QUICK CHANGE ADAPTER

testing & quality tools



komax

EN

INTRODUCTION

FLEXIBLE TESTING FOR HIGH-MIX, LOW-VOLUME PRODUCTION

QUICK CHANGE ADAPTER TEST SYSTEM

In today's dynamic wire harness manufacturing environment, flexibility and precision are essential to handle frequent design changes, multiple harness variants, and short production runs. These conditions demand rapid adaptation to evolving specifications while ensuring accurate electrical testing. Without flexibility, changeovers slow production and increase costs; without precision, quality and compliance are at risk. Komax's Quick Change Adapter Test System is designed to meet these challenges by enabling fast reconfiguration and delivering reliable, high-accuracy testing for high-mix, low-volume environments—where speed and uncompromising quality are critical.

This innovative solution integrates efficiently with Komax Testing's proven CS WIN nx® software, delivering a fully structured and wired testing platform for end-of-line (EOL) validation. With its modular design and intuitive operation, the Quick Change Adapter Test System empowers manufacturers to accelerate workflows, reduce downtime, and ensure flawless electrical performance across diverse harness configurations.

Added Value Across the Lifecycle

Prototyping Phase: The system's fast setup and reconfiguration capabilities make it ideal for prototype development, enabling engineering teams to validate new designs quickly and iterate with confidence—without compromising testing integrity.

Lifecycle Support for Discontinued Services: For Tier 1 suppliers maintaining service and support for discontinued vehicle platforms, the Quick Change Adapter Test System offers a reliable solution to test and validate wire harnesses produced in small batches. This ensures consistent quality and compliance with legacy specifications, even when production volumes are low and documentation may be limited.

Whether producing prototypes, small batches, or customized harnesses, Komax enables customers to maintain the highest standards of reliability and efficiency—reinforcing our commitment to smarter automation and customer-centric innovation.

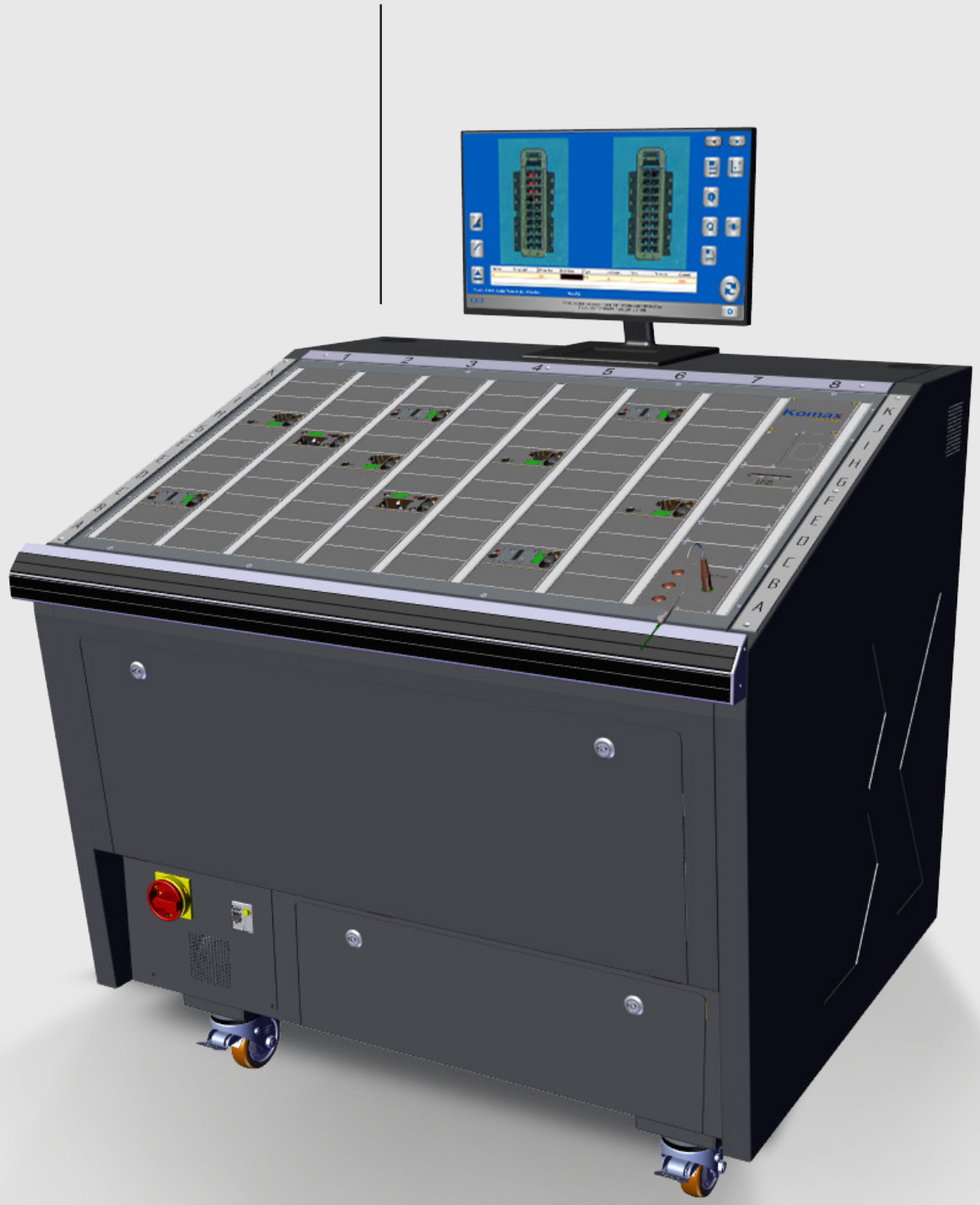
Shaping the Future of Smart Manufacturing

