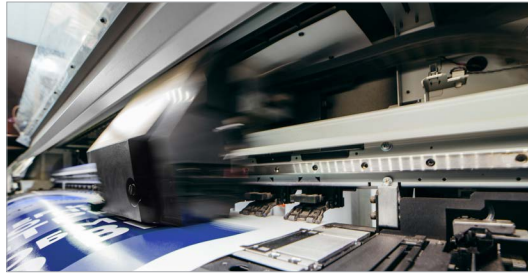


# Performance. Value. Confidence.



Kollmorgen Essentials™ Motion System



**KOLLMORGEN**

A REGAL REXNORD BRAND

# Versatile, high-performance motion systems

Get the essential motion features you need—with Kollmorgen’s renowned performance, quality and reliability—at an unprecedented value. Kollmorgen Essentials™ Motion Systems are configured from a set of thoughtfully curated motors, drives, controller and combined power/data cables. Complete systems are offered in a range of size and performance options to meet the challenges most often encountered when designing axes of motion for typical industrial machines. Performance-matched, ready for rapid delivery and optimized for easy setup and configuration.



## Each system includes:

- **A servo motor** offered in eight power ranges. Each motor incorporates Kollmorgen's innovative energy-harvesting SFD-M multi-turn absolute feedback device, eliminating the need for battery backup while delivering performance comparable to Hiperface and EnDat feedback devices.
- **A servo drive** designed to work with your choice of the industry's most widely used control systems as well as with the full line of software and hardware solutions in the Kollmorgen Automation Suite. For simplified commissioning and quick tuning, use the Express Setup environment in our industry-leading WorkBench software while retaining easy access to advanced functionality.

- **A cable** in a choice of lengths, featuring single-cable power/data technology to simplify setup.
- **A controller** developed to support lower-axis-count applications for scalable control without unnecessary complexity or performance tradeoffs.
- **Optional accessories** include regen resistors, line filters and spare drive-side connectors.

The Kollmorgen Essentials Motion System joins a comprehensive portfolio of versatile, endlessly customizable motion solutions—giving machine builders a choice of performance characteristics, features and options, cost-effective standard modifications, functional safety capabilities, environmentally resilient designs and more.

With the Kollmorgen Essentials Motion System joining the complete Kollmorgen motion technology portfolio, machine designers gain a new perspective: the ability to meet practically any motion requirement and budget, today and tomorrow, with solutions and expertise from one proven partner.



# Optimized features at an exceptional value



Kollmorgen is known for modifiable and customizable motion systems that meet highly specialized engineering needs. But we recognize that not all axes of servo motion require the same degree of specialization. That's why we created **Kollmorgen Essentials**.

By offering complete solution sets, with features optimized to meet the most prevalent application requirements, we help OEMs simplify machine design and assembly while streamlining supply chains, speeding product delivery and lowering overall costs.

**Features of the Kollmorgen Essentials Motion System include:**

**Batteryless multi-turn absolute feedback device.** Get 24-bit single-turn + 16-bit multi-turn absolute feedback resolution over a proven SFD protocol interface. Energy-harvesting technology eliminates the expense, space constraints and labor required by devices that need battery backup and an additional power cable to maintain multi-turn position tracking. Onboard memory enables plug-and-play parameterization of the motor to compatible Kollmorgen drives, reducing setup time.

**Multilingual industrial Ethernet protocols.** One drive interfaces with any of the industry's most common communication protocols: EtherCAT®, EtherNet/IP™ or PROFINET®. With one drive that speaks all these languages, there's no need to stock or order different drive types to support the fieldbus preferences in different regions and industries. One harmonized drive train can support practically any customer's needs.

**Synchronization capabilities.** Don't settle for position and velocity-based motion, or overpay for fully synchronized multi-axis motion. The Kollmorgen Essentials Motion System supports synchronous motion profiles using your choice of EtherCAT, CIP Sync™ or PROFINET IRT, allowing you to standardize your drive cabinet and synchronize your drive train while connecting with control systems from all major manufacturers.

