# XD INDEXER

ORMEC Productivity in Motion

ORMEC's Indexing Servo Drives, the XD-Series, is anything but ordinary. The XD Indexer is a high performance, single axis servo drive full of advanced motion control features that are typically only found in programmable products.

MotionSet software provides intuitive tools that reduce commissioning time down to just minutes. Drag and drop I/O assignments and familiar menu driven programming environment make the XD Indexer easy to configure. Application specific features are quickly configured.

ORMEC's industry leading Motor Wizard simplifies non-standard motor configuration and enables seamless integration of most third party motors with the XD Indexer. Once the user program and motor data are loaded onto the indexer the configuration information is stored both in the indexer and on a removable flash memory card[1], providing application data backup, axis cloning, and machine documentation storage. MotionSet's digital scope and monitor utility make application testing and optimization easy.

## Motion Features

- 32 independent motion profiles including Incremental and Absolute Indexing, Gearing, Registration[1], Camming[1], & Blended Moves. Flexible Homing routines and Jogging are also available in addition to these 32 motions
- Motion profiles can be mapped to I/O, initiated via Modbus TCP, chained and/or looped
- Synchronize motion with machine I/O (i.e. Start, Stop, or Trigger speed changes with inputs at any point in the chain)
- On-the-fly transitions between Position, Velocity, Torque or Tension modes
- Easy-to-define user units for axis position, speed, acceleration, and deceleration further simplify programming
- Resolution scaling of quadrature output


## Communication

- Modbus TCP is standard. One other Fieldbus (Ethernet/IP, CANopen[1], Profibus-DP[1]) may be added.
  - Adjust motion parameters (speed, distance, etc) as needed
  - Access all system variables
  - Trigger motion with a PLC or HMI
  - Read real-time axis status
- USB and Ethernet Connectivity
  - Fast and reliable commissioning
  - Available on all modern laptop and desktop computers
- Flexible I/O: 14 inputs, 8 outputs, 1 analog input
  - Optional 2nd analog input and 1 analog output
  - Outputs can be utilized for basic logic control

## Wide Power Range

- Available in 115, 230 and 460 VAC input power
- Continuous current ratings from 3 to 60A rms

## Features for Typical and Difficult Applications

The features of the XD Indexer have been developed to meet a wide range of applications. Intelligent Conveyor Control, Pick and Place, Ultrasonic Welding, Stamping, Pin Insertion, Drilling, Grinding, Labeling, Flying Shear, Rotary Knives, Scanning, High Speed Printing, Part Storage and Retrieval, and many more are easily configured. The XD-Series Indexer family has many built-in features to support otherwise difficult application requirements such as Tension Control, Dual Loop Feedback, Registration[1], Gearing and more. ORMEC offers a wide range of standard motors and cables to fit most applications and the XD Indexer is compatible with nearly all industrial servo motor technologies.

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## Hardware Features

Many of the features that make the XD Indexer the single axis drive/controller of choice are right on the front of the drive. A comprehensive mix of digital and analog I/O is available to satisfy diverse application requirements. Industry leading innovations such as USB communication and an onboard 24VDC power supply output make the XD Indexer easy to commission quickly.

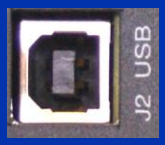
***"Hardware Features Designed for Fast Integration and Easy Troubleshooting"***


### Status Display

This display, along with several status LEDs, communicates vital axis information at a glance. Fault code, drive IP address, and motion execution information ("J" for jogging, "H" for homing) is displayed here.

### USB Communication

This USB connection uses the easiest and most prevalent communication method available on PCs. Set up your drive and exercise motion easily with no IP configuration required and no serial communication converter.



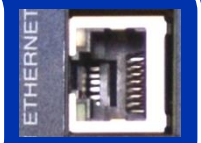


### 24 VDC Power Supply

Use as input for control power, as output to power digital inputs and outputs, or to supply power to an operator interface (HMI).

### Ethernet Communication

Ethernet connectivity provides fast and easy communication with the XD Indexer whether commissioning the drive from your laptop, or communicating with other control devices in a system such as an operator interface or PLC.



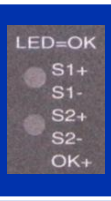


### Flash Memory Storage[1]

Every drive has a flash memory card slot for storing drive parameters and programs on removable media. Cloning an axis and storing important machine related files is simple.

### Safety Circuit (Optional)

For machines that require low level, redundant safety circuitry, an internal safety relay is available. This supports a cost-effective implementation of the EN13849-1 standard. Two contacts must be closed to allow the motor to be energized.