At Komax, we believe in shaping the future of smart manufacturing, where automation, AI, and data-driven insights redefine production efficiency. Our digital factory concept brings cost-saving automation, unmatched process reliability, and future scalability with real-time analytics, automated testing, and intelligent workflows. We set new standards in wire harness production. Komax and its partners are paving the way for next-generation smart factories where innovation and efficiency go hand in hand.

Let's build the future together.

DRIVING QUALITY

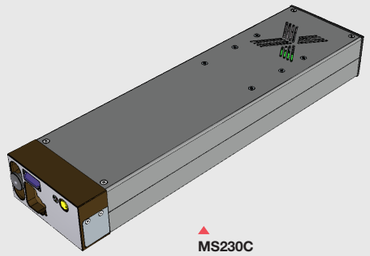
IN WIRE HARNESS PRODUCTION



QUICK CHANGE ADAPTER

Boost Quality with the Modular MS2xxC Adapter

The Komax MS2xxC Test Adapter combines real-time error detection with modular flexibility – ensuring reliable testing across various production environments. Its standardized modules can be tailored to your connector specifications and are interchangeable between platforms, delivering smarter, faster, and more adaptable wire harness manufacturing.



▲
MS230C
Quick Change Adapter

MS2xxC

Compact standard adapter designed for minimal footprint and efficient use of operating space. Choose the adapter configuration that fits your production needs.

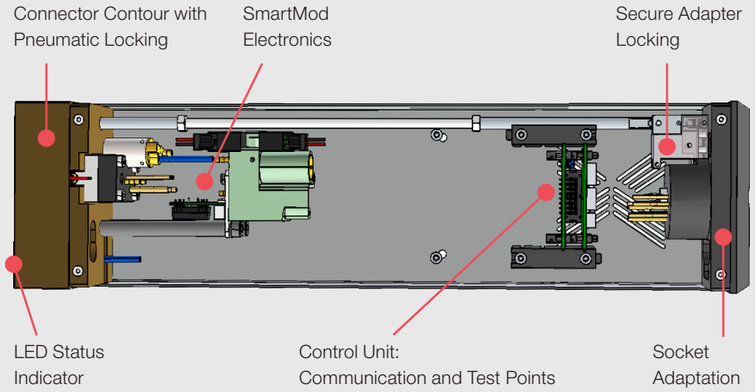
SOFTWARE

System Integration

The structured CS WIN nx® testing software, available with various equipment packages, offers highly customizable functionality and ensures maximum efficiency in all test applications.