**Integrated functional safety features.** Protect people, products and equipment with dual channel STO SIL2/Cat 3 PL d. This feature supports emergency stops and prevents the system from restarting unexpectedly.

**Registration/high-speed input.** Get precise performance for applications such as web handling, labeling and tabbing that require dynamic phase adjustment in response to registration marks while maintaining high production throughput. The Kollmorgen Essentials Motion System supports high-speed registration without the premium price you might otherwise expect to pay.

**Adaptable motor mounting.** Motors are available with an industry-common IEC mount. An innovative shaft key kit is included, enabling installation with either a smooth or a keyed shaft and allowing users to order and stock one SKU for use with different mechanical interfaces.

**Full integration into the Kollmorgen solution portfolio.** The Kollmorgen Essentials Motion System works seamlessly with all solutions in the Kollmorgen Automation Suite. Use the PCMM2G programmable motion controller to coordinate up to 64 axes of motion that include Kollmorgen Essentials alongside other Kollmorgen solutions such as the AKD2G drive and AKM2G motor, or the PCMM2G Essentials controller for lower axis-count machines.

## A quick, confident pathway to market

With Kollmorgen Essentials, complete systems are matched and validated from a curated set of frame sizes and performance specifications designed to meet the requirements of most axes of motion. For machines with more highly technical performance or environmental requirements, Kollmorgen offers alternative solutions tailored to meet the needs of each motion axis, all designed to work together in the same ecosystem.

The Kollmorgen Essentials™ Motion System is highly manufacturable at scale, and the most in-demand configurations are always in stock. So you can count on assured delivery of the systems you need, in the quantities you need, with short lead times.

Installation of your system is virtually plug-and-play. By default, the system is configured to work with Kollmorgen Automation Suite, but you can easily change the type of industrial Ethernet to work with third-party control system architectures. The new Express Setup feature in our WorkBench software makes setup, configuration and tuning simple, even for engineers with little motion experience. And the full suite of WorkBench tools is also included for more advanced motion programming and tuning tasks.

From product design to supply logistics, we have designed every aspect of the Kollmorgen Essentials Motion System to help you engineer a successful machine and bring it to market quickly.

## The simple, affordable motion solution

Bring Kollmorgen torque, precision and reliability to most axes, under most control systems, in any motion-dependent industry.

### For example:



**Warehouse automation and intralogistics.** Compact size and absolute positioning without the need for battery backup to recover absolute position after a power outage make the Kollmorgen Essentials Motion System ideal for diverter gates, product-distribution spacing, sortation, storage and retrieval, and other applications.



**Packaging.** Sophisticated packaging applications such as slicing, mixing, cartoning, wrapping, filling and others benefit from an affordable motion system that supports capabilities normally found in high-end systems, such as synchronization and registration with high-speed inputs.



**Material forming.** Instead of a point-to-point drive that can cause unwanted jitter, laser and other high-accuracy cutting applications can take advantage of the Kollmorgen Essentials Motion System's synchronization capabilities to achieve complex cuts that are smooth and predictable.

These advantages also apply across a broad range of industries that benefit from high performance, optimized features and simplified design in an affordable motion system.