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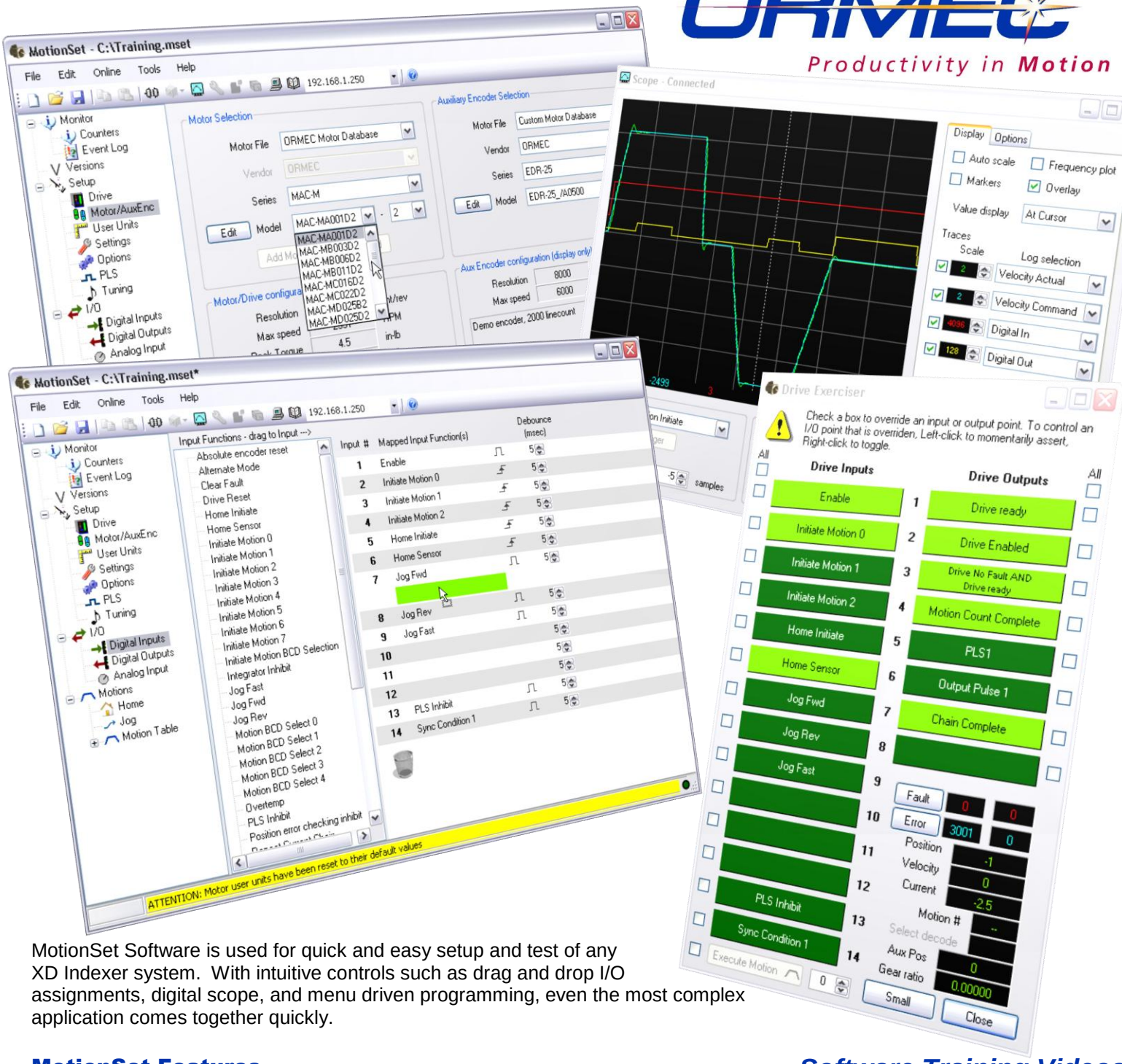


MotionSet Software is used for quick and easy setup and test of any XD Indexer system. With intuitive controls such as drag and drop I/O assignments, digital scope, and menu driven programming, even the most complex application comes together quickly.

## MotionSet Features

***Software Training Videos available at www.ormec.com/videos***

- 32 Programmable Motion Profiles in addition to homing and jogging capability
- Step-by-step, menu driven programming
- 3rd Party motor support and easy setup with ORMEC's Motor Integration Wizard
- Four channel digital scope displays velocity, position error, current, I/O status and more
- Flexible homing routines including 'Home to Limit' and 'Home to Hard Stop'
- Advanced motion control programming (3 PLS Functions, Gearing, Camming[1], Blended Motion)
- Quick commissioning tools (Software I/O Exerciser, Digital Scope, Quick Motor Test Window)
- Easy troubleshooting with Digital Scope, Axis Monitors, and Event Log