The CS WIN nx® standard package includes all essential functions required for comprehensive cable testing. Based on this foundation, modular options provide individual production- or system-specific extensions. Consequently, CS WIN nx® systems can be optimally integrated into your existing production processes.

MODULAR DESIGN



With its CAN architecture, the adapter eliminates complex wiring setups and enables seamless integration across production environments.

Highlighted Features

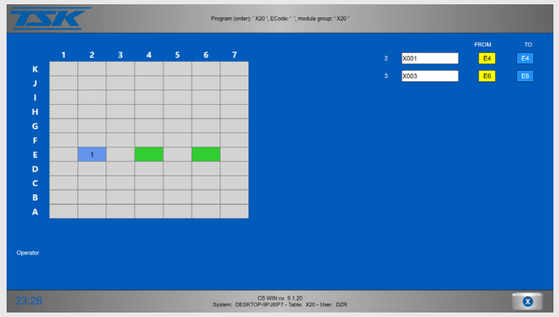
Feature	Benefit
Unique ID	Enables automatic mapping of the adapter's physical and logical system position.
Fast Plug & Play	Ensures rapid connection for both CAN-Bus communication and pneumatic lines.
Self-Learning Adapter	The socket matrix automatically detects its position and configuration for faster setup.
LED Identification	A visual guide mode that assists operators in configuring test layouts accurately.
Status Monitoring	Centralized tracking of adapter status (Operational / Idle / Offline) directly via CS WIN nx®.
Adapter specifications	Full technical specifications for all Komax standard adapters are available.

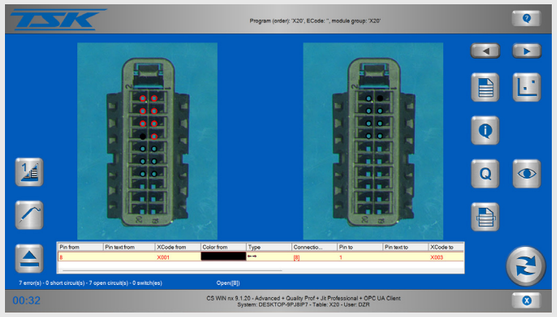
System integration

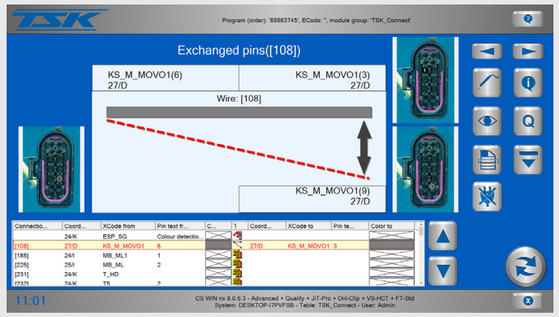
The Quick Change Adapter Test System operates seamlessly with Komax CS WIN nx®, the testing software used for advanced wire harness verification. Its distributed CAN-Bus topology allows direct connection of all adapters to the communication line — eliminating central racks and simplifying scalability. Each adapter's test intelligence and identification enable independent operation, quick replacement, and data-driven decision making through the Komax digital ecosystem.

SOFTWARE INTEGRATION

CONTROLLED VIA KOMAX CS WIN NX®, THE QUICK CHANGE ADAPTER TEST SYSTEM COMBINES DIGITAL TEST MANAGEMENT WITH GUIDED OPERATOR SUPPORT.







Highlighted Features

Centralized Control

Fully configurable environment optimized for flexible production.

Project Management

Project editor allows test sequence setup and test adapter management.

Guided Workflow

Step-by-step instructions ensure accuracy during manual or automated harness testing. Features include intuitive, error-free operation with live analytics, diagnostics, remote access, and automatic recognition of adapter positions.

MES/ERP Integration

Full Industry 4.0 support via OPC UA and REST API — enabling real-time monitoring, remote control, and traceability.