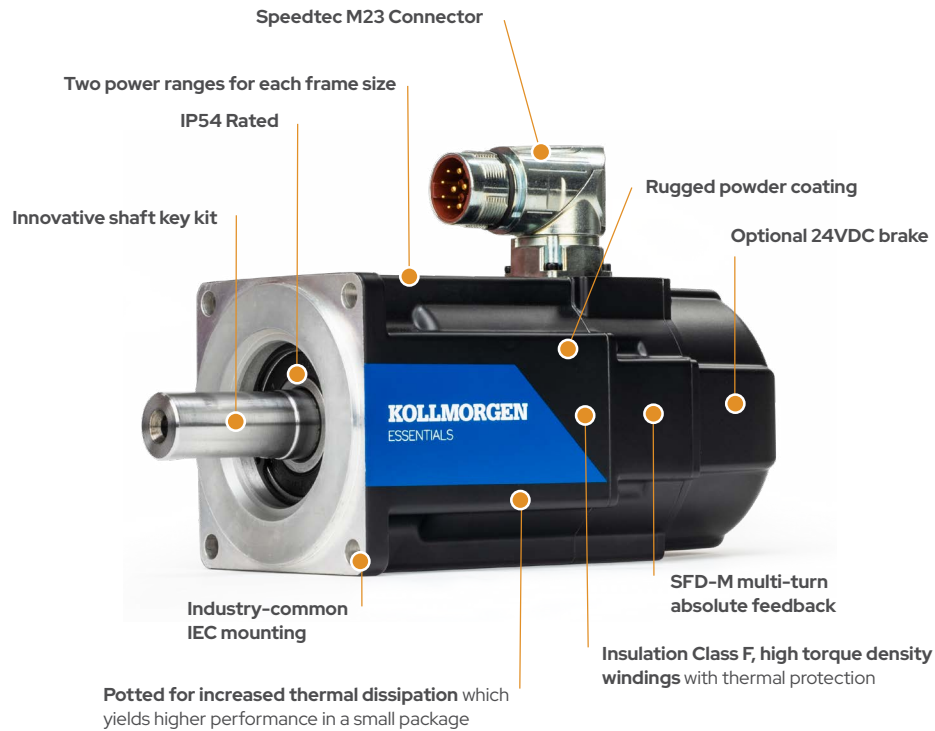
## Kollmorgen performance and reliability

Kollmorgen is the motion leader, with a 100+ year legacy of success. We design and assemble all of our drives, cables and motors in house to maintain the highest standards of quality and performance.

You can count on innovative designs, high-quality materials and precise manufacturing tolerances—just as you would expect in all our motion products. And you can rely on the industry-leading torque density, efficiency and reliability that Kollmorgen is known for.

# Kollmorgen Essentials™ Servo Motor

The Essentials high-performance motor series offers a curated selection of mounting, connectivity and feedback options intended to suit the widest range of applications while providing the best value to our customers.



## Features

### Torque

0.74 to 17.4 Nm continuous stall torque (6.55 to 154 lb-in) in 14 frame/stack/winding combinations.

### Speed

Rated speeds of 3000 rpm, with maximum speeds up to 6000 rpm, meet high application requirements of the warehouse automation, automotive parts manufacturing, packaging and material forming industries.

### Voltage

Essentials motors can be applied to all standard global voltages. Windings are specifically tailored to work with drives powered by 120-240 VAC, 1-3 $\phi$ . or 240-480 VAC, 3 $\phi$  voltage supplies.

### Mounting

The Essentials shaft-mount is designed to meet industry-common IEC standards. The innovative key kit provides users with smooth or keyed shaft adaptability within a singular SKU, enabling them to stock a versatile system to solve numerous application requirements.

### Feedback

Essentials motors include the SFD-M multi-turn absolute feedback device, offering 24-bit single-turn and 16-bit batteryless multi-turn resolution.

### Connectivity

Single, rotatable IP65 connector (combined power, brake and feedback) is provided to minimize cabling requirements and reduce setup time.

