

# TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION

## MEDIUM VOLTAGE CONTROLS

# JK Series



**MEDIUM  
VOLTAGE**

## JK4 & JK7 SERIES FEATURES

- JK4: 400 A, 2300 V to 6600 V
- JK7: 720 A, 2300 V to 6600 V
- JK4 Main Contactor/Fuse Assembly Available in Either Fix-Mounted or Drawout Design Enclosure Ratings: Type 1 & 12 Indoor, Type 3R Outdoor
- Reduced Footprint
- Rigid 11-Gauge Steel Frame
- Visible, Bolted Pressure Isolation Switch
  - Less Resistance
  - Less Wear
  - No Insertion Pressure
  - Mechanical Interlocking System
- Contactors Manufactured by Toshiba International Corporation (TIC)
  - Latched-Type Contactors Available
  - Vacuum Contactors Built & Tested in TIC's Houston Manufacturing Plant
- Front Accessibility
  - Motor Connection Points in the MCC are 100% Front-Accessible with Removal of Vacuum Contactor
  - With Front Accessible Main Bus, Rear & Top Access is Not Required
  - Rear Access is Not Required for Any Installation or Maintenance Solutions
- Isolated Low Voltage Door & Swing-Out Sub Panel
  - Isolated Low Voltage Compartment Steel Barrier Protects Against Accidental Contact
  - Main Bus is Accessible through Hinged Low Voltage Sub Panel
  - Barrier Behind Low Voltage Door Opens to Fully Expose Main Horizontal & Vertical Busing, Allowing for Inspection of Bus or Connection to Adjacent Cubicle without the Need for Rear Access
  - Please contact [TIC-Controls@toshiba.com](mailto:TIC-Controls@toshiba.com) for UL listing availability



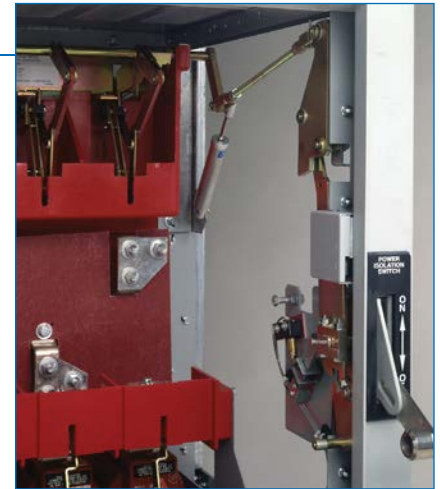
## DRAWOUT-TYPE JK4 SERIES

- Contactor & Fuses are Mounted onto Built-In Service Drawer with Locating Pins, Which Allow Positioning of Drawout Unit on Tray
- No Crane or Lifter Required for Normal Service
- Drawer Supported by Sliding Rails, Which Lock in Fully Extended Position
- Allows Partial Removal of Starter for Normal Routine Maintenance or Fuse Replacement
- Allows Starter to be Withdrawn to Assist in Removal of the Complete Starter Assembly
- Vacuum Contactor & Power Fuses can be Completely Withdrawn, Which Provides Faster & Easier Preventive Maintenance
- Includes Line Terminal for Engaging First-Bolted Pressure Contact and Load Terminal for Engaging Second-Bolted Pressure Contact when Drawout Unit is in an Inserted Position
- Components are Specifically Arranged in a Compact Design, Requiring Significantly Less Space than Conventional Designs



## JK ISOLATION SWITCH (ALL MODELS)

- Bolted Pressure Isolation Switch
  - Mechanical Interlock Provided between Contactor/Fuse Unit & Isolation Switch to Prevent Opening/Closing unless Main Contactor Contacts are Opened
  - Zero-Insertion Force Preserves Silver Plating on Connection Points



## JK4 & JK7 REDUCED VOLTAGE AUTOTRANSFORMER (RVAT) CONTROLLERS

- Three Vacuum Contactors
- Adjustable Solid State Transition Timer & Incomplete Sequence Timer
- JK4 Main Contactor Available Fix-mounted or Drawout
- Three Winding Copper-Wound Auto-Transformer with 50, 65, & 80% Voltage Taps



## JKSSS SOLID STATE STARTER SERIES

Products in Toshiba's JK SSS medium voltage motor starter series are designed to softly start and stop AC motors in fixed speed applications regardless of power condition, load condition or environment. Each solid state starter provides maximum motor protection with true thermal modeling while still allowing smooth, stepless control of motor acceleration and deceleration.

