Architecture	2 × 8-Channel Cards
Ethernet	Yes
Modbus TCP	Yes
Bluetooth Low Energy (BLE)	Yes
Industrial Enclosure	Yes
Made in India	Yes



CONFIRMED SYSTEM INFORMATION

- IR and OCV measurement in one platform
- Modular multiplexer-card architecture
- Up to 16 measurement channels
- Ethernet, Modbus TCP and BLE connectivity
- Industrial enclosure format
- Engineered and manufactured in India

Detailed electrical and measurement specifications are available in the technical datasheet.

NOTE

This summary lists confirmed system-level features only. Measurement ranges, accuracy, resolution, measurement current, isolation, environmental limits, dimensions, weight and power consumption are not stated in this document. Refer to the final technical datasheet for detailed specifications.



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Multi-Channel Battery IR & OCV Measurement

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MADE IN INDIA

Engineered in India for Industrial Battery Testing

Product appearance, configuration and specifications are subject to change without notice. Refer to the final technical datasheet for detailed specifications. All product names are trademarks of BXtronics Pvt Ltd.



SCAN FOR PRODUCT DETAILS