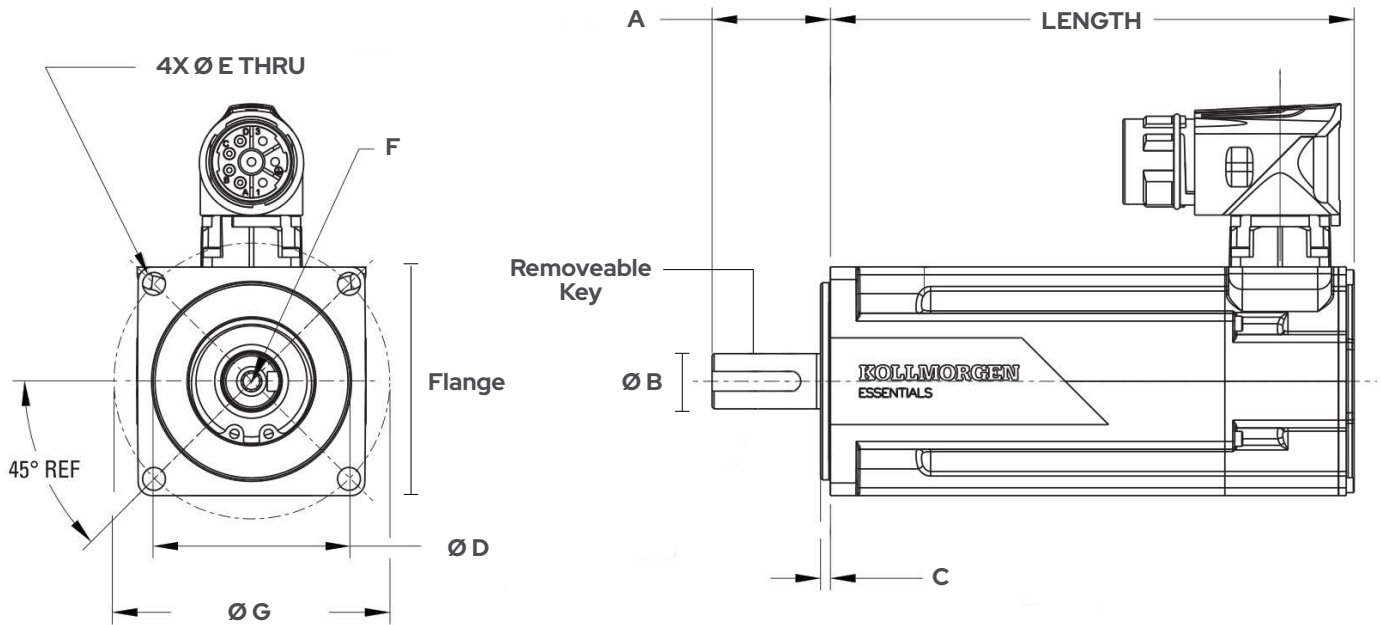
### Thermal

Windings are rated conservatively at 100°C rise over a 40°C ambient while using 155°C (class F) insulation materials. Motors meet applicable UL, CSA, and CE requirements and include thermistors.

### Additional Options:

Holding Brakes  
Field-installable IP65 shaft seal kit available (additional accessory)

## Kollmorgen Essentials motor dimensional drawings and data



Essentials Series*	Flange IEC	Length No brake	Length Brake	A Shaft L	ØB Shaft D (over key)	C Pilot L	ØD Pilot D	ØE Thru	F Shaft Center	ØG BCD	Removable Key - LxW
KEM-2V020-KE9yCB (200W)	58	104.9	139.0	30	14h6 (16)	2.5	50h6	5.8	M5	70	20 x 5 (open)
KEM-xV040-KE9yCB (400W)	58	133.4	167.5	30	14h6 (16)	2.5	50h6	5.8	M5	70	20 x 5 (open)
KEM-xV075-KE9yCB (750W)	84	124.8	158.3	40	19h6 (21.5)	3	70h6	7	M6	90	32 x 6 (closed)
KEM-xV100-KE9yCB (1kW)	84	142.3	175.8	40	19h6 (21.5)	3	70h6	7	M6	90	32 x 6 (closed)
KEM-xV150-KE9yCB (1.5kW)	108	133.5	178.5	50	24h6 (27)	3	95h7	9	M8	115	40 x 8 (closed)
KEM-xV250-KE9yCB (2.5kW)	108	170.5	215.5	50	24h6 (27)	3	95h7	9	M8	115	40 x 8 (closed)
KEM-xV300-KE9yCB (3kW)	138	148.7	195.7	50	24h6 (27)	3.5	110h7	9	M8	145	40 x 8 (closed)
KEM-4V400-KE9yCB (4kW)	138	171.2	218.2	50	24h6 (27)	3.5	110h7	9	M8	145	40 x 8 (closed)

Note: All dimensions in metric (mm), unless otherwise specified.