HARDWARE

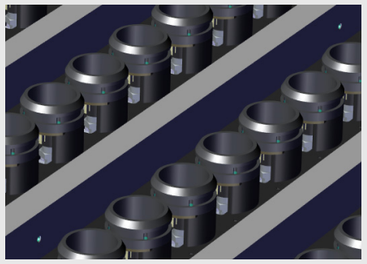
The Komax Quick Change Adapter Hardware is based on a proprietary, multi-board architecture designed for maximum configurability. Each MS2xxC unit can be tailored by stacking modular boards, enabling a custom fit to connector specifications and test requirements. This expandable design allows precise control over each configuration while maintaining uniform compatibility across platforms – simplifying deployment, upgrades, and maintenance.

MODULAR HARDWARE

ENGINEERED FOR SCALABILITY

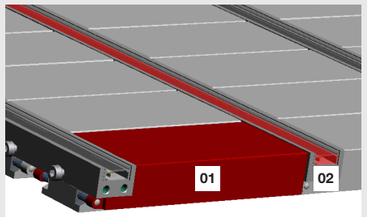
The system employs CAN-Bus communication in a simplified EOL architecture that eliminates the need for centralized controllers, racks, or daisy-chained test point cards. Testing intelligence is moved directly into the adapter, creating an intelligent, self-contained testing adapter capable of both communication and quality checks. All adapters are connected directly to the bus, streamlining installation and system scalability.

Socket module
Advantages:
– Plug & Play Quick Change Adapter
– No rack
– No flat cables
– No test point cards inside the System



Flexible Cover & LED Guidance Module
Tool-free access and automatic closing of empty positions **1**
– Includes empty position cover
– Integrated automatic closing mechanism

LED guidance bar **2**

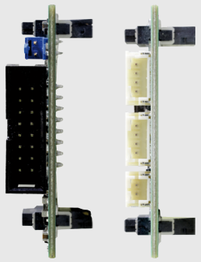


Test Point Card – TPC16

The TPC16 module is the Standard test point interface for all MS2xxC configurations, regardless of communication mode. Each card provides 16 individual test points, and up to 8 cards can be stacked per MS2xxC, allowing for a total of 128 test points per adapter (expandable if required). All configurations follow a master-slave topology, with each MS2xxC requiring a minimum of one CAN-Bus control board and one TPC16 master. This structure ensures reliability, ease of scaling, and streamlined testing accuracy.

CAN-Bus

The CAN-Bus version of the MS2xxC provides a robust wired alternative for environments where EMI resistance or wireless restrictions are critical. Designed for reliability and structured communication, the system supports a multi-link topology, where multiple CAN-Bus lines can be deployed in parallel – each managing up to 32 MS2xxC nodes.