- JKSSS4 (400 A, 2300 to 6600 V) & JKSSS7 (720 A, 2300 to 4200 V) Models
- Voltage & Current Metering
- 7" Full-Color Touchscreen Keypad
- Plain Text Interaction with Multi-Language Support
- Programmable Advanced Features via 7" Color Touchscreen or Computer
- Fiber-Optically Isolated Low Voltage Compartment
- Fully-Rated Bypass Contactor for Increased Thermal Capacity & Optional Across-the-Line Start
- Non-Load-Break Disconnect Switch with Door Safety Interlocking
- Line Isolation Vacuum Contactor (JKSSS4 Available Fix-Mounted or Drawout)
- Heavy Duty SCR Stack Assemblies with Ring Transformer Isolation
- Eight Programmable Relay Outputs for Control
- Two Programmable Analog Outputs (0 to 10 VDC or 4 to 20 mA)

The JKSSS series provides system protection features typically found in expensive stand-alone motor protection relays without requiring costly add-on cards or other discreet devices. Users can customize the level of protection for their specific use by setting their own warning levels, separating trip curves for start and run modes, using a learned overload curve, or activating the remote/automatic overload reset option.

- Overcurrent/Electronic Shear Pin Notification
- Undercurrent/Load Notification
- Short Circuit Trip, Which Pre-Checks Motor to Prevent Starting into a Shorted Load
- Phase-Rotation, Phase-Loss, & Current Imbalance Protection
- Undervoltage, Overvoltage, Line Frequency Trips & Alarms
- RTD Input for Precision Thermal Management
- Residual Real-Time Clock
- Zero Sequence Ground Fault (Optional)



# COMPACT DESIGN ADVANCED TECHNOLOGY

Toshiba's medium voltage JK Series motor controllers are manufactured to the ISO 9001:2015 standard in the same Houston, Texas facility as TIC-manufactured motors and drives. The components of controllers in this series are arranged in a streamlined, space-saving manner with no internal power cables used in the full-voltage type starters for ease of maintenance. These medium voltage controllers are available in full-voltage or reduced-voltage models for control of induction, wound rotor or synchronous motors, transformers, and capacitors.

## VERTICAL MAGNETIC ARC DISPERSION SYSTEM

- Designed for Longer Wear: Unique Vertical Magnetic Arc Dispersion System



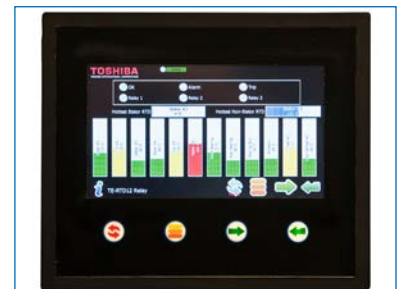
Interruption Sequence

## MEDIUM VOLTAGE SOLID STATE STARTER (JKSSS)

- NEW Color Touchscreen for Monitoring & Programming:
- Combines multiple relays with starter controls.
- Simplifies setup using a single touchscreen.
- Plain text interaction in any of six supported languages (English, Spanish, Russian, Chinese, German & French).