\*Where "x" is either 2 - 120/240 VAC optimized or 4 - 400/480 VAC optimized & "\*" is either N - No Brake or 2 - 24 VDC brake

# Kollmorgen Essentials™ Servo Drive

Kollmorgen's KED Drive is optimized to interface to a single-connector motor with Kollmorgen's Smart Feedback Device options (SFD-M or SFD3).

### Multi-Fieldbus Support

No need to find the correct fieldbus option for your machine! All KED drives support multiple fieldbus protocols out of the box. Just select between EtherCAT®, EtherNet/IP™ CIP Sync™, or PROFINET® IRT during setup.

### Super-fast setup

Get your application up and running in 20 minutes or less with Kollmorgen's Express Setup layout within Workbench, a simple, graphical configuration tool for PC that supports you throughout the entire commissioning process.

### Versatile I/O

Each KED drive offers two fast digital inputs with <1µs reaction time, which can also be utilized for a secondary, incremental feedback solution. Two further standard digital inputs as well as two digital outputs are also built-in.

### STO

Safety is always essential! All KED Drives come equipped with the certified safety function Safe Torque Off (STO), up to SIL 2 / PL d.



120-240 VAC 1-3φ	Continuous Current	Peak Current	Typical Shaft Power	Height	Width	Depth	Depth w/ cable bend radius
	(Arms)	(Arms)	(kW)	mm (in)	mm (in)	mm (in)	mm (in)
KED-SPM-6V03S-A100-0000-A	3	9	0.625	172	60	165	225 (8.86)
KED-SPM-6V06S-A100-0000-A	6	18	1.25	(6.77)	(2.36)	(6.50)	
KED-SPM-6V12S-A100-0000-A	12	30	2.5	200	70	202	262 (10.31)
				(7.87)	(2.75)	(7.95)	

240-480 VAC 3φ	Continuous Current	Peak Current	Typical Shaft Power	Height	Width	Depth	Depth w/ cable bend radius
	(Arms)	(Arms)	(kW)	mm (in)	mm (in)	mm (in)	mm (in)
KED-SPM-7V03S-A100-0000-A	3	9	1.2	200	70	202	262 (10.31)
KED-SPM-7V06S-A100-0000-A	6	18	2.5	(7.87)	(2.75)	(7.95)	
KED-SPM-7V12S-A100-0000-A	12	30	5	220	70	202	262 (10.31)
				(8.66)	(2.75)	(7.95)	

Top View



**Reset Button**

**Service Port:**  
» Workbench connection (USB-C)

Front View



**24 Vdc Logic Supply  
STO Inputs**

**Industrial Ethernet:**  
» EtherCAT®  
» Profinet® IRT  
» Ethernet/IP™ CIP Sync

**Power Output:**  
» Motor power  
» Brake

**Digital Input/Output:**  
2 x High-Speed Digital Inputs 24 V (sinking)  
2 x Slow Digital Inputs 24 V (sinking)  
2 x Digital Outputs (sourcing)  
1 x Digital Input Ground

**Feedback port**  
(Single-Pair Ethernet):  
» SFD-M / SFD3

**Physical Earth (PE)**  
Also where shield/screens  
are mounted

Bottom View



**DC Link & Brake Resistor**

**AC Mains (in and out):**  
120-240 VAC, 1-3φ  
240-480 VAC, 3φ

# Kollmorgen Automation Suite™

Today's OEMs must deliver differentiated, high-performance machines, quickly, to stay competitive. The Kollmorgen Automation Suite (KAS) enables this, with a complete software and hardware package proven to measurably accelerate development, increase throughput and maximize overall equipment effectiveness.

## Single point of control

Faster, more efficient motion design starts with the KAS Integrated Development Environment. This platform features all the tools to design, program, configure, debug and maintain machine applications—all from a single connection.