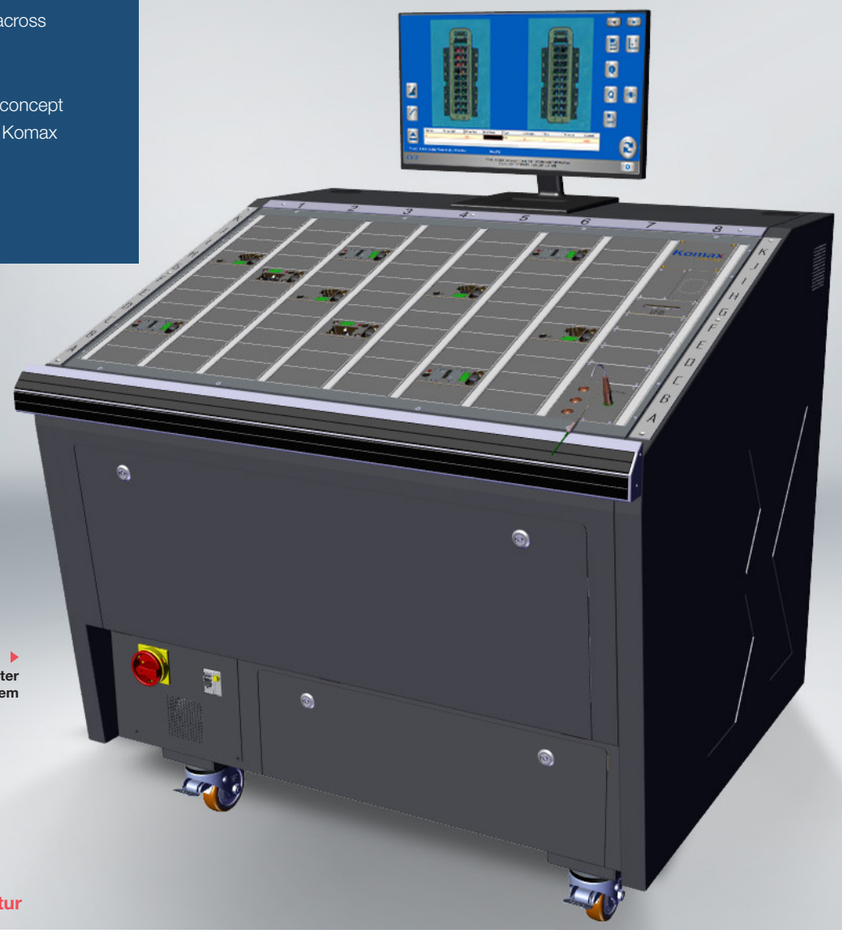
Test Point Card – TPC16
CAN-Bus

Key features
Standard ISO 11898-2 high-speed CAN-Bus 1000 kbps communication rate Each CAN-Bus line enables structured, scalable deployment with stable performance across complex setups.

HARDWARE

The Quick Change Adapter Test System can operate either as a stand-alone EOL station or as part of a centralized, expandable network. Each EOL test bench communicates via CAN-Bus and integrates seamlessly with Komax CS WIN nx® software, ensuring synchronized operation and complete traceability across the production line.

The MS2xxC test adapter concept can be integrated into any Komax Testing test system.



Quick Change Adapter Test System

Modular, Client-Server Architectur

Clients (EOL)	Each end-of-line station runs CS WIN nx®, managing its connected adapters and executing test plans.
Server (Master Data Manager)	A central CS WIN nx® server maintains the global adapter database, coordinates test requests, and tracks adapter status in real time.
Adapter Storage	Adapters are automatically identified by their unique ID. The system records whether each is Operational, Idle, or Offline, enabling predictive maintenance and efficient workflow management.
AI-Driven Data Management	Integrated analytics support automated decision-making for test scheduling, resource allocation and performance optimization.
Flexible Integration	The architecture supports CAD import, automatic adapter assignment, and scalable multi-site connectivity through networked or cloud infrastructure.

PRODUCT SPECIFICATION

GENERAL DESCRIPTION

The Komax Quick Change Adapter is a modular, wired end-of-line (EOL) test system designed for high mix – low volume wire harness production. It combines intelligent CAN-Bus communication, unique adapter identification, and self-learning socket configuration to ensure reliable, repeatable testing performance across flexible production setups. The system integrates natively with Komax CS WIN nx ®, providing full digital traceability, real-time data acquisition, and guided workflow support.