SSS & Relay Selection



Color Touchscreen Showing 12 RTD Temperature

## INDUSTRIES SERVED

- Oil & Gas
- Mining & Minerals
- Chemical
- Aggregate

## APPLICATIONS

- Pumps
- Fans
- Compressors
- Extruders
- Conveyors
- Mixers
- Blowers
- Crushers
- Test Stands
- Sync-Transfer



## JK MOTOR CONTROL CENTERS

A JK Motor Control Center (MCC) can combine all the various JK4 & JK7 controlgear (e.g. FVNR, FVR, RVAT, SSS, Transformer Feeder, ASD Feeder, ASD Bypass & ASD Sync-Xfer) into one lineup with:

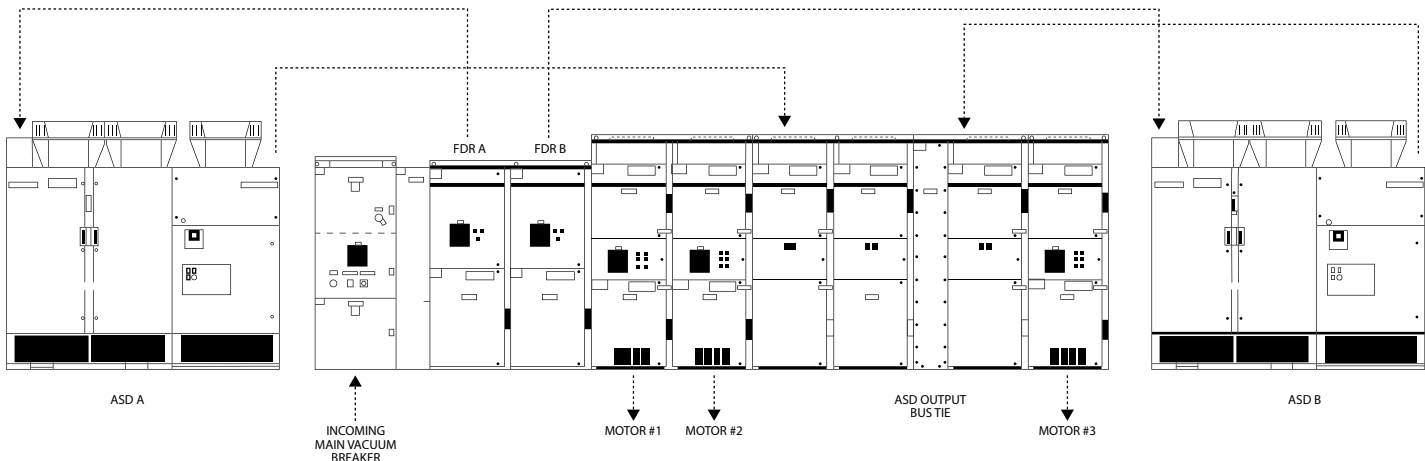
- Main Bus: 1200 A, 2000 A or 3000 A, Tin or Silver Plated, Non-Insulated or Insulated.
- Incoming: Cable Pull Section, Load Break Switch (Non-Fused & Fused), Toshiba Vacuum Circuit Breaker (1200 A, 2000 A, 3000 A)



## SYNC-XFER MCC

Sync-Xfer is a solution that combines the proven reliability of a Toshiba medium voltage adjustable speed drive (ASD) with the precision of Toshiba controlgear. With Sync-Xfer, an applicable Toshiba medium voltage ASD can determine characteristics of the utility line and transfer motor supply power from variable speed to utility power via Toshiba vacuum contactors or vacuum circuit breakers. Alternatively, such ASD can capture a motor from utility power and return it to variable speed. Sync-Xfer can therefore have a significant impact by lowering a system’s cost with respect to applications in which multiple motors are controlled by one or more ASDs, including those used for starting duty only.

TIC controlgear and their availability of multiple configurations help every TIC customer meet or exceed their project requirements in a timely manner. Whether a project requires a one or more motors and/or Toshiba ASDs (including redundant drives), a combination of Toshiba ASDs and controlgear systems can be designed to fit the ever-evolving needs of the customer.



An illustration of the capability of a combined Toshiba T300MV2 ASD and controlgear solution is shown above.

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