## Programming made easy

KAS helps you achieve better machine control, faster. It supports the industry-standard IEC 61131-3 programming toolkit with automated features and offers plug-and-play design and easy-to-use function blocks for speed and efficiency.

## Built-in tools to enhance performance

Digital diagnostic and troubleshooting features make setup and tuning intuitive, while comprehensive simulation tools further support application development and debugging without requiring hardware.

## Integrated safety at every step

KAS integrates safety for all components of the control system. SafeMotion™ capabilities ensure local drive safety, while the SafePLC2 programming environment provides certified functional safety and system-level I/O control.

## Seamless connectivity

An integrated OPC UA Server connects HMIs and other controllers, while an on-board Web Server enables browser-based diagnostics and control. Plus, Network Time Protocol (NTP) ensures synchronized timing for highly coordinated motion.



## A fully integrated system

The Kollmorgen Automation Suite™ (KAS), controllers, drives, motors, I/O and cables all come together in an integrated system to fully automate and control every axis of your entire application. This gives machine builders the flexibility to scale performance and cost across a wide range of applications, while reducing integration effort and simplifying design.

## PCMM2G Essentials controller

Kollmorgen's PCMM2G Essentials controller provides proven PCMM2G performance and integration capabilities at a price point scaled for lower-axis-count applications. As part of a complete Kollmorgen Essentials™ Motion System and seamless integration with the Kollmorgen Automation Suite (KAS), the controller simplifies design, accelerates commissioning and maximizes overall system value.

- Scalable controller platform for lower-axis machines
- Up to 8 axes for synchronized path motion, indexing and basic positioning tasks
- Integrated I/O and functional safety modules
- Plug-and-play capabilities with KAS and third-party systems
- KAS includes lifelong software updates and no yearly licensing fees
- Faster setup and commissioning with pre-integrated components
- Built-in tools for rapid configuration, tuning and optimization
- Flexible programming options include PLCopen and IEC 61131-3 programming

For higher-axis machines or more complex motion requirements, Kollmorgen offers the PCMM2G standard with up to 24 axes and advanced controllers with up to 64 axes.

Specification	Description
Processor	Quad-core 1.5GHz (ARM Cortex A-72 processor)
Internal Memory	2 GB RAM, 8 GB Flash Memory
Motion Network	EtherCAT, max 4kHz update rate
Networking Protocols	2 Ethernet Ports 100BaseT connection supporting: <ul style="list-style-type: none"> <li>• OPC-UA</li> <li>• EtherNet/IP</li> <li>• HTTP</li> <li>• Modbus TCP</li> <li>• PROFINET</li> <li>• TCP/IP</li> <li>• UDP</li> </ul>
Certifications	CE, RoHS, UKCA, UL
Battery	<ul style="list-style-type: none"> <li>• CR2032 Lithium Manganese Dioxide primary cell, 3V.</li> <li>• At least 190mAh.</li> </ul>
Critical Temperature Limit (CPU)	83°C/180°F
Dimensions	174 mm (H) x 50 mm (W) x 111.5 mm (D)
External Memory	Removable USB flash drive slot. USB flash drive not included.
Input Power	24VDC @ 1.25A
Local I/O	6 digital inputs 2 digital outputs
Operating Temperature (ambient range)	0°C to 55°C
Sealing	IP20



# Essentials accessories

## Drive accessories

### Regen Resistors

BAFP(U)-85-33-S 85 W, 33 Ohm, 210 x 60 x 27 mm for use with KED-SPM-6V03S and KED-SPM-6V06S drives

BAFP(U)-100-33-S 100 W, 33 Ohm, 239 x 70 x 27 mm for use with KED-SPM-6V12S and KED-SPM-7VxxS drives

### EMC Filters

KED-1MF-XX Mains filter single phase XX = current rating (06, 10 or 20)

KED-3MF-XX Mains filter three phase XX = current rating (10, 20)

### Connectors

Replacement Mating Connectors:

KED-CONKIT-MV36 Connector kit with all mating connectors except motor connector and feedback connector for KED-SPM-6V03S and KED-SPM-6V06S

KED-CONKIT-MV12 Connector kit with all mating connectors except motor connector and feedback connector for KED-SPM-6V12S

KED-CONKIT-HV36 Connector kit with all mating connectors except motor connector and feedback connector for KED-SPM-7V03S

KED-CONKIT-HV12 Connector kit with all mating connectors except motor connector and feedback connector for KED-SPM-7V12S

KED-CON-X3-MV36 Mating connector X3 (Mains Power) for KED-SPM-6V03S and KED-SPM-6V06S

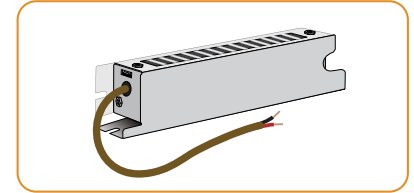
KED-CON-X3-MV12 Mating connector X3 (Mains Power) for for KED-SPM-6V12S

KED-CON-X3-HV36 Mating connector X3 (Mains Power) for KED-SPM-7V03S and KED-SPM-7V06S

KED-CON-X3-HV12 Mating connector X3 (Mains Power) for KED-SPM-7V12S

KED-CON-X10 Mating connector X10 (24V in and STO) for all drives

KED-SHIELD-25 Spare cable shield clamp for all Essentials cables to all KED drives



## Motor accessories

### Shaft Seal Kit

KEM-020-040-SSK

KEM-075-100-SSK

KEM-150-250-SSK

KEM-300-400-SSK

### Shaft Key Kit

KEM-020-040-SKK

KEM-075-100-SKK

KEM-150-400-SKK



## Cable variants

H2-51-015-A5-00-xxxx00 (for 6V03S and 6V06S variants)

H2-52-015-A5-00-xxxx00 (for 7V03S and 7V06S variants)

H2-52-025-A5-00-xxxx00 (for 6V12S and 7V12S variants)

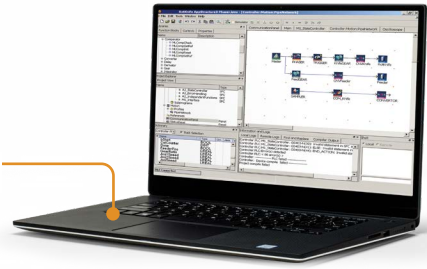
Each cable variant will have 25 SKUs, from 001000 (1m) up to 025000 (25m), in 1m increments





