



# General Purpose

AC Variable Speed Drive

0.37kW – 22kW  
0.5HP – 30HP  
110 – 480V  
Single & 3 Phase Input

IP20

IP66





## Easy to Use General Purpose Drive

Focused on ease of use, TECDrive provides unrivalled simplicity of installation, connection and commissioning, allowing the user to benefit from precise motor control and energy savings within minutes.

**IP20**

**Up to 22kW**

- Easy to use
- Compact & robust

**IP66**

**Up to 7.5kW**

- Dust-tight
- Washdown ready



# Key Features

 <p><b>Simple Commissioning</b></p> <p>With just 14 basic parameters and application macro functions providing rapid set up, TECDrive minimises start-up time.</p>	 <p><b>Intuitive Keypad Control</b></p> <p>Precise digital control at the touch of a button.</p>	 <p><b>Application Macros</b></p> <p>Switch between <b>Industrial, Pump &amp; Fan</b> modes to optimise TECDrive for your application.</p>
<ul style="list-style-type: none"> <li>• Internal Category C1 EMC filter</li> <li>• Internal PI control</li> <li>• Internal brake chopper</li> <li>• Dual analogue inputs</li> <li>• Operates up to 50°C</li> <li>•  <b>Bluetooth</b> connectivity</li> </ul>	<p><b>Internal Category C1 EMC Filter</b></p> <p>An internal filter in every TECDrive saves cost and time for installation.</p> <p>Cat C1 according to EN61800-3:2004</p>	<p><b>Modbus RTU</b> <b>CANopen</b></p> <p>on-board as standard</p>

## Sensorless Vector Control for all Motor Types

Precise and reliable control for IE2, IE3 & IE4 motors

- IM** IE2 & IE3 Induction Motors
- PM** AC Permanent Magnet Motors
- BLDC** Brushless DC Motors
- SynRM** Synchronous Reluctance Motors



**IP20**

# Models

## Up to 22kW

Compact, robust and reliable general purpose drive for panel mounting

### Simple Installation

DIN rail and keyhole mounting options

### Fast Connection

5mm rising clamp terminals with captive screws



### Quick Reference

Integrated help card



Power supply connects at top

Operates up to 50°C

**Modbus RTU**  
**CANopen**  
on-board as standard



### OPTISTICK

Rapid parameter cloning and Bluetooth PC interface



Dual analogue inputs

Motor supply connects at base



### Incredibly Easy to Use

- Built in PI control, EMC filter (C1) & brake chopper
- Application macros for industrial, fan and pump operation
- Bluetooth connectivity

### Simply Power Up

TECDrive provides precise motor control and energy savings using the factory settings. Simply power up and the drive can immediately deliver energy savings.

14 basic parameters allow simple adjustment for your application if required, with up to 50 parameters available in total for a highly flexible performance.

4 sizes cover global supply ratings



# IP66 Models

## Up to 7.5kW

Enclosed drives for direct machine mounting, dust-tight and ready for washdown duty



### Coated Heatsink as Standard

Ideal for hygiene based operations requiring washdown — such as food and beverage

### Fanless Heatsink

For reliable, cost effective operation



Switched or Non-Switched

Conformal coating as standard



### Dust-Tight Design

Install directly on your processing equipment and be sure of protection from dust and contaminants.

### Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, the TECDrive IP66 is ideal for high-pressure washdown applications.

### TECDrive IP66 Switched

Simply wire up the drive, turn the inbuilt potentiometer and the motor will start running – allowing immediate energy savings

Saving energy cannot be easier than this!