# XD INDEXER MotionSet Software Features

# Specifications

## Control Circuit Power

**Models 203, 205, 210, 215, 225, 235, 260, 417, 425**

- 24VDC +/- 10% @ 0.7A (typical) or
- 115 – 230 VAC +15%, -20% @ 0.5A (typical)
- When using VAC input, 24VDC @ 1A is output for use on drive I/O or powering an HMI

**Models 403, 405, 410**

- 24VDC +/- 10% @ 0.7A (typical)

**Models 435, 450**

- 230 VAC +15%, -20%, single phase @ 0.5A (typical)

## XD 200V Series

### Main Circuit Power

- 115 – 230 VAC +15%, - 20%, 50/60 Hz, single phase (3 & 5A) or 3-phase

### Output Power and Current

- 600 to 15,000 watts of motor output power
- Models: 3A, 5A, 10A & 15A rms / phase continuous w/ 3x peak
- Models: 25A, 35A & 60A rms / phase continuous w/ 2x peak

## XD 400V Series

### Main Circuit Power

- 230 - 480 VAC +15%, - 20%, 50/60 Hz, 3-phase

### Output Power and Current

- 1,400 to 24,000 watts of motor output power
- Models: 17A, 25A, 35A & 50A rms / phase continuous w/ 2x peak
- Models: 3A, 5A, 10A rms / phase continuous w/ 3x peak

### XD Indexer Dimensions (in.)

| | H* | W | D | | H | W | D |
|---|---|---|---|---|---|---|---|
| **203** | 7.20 | 2.20** | 6.50 | **403** | 7.70 | 2.45 | 7.30 |
| **205** | 7.20 | 2.20** | 6.50 | **405** | 7.70 | 4.00 | 7.30 |
| **210** | 7.20 | 4.25 | 6.50 | **410** | 7.70 | 4.20 | 7.30 |
| **215** | 7.20 | 4.45 | 6.50 | **417** | 10.90 | 7.35 | 8.45 |
| **225** | 10.90 | 7.35 | 8.45 | **425** | 10.90 | 7.35 | 8.45 |
| **235** | 10.90 | 7.35 | 8.45 | **435** | 12.90 | 8.43 | 9.45 |
| **260** | 10.90 | 7.35 | 8.45 | **450** | 12.90 | 8.43 | 9.45 |

* mounting tabs not included
** with pacer add 0.8

## 200V and 400V Features

### Motor Feedback Interface

**Quadrature**

- Standard optical encoders including Yaskawa Sigma I
- Three differential channels with 5.3v encoder power; open wire detection on A and B
- Quadrature feedback 4x decoding with data rates to 20 MHz
- Three differential or single ended commutation inputs

**Serial**

- Yaskawa Sigma II
- Tamagawa TS56xx
- EnDat 2.2, SSI[1], BISS[1]

**Resolver[1]**

- 12-bit, 14-bit or 16-bit resolution

**Tachometer**

- +/- 10 VDC velocity feedback

### Environmental

- Ambient operating 0 to 50ºC
- Ambient storage -20 to 70ºC
- Humidity operating / storage is 90% RH or less, non-condensing

### Built-In I/O

**Inputs**

- 12 digital inputs, debounced, scanned at 2.5 kHz rate
- 2 digital inputs, < 1 µsec accuracy on latched position, used as hardware trigger signals
- 1 Analog input, 12-bit resolution, +/- 10 VDC
- 1 Optional Analog input, 14-bit resolution, +/- 10 VDC

**Outputs**

- 6 Digital, 100 mA, 24 VDC
- 2 Digital, 1A, 24 VDC, can directly drive most 24 VDC brakes
- 1 Optional Analog output, 12-bit resolution, +/- 10 VDC

### Auxiliary Feedback

**Quadrature**

- Three differential channels with 5.3V encoder power supplied. Open wire detection on A and B

**Serial**

- Yaskawa Sigma II
- Tamagawa TS56xx
- EnDat 2.2
- SSI[1], BISS[1]

Note: Each serial interface type can only be used on one feedback path at a time

**Temposonics[1]**

- SSI, Analog and Start/Stop

### Connectors

**Feedback**

- 25-pin D-sub, motor
- 15-pin D-sub, Auxiliary

**I/O**

- 37-pin D-sub

**Power (P/N 203, 205, 210, 215, 403, 405)**

- Pluggable terminal blocks with screw terminals

**Power (P/N 225, 235, 260, 410, 417, 425, 435, 450)**

- Fixed screw terminal blocks

### Motion

- 32 defined indexes
- Absolute position space – 32-bit
- Repeat count – 32-bit
- Gearing – 32-bit
- Types: Time based relative and absolute, homing and gearing

### Update Rates

- Position loop update rate: 10 kHz
- Velocity loop update rate: 10 kHz
- Torque loop update rate: 10 kHz

**All specifications subject to change**

**130724**

[1] **Available in Future Releases**