Technical Specification

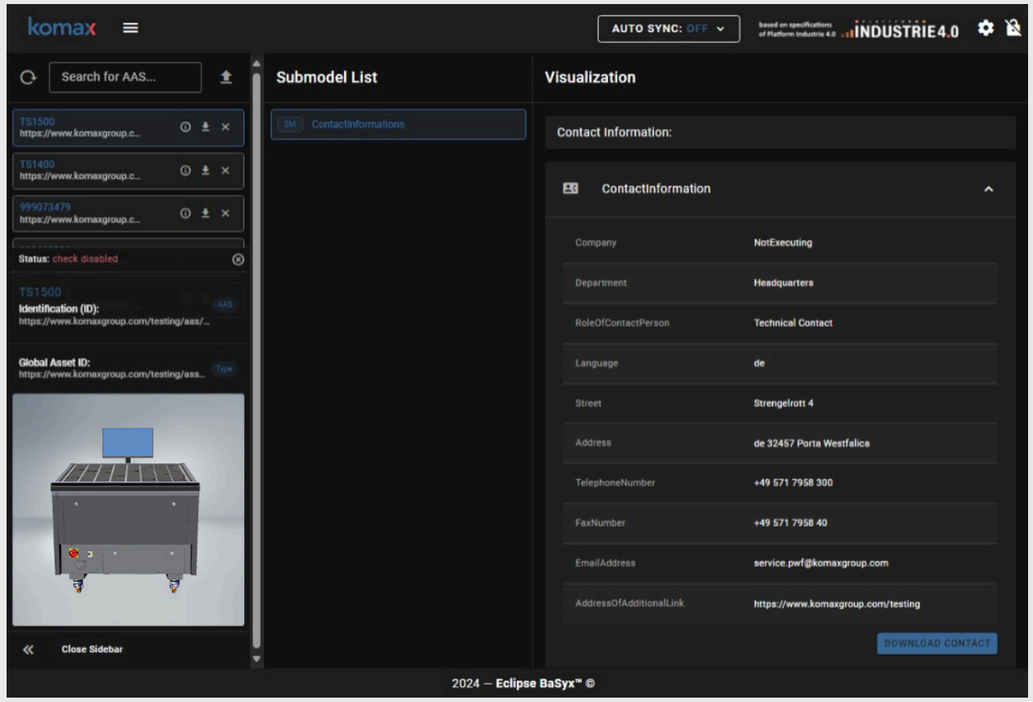
Category	Specification	Details / Notes
Product Type	Quick Change Adapter	Inline EOL test adapter for wire harness testing
Communication	CAN-Bus (ISO 11898-2)	High-speed 1 Mbps CAN communication; up to 32 nodes per segment
Architecture	Distributed, Modular	Testing and communication intelligence built into each adapter (no central measuring device)
Test Point Interface	TPC16 Module	Standard 16-point test card for electrical continuity and short-circuit tests
Test Point Capacity	16-128 points/adapter	Up to 8x TPC16 cards per unit (expandable design)
Power Supply	24 V DC	Standard industrial voltage
Pneumatics (optional)	Magnetic Cylinder System	Pneumatic-free operation possible
Locking Mechanism	Pneumatic / Magnetic	Automatic control over socket locking and release
Top Cover	Flexible, Tool-Free	Quick maintenance access without screwdriver
Adapter Identification	Unique ID	Auto-relation between physical position and system mapping
LED Guidance	Integrated	Visual indicator for setup and status feedback
Position verification	Socket Matrix	Add adapter position and configuration automatically
Adapter Status	Operational / Idle / Offline	Centralized monitoring through CS WIN nx®
Software Platform	CS WIN nx® (Test Software)	Centralized project management and data acquisition
MES/ERP Integration	OPC UA / REST API	Industry 4.0 ready — real-time data and remote control
Data Handling	Unique ID Tracking + Logging	Full traceability for each adapter and test cycle

DIGITAL TWIN

SEAMLESS INTEGRATION & DATA TRACEABILITY

The seamless traceability of data streams using interoperable data models is one of the key requirements for the digitalization of the automotive industry.

The Digital Twin enables all relevant information about the test system, such as technical data, parts lists, capabilities, and interfaces, to be described and made available using standardized submodels. It thus forms the basis for integration into digital production environments and the provision of digital services.



Sub types
– Contact information
– Technical data
– Digital nameplate
– Parts lists
– Interfaces
– Capabilities

Options
Additional submodels and properties are available upon request.

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Komax – leading the field now and in the future

As a pioneer and market leader in automated wire processing, Komax provides its customers with innovative solutions. Komax manufactures series and customer-specific machinery, catering to every degree of automation and customization. Its range of quality tools, test systems, and intelligent software and networking solutions complete the portfolio, and ensure safe, flexible, and efficient production.
Komax is a globally active Swiss company with highly qualified employees and development and production facilities on several continents. It provides local support to customers worldwide through its unique sales and service network and offers services that help them get the most out of their investments.

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Subject to change