Local Speed Potentiometer

Run Reverse / Off / Run Forward Switch

Lockable Mains Disconnect / Isolator



# Application Macros



Switch modes with a single parameter change to optimise TECDrive for your application

## Industrial Mode

**Industrial Mode** optimises TECDrive for load characteristics of typical industrial applications.

**Sensorless Vector** provides high starting torque and excellent speed regulation.

**IP20** panel mount units or **IP66** for direct machine mounting



Rapid parameter cloning using **OPTISTICK**



**Applications include:**

- Conveyors
- Mixers
- Treadmills

## Pump Mode

**Pump Mode** makes energy efficient pump control easier than ever.

- Constant or variable torque
- Internal PI control



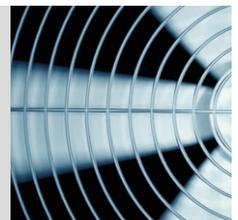
**Applications include:**

- Dosing Pumps
- Borehole Pumps
- Transfer Pumps
- Swimming Pools
- Spas
- Fountains

## Fan Mode

**Fan Mode** (inc. fire operation) makes air handling a breeze, ideal for simple HVAC systems.

- High efficiency variable torque motor control
- Flying start capability
- Mains loss ride through
- PI control

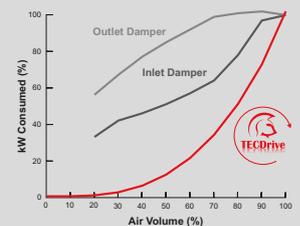


**Applications include:**

- Air Handling Units
- Ventilation Fans
- Circulating Fans
- Air Curtains
- Kitchen Extract

### Instant Power Savings

The graph to right shows the incredible efficiency of TECDrive for controlling airflow compared to traditional damper control methods.



# Options & Accessories



## OPTISTICK

**Optistick**                      OPT-2-STICK-IN  
Rapid Commissioning Tool

- Allows copying, backup and restore of drive parameters
- Provides Bluetooth wireless interface to a PC running OptiTools Studio



## Remote Keypads

**Optipad**                                      OPT-2-OPPAD-IN  
Remote Keypad & OLED Display

**Optiport 2**                                      OPT-2-OPORT-IN  
Remote Keypad & LED Display



## RJ45 Accessories

Ideal for simple and fast connection of Modbus RTU/CAN networks

- OPT-J4505-IN    RJ45 Cable 0.5m
- OPT-J4510-IN    RJ45 Cable 1.0m
- OPT-J4530-IN    RJ45 Cable 3.0m
- OPT-J45SP-IN    RS485 3 Way Data Cable Splitter RJ45



## EtherNet Module

OPT-2-ETHEG-IN

- ODVA compliant EtherNet/IP Modbus Translator Device
- Compatible with all drive platforms: P2, E3 & Eco
- Integrated network switch: simplifying network architecture
- Compatible with RSLogix and CoDeSys PLCs



External EMC Filters,  
Input Chokes & Output  
Filters are available

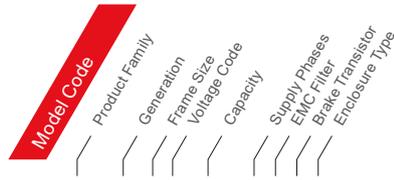
See [www.tecmotors.co.uk](http://www.tecmotors.co.uk) for details

	kW	HP	Amps	Size
110–115V ± 10% 1 Phase Input	0.37	0.5	2.3	1
	0.75	1	4.3	1
	1.1	1.5	5.8	2

200–240V ± 10% 1 Phase Input	0.37	0.5	2.3	1
	0.75	1	4.3	1
	1.5	2	7	1
	1.5	2	7	2
	2.2	3	10.5	2
4	5	15.3	3	

200–240V ± 10% 3 Phase Input	0.37	0.5	2.3	1
	0.75	1	4.3	1
	1.5	2	7	1
	1.5	2	7	2
	2.2	3	10.5	2
	4	5	18	3
	5.5	7.5	24	3
	7.5	10	30	4
11	15	46	4	

380–480V ± 10% 3 Phase Input	0.75	1	2.2	1
	1.5	2	4.1	1
	1.5	2	4.1	2
	2.2	3	5.8	2
	4	5	9.5	2
	5.5	7.5	14	3
	7.5	10	18	3
	11	15	24	3
	15	20	30	4
	18.5	25	39	4
	22	30	46	4



