TMEIC
We drive industry

TMdrive®-XL80 Medium Voltage Drive

Medium Voltage Drive
15 – 30 MVA

The TMdrive-XL80 is a medium voltage, ac fed drive designed for high-efficiency and power-friendly operation in a broad range of industrial applications.

High reliability, low harmonic distortion, and high power factor operation are designed into the drive.

The TMdrive-XL80 is available with up to 3.8 kV output.

Features	Benefits
• Conservative design using 6000 V – 6000 A GCTs power switches	• Highly reliable operation, with expected 20-year drive MTBF
• High drive energy efficiency – approximately 98.6%	• Considerable energy savings
• Diode rectifier ensures utility power factor greater than 95%	• Capacitors not required for power factor correction
• 24-pulse converter rectifier with phase shifted transformer	• No harmonic filter required to provide harmonic distortion levels better than IEEE-519-1992 guidelines
• Three-level drive output waveform to the motor	• Low motor heating due to motor-friendly waveform
• Optional synchronous transfer to line option with no interruption to motor current	• Allows control of multiple motors with one drive • No motor current or torque transients when the motor transitions to the AC line
• Remote input isolation transformer	• Less power loss in drive room • Less total space required • Simplifies design and installation
• Deionized water cooling system	• High efficiency cooling • Reduced fan and air conditioning load

TMEIC
We drive industry

TMdrive®-XL80 Medium Voltage Drive

Dimensions and Weights

	kVA	Height (mm)	Width (mm)	Depth (mm)	Est. Weight (kg)
3.8 kV	15,000	2650	4800	2100	10,100

Dimensions shown are for 15,000 kVA single bank. Power output to 30,000 kVA will use two banks similar to above.

Control I/O

Control Area	Specifications
Analog Inputs	(2) ± 10 V or 4-20 mA, configurable, differential
Analog Outputs	(4) ± 10 V, 8-bit, configurable, 10mA max
Digital Inputs	(2) 24-110 V dc or 48-120 V ac; (6) 24 V dc, configurable
Digital Outputs	(6) 24 V dc open collector 50 mA
Speed Feedback Input	High-resolution tach, 125 kHz, 5 or 15 V dc diff. input, A Quad B, with marker (resolver optional)
LAN Interface Options	Profibus-DP, RTU, DeviceNet™, TOSLINE®-S20, or Modbus

Display and Diagnostics

	Specifications
PC Configuration	Control System Drive Navigator for configuration, local and remote monitoring, animated block diagrams, dynamic live and capture buffer-based trending, fault diagnostics, commissioning wizard, and regulator tune-up wizards. Ethernet 10 Mbps point to point or multi-drop, each drive has its own IP address
Keypad and Display	Backlit LCD, animated displays • Parameter editing • Four configurable bar graphs • Drive control
Instrumentation Interface	Two analog outputs dedicated to motor current feedback, plus five analog outputs that can be mapped to variables for external data logging and analysis

Additional Specifications

Power System Input and Harmonic Data
- Voltage: Need converter duty transformer
- 100% output continuous
- Frequency: 50 Hz or 60 Hz, ± 2 Hz
- Displacement power factor (PF): 0.95 lag
- True PF: greater than 0.95 lag over 40 – 100% speed range
- Better than the IEEE 519-1992 standard for harmonics, without filters
- Top or bottom cable entry

Power System
- Auxiliary power (by user, 3-phase):
  200 V - 50 Hz
  220 V - 50/60 Hz
  For higher voltages transformer is mounted inside drive
- Control Power (by user)
  380, 400, 440, 460, 480, 575, 690 V (3-phase)
- Cooling Unit Power (3-phase)
  380 V - 50 Hz
  400 V - 50/60 Hz
  440 V - 60 Hz

Converter Type
- AC fed 12-24 pulse diode using phase shifted transformer

Inverter
- Three-level inverter
- 6000 Volt, 6000 Amp GCT
- Roll-out GCT modules for fast maintenance and repair
- Rated frequency 50-60 Hz, max 200 Hz

Applicable Standards
- IEC60146, JIS, JEC, JEM, CE(option)

Operating Environment and Needs
- Temperature: 0° to +40° C
- Humidity: 95% maximum, non condensing
- Altitude: Up to 1000 m (3300) ft above sea level

Cooling
- Water-cooled, deionized water loop
- Industrial cooling water temperatures 40° C

Sound
- Approx. 80 dB (A), at 3.1 ft (1*m*) from enclosure

Control
- Non-volatile memory for parameters and fault data
- Volts/Hz or vector control without speed feedback
- Designed to keep running after utility supply transient voltage drop outs of 300ms
- Synchronous transfer to line option

Vector Control Accuracy and Response
- Speed regulator: 20 rad/sec
- Speed regulation without speed sensor ±0.5%
- Torque response: 500 rad/sec
- Torque accuracy: ± 3% with temp sensor, ± 10% without

Protective Functions include:
- Inverter overcurrent, overvoltage
- Low or loss of system voltage
- Motor ground fault
- Motor overload
- Over-temperature
- CPU error

Enclosure
- IP42 (IEC 60529), front and rear access
- Color: Munsell 5Y7/1