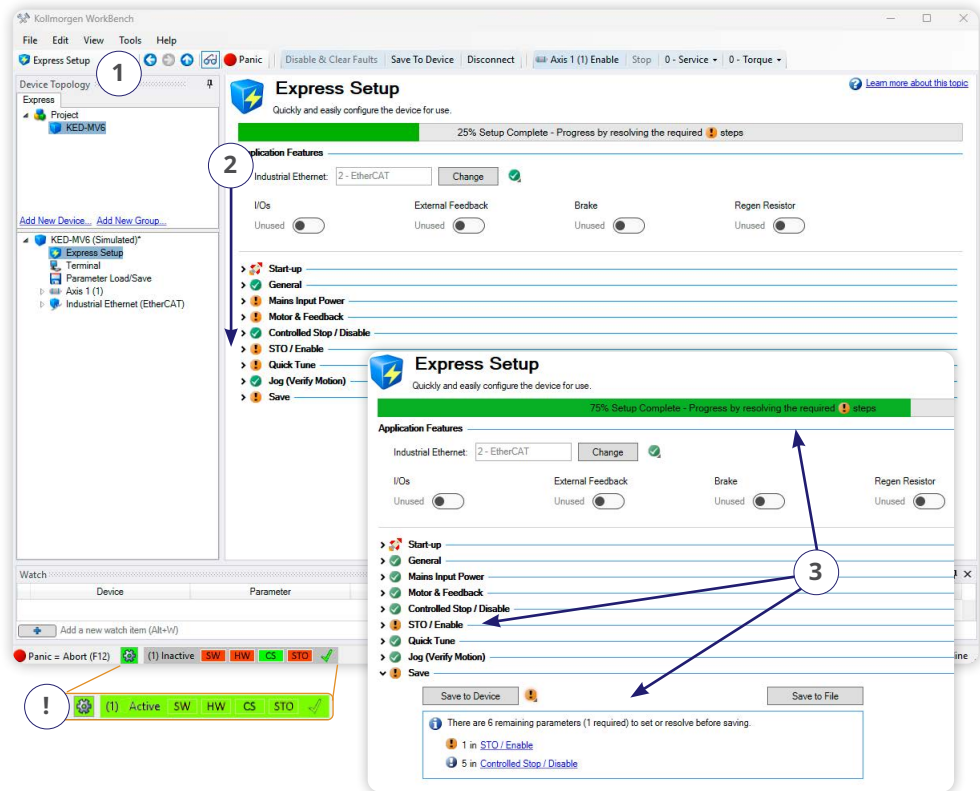
# KOLLMORGEN WorkBench

with Express Setup for Essentials

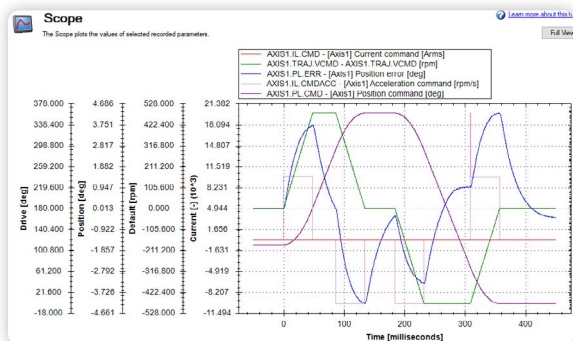


Our simple Graphical User Interface (GUI), Kollmorgen WorkBench, is designed to expedite and streamline the user's experience with the Essentials family of servo drives. From easy application selection and reduced math, to a sleek six-channel scope; the user interface is extremely easy to use. Kollmorgen WorkBench supports intuitive access to the exclusive Performance Servo Tuner (PST) available inside the Essentials drive. The patent pending PST makes auto-tuning the Essentials high-performance servo drive with world-class Kollmorgen motors very simple. Easy as 1 - 2 - 3!

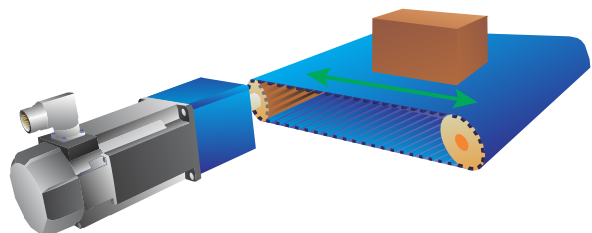
- 1 **Launch WorkBench and connect the drive.** Once connected, the Express Setup pane is opened.
- 2 **Express Setup quickly guides** you through the required settings to have your system up and running in minutes.
- 3 **Express Setup monitors** the setup process and ensures all required settings have been addressed before enabling the system.



Switch to Full Setup mode to reveal and explore all of the available WorkBench features:



“Real-time” Oscilloscope, Application Selection, Motion Tasks, Performance Tuning, Cogging Compensation, and many more...





## About Kollmorgen

Kollmorgen, a Regal Rexnord Brand, has more than 100 years of motion experience, proven in the industry's highest-performing, most reliable motors, drives, AGV control solutions and automation platforms. We deliver breakthrough solutions that are unmatched in performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

[www.kollmorgen.com](http://www.kollmorgen.com)

# **KOLLMORGEN**

A REGAL REYNORD BRAND

Specifications are subject to change without notice. It is the responsibility of the product user to determine the suitability of this product for a specific application. All trademarks are the property of their respective owners.

KM\_BR\_000445\_RevB\_EN  
©2026 Kollmorgen Corporation. All rights reserved