TEC	-	3	-	1	1	0023	-	1	0	1	#
TEC	-	3	-	1	1	0043	-	1	0	1	#
TEC	-	3	-	2	1	0058	-	1	0	4	#

TEC	-	3	-	1	2	0023	-	1	#	1	#
TEC	-	3	-	1	2	0043	-	1	#	1	#
TEC	-	3	-	1	2	0070	-	1	#	1	#
TEC	-	3	-	2	2	0070	-	1	#	4	#
TEC	-	3	-	2	2	0105	-	1	#	4	#
TEC	-	3	-	3	2	0153	-	1	0	4	#

TEC	-	3	-	1	2	0023	-	3	0	1	#
TEC	-	3	-	1	2	0043	-	3	0	1	#
TEC	-	3	-	1	2	0070	-	3	0	1	#
TEC	-	3	-	2	2	0070	-	3	#	4	#
TEC	-	3	-	2	2	0105	-	3	#	4	#
TEC	-	3	-	3	2	0180	-	3	#	4	#
TEC	-	3	-	3	2	0240	-	3	#	4	2
TEC	-	3	-	4	2	0300	-	3	#	4	2
TEC	-	3	-	4	2	0460	-	3	#	4	2

TEC	-	3	-	1	4	0022	-	3	#	1	#
TEC	-	3	-	1	4	0041	-	3	#	1	#
TEC	-	3	-	2	4	0041	-	3	#	4	#
TEC	-	3	-	2	4	0058	-	3	#	4	#
TEC	-	3	-	2	4	0095	-	3	#	4	#
TEC	-	3	-	3	4	0140	-	3	#	4	#
TEC	-	3	-	3	4	0180	-	3	#	4	#
TEC	-	3	-	3	4	0240	-	3	#	4	2
TEC	-	3	-	4	4	0300	-	3	#	4	2
TEC	-	3	-	4	4	0390	-	3	#	4	2
TEC	-	3	-	4	4	0460	-	3	#	4	2

Replace # in model code with colour-coded option

### Enclosure & Display Types

**X** **IP66**  
Non-switched

**Y** **IP66**  
Switched

**2** **IP20**

### EMC Filter

**F** Internal EMC Filter

**0** No Internal EMC Filter

### IP20



Size	1	2	3	4
mm Height	173	221	261	420
mm Width	83	110	131	171
mm Depth	123	150	175	212
kg Weight	1.0	1.7	3.2	9.1
Fixings	4xM5	4xM5	4xM5	4xM8

### IP66



Size	1	2	3
mm Height	232	257	310
mm Width	161	188	210.5
mm Depth	179	187	252
kg Weight	3.1	4.1	7.6
Fixings	4xM4	4xM4	4xM4

# Drive Specification

Input Ratings	Supply Voltage	110 – 115V ± 10% 200 – 240V ± 10% 380 – 480V ± 10%
	Supply Frequency	48 – 62Hz
	Displacement Power Factor	> 0.98
	Phase Imbalance	3% Maximum allowed
	Inrush Current	< rated current
	Power Cycles	120 per hour maximum, evenly spaced

Output Ratings	Output Power	110V 1 Ph Input: 0.5–1.5HP (230V 3 Ph Output) 230V 1 Ph Input: 0.37–4kW (0.5–5HP) 230V 3 Ph Input: 0.37–11kW (0.5–15HP) 400V 3 Ph Input: 0.75–22kW 460V 3 Ph Input: 1–30HP
	Overload Capacity	150% for 60 seconds 175% for 2.5 seconds
	Output Frequency	0 – 500Hz, 0.1Hz resolution
	Acceleration Time	0.01 – 600 seconds
	Deceleration Time	0.01 – 600 seconds
	Typical Efficiency	> 98%

Ambient Conditions	Temperature	Storage: –40 to 60°C Operating: –10 to