

# TMdrive-XL85

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We drive industry

## Medium Voltage Drive 30 to 120 MVA

The TMdrive-XL85 is a medium voltage, ac fed drive designed for high-efficiency and powerfriendly 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-XL85 is available with up to 7.2 kV class output.



Design Feature	Customer Benefit
• Conservative design using 6000 V–6000 A Gate Commutated Turn-off Thyristors (GCTs)	• Highly reliable operation, expected 20 year drive MTBF
• High energy efficiency of approximately 98.6%	• Considerable energy savings
• Diode rectifier ensures power factor greater than 95% in the speed control range	• Capacitors not required for power factor
• 36-pulse converter rectifier by using phase shifted transformer	• No harmonic filter required to provide lower harmonic distortion levels than IEEE-519-1992 guidelines
• Five level drive output waveform to the motor	• Smooth output voltage, motor friendly wave form
• Externally mounted input isolation transformer	• Less power loss in drive room • Less total space required • Simplifies design and installation
• Up to 7.2 kV direct drive voltage output level	• No output transformer required, saving cost, mounting space, and energy

# TMdrive-XL85 Specifications

## Dimensions and Weights

	kVA	Height (mm)	Width (mm)	Depth (mm)	Est. Weight (kg)
6.6 to 7.2 kV	30,000	2614	13700	1600	21400

Dimensions shown for 30,000kVA single bank. Power output to 120,000 kVA will use multiple banks similar to above.

## Control I/O

Control Area	Specifications
Analog Inputs	(2) $\pm 10$ V or 4-20 mA, configurable, differential, 12-bit Sampling time 1 ms
Analog Outputs	(4) $\pm 10$ V or 8-bit, configurable, 10 mA max, 12-bit Sampling time 1 ms
Digital Inputs	(2) 24-110 V or 48-120 V ac; (6) 24 Vdc, configurable
Digital Outputs	(6) 24 V dc open collector 50 mA
Speed Feedback Encoder Input	Not provided as standard
LAN Interface Options	Profibus-DP, ISBus, DeviceNet™, TC net, or Modbus RTU
Motor Temperature Sensor	High-resolution torque motor temperature feedback: 1 K Ohm platinum resistor or 100 Ohm platinum RTD (uses analog input with signal conditioner)

## Motor Control

### Volt/Hertz Control

- Frequency control accuracy:  $\pm 0.5\%$  (analog setting)
- Frequency setting resolution: 1/1000 or more (analog setting)
- Normal torque:
  - Below 50% frequency, squaring load
  - Below 50% frequency, 100% load

### Pulse Width Modulation Control

- 0-25% speed, Asynchronous PWM
- 25-50% speed, Synchronous PWM
- 50-100% speed, Fixed Pulse Width

Variable Switching frequency up to 600 Hz

## 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 <ul style="list-style-type: none"> <li>• Parameter editing</li> <li>• Four configurable bar graphs</li> <li>• Drive control</li> </ul>
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

## Specifications

### Converter type

- AC-fed multi-pulse diode using phase shifted transformer
- DC bus voltage: 3 x 5450 Vdc

### Transformer

- Oil immersed type transformer
- Air cooled type
- Multi windings

### Inverter

- Five-level inverter for motor friendly wave form
- Motor voltage: 7200 V
- Rated frequency: 50/60Hz
- 200Hz, maximum frequency
- Minimum rated frequency 50Hz

### Applicable Standards

- IEC61800-4, JIS, JEC, JEM, **CE** (option), CSA (option)
- IEC 60146-1, 18.5 kV for 1 minute withstand

### Control

- Nonvolatile memory for parameters and fault data
- Volt/Hertz control
- Sensorless vector (option)

### Protective Functions include:

- Inverter overcurrent, overvoltage
- Low or loss of system voltage
- Motor ground fault
- Motor overload
- Cooling fan abnormal
- Over-temperature
- CPU error
- Water cooling unit alarm
- Exciter fault
- DC voltage drop
- Motor inverse rotation
- Stall detection
- Ground detection

### Enclosure

- IP42 except for tan openings (IEC 60529), NEMA 1 gasketed equivalent
- Color: Munsell 5Y7/1 (Option: ANSI 61 gray, RAL7032 etc.)

### Cable Entrance

- Top access standard
- Bottom access – consult factory

### Air Filters

- Air filters on front and rear doors can be replaced with door closed

### Sound

- Average is below 80 dBA one meter from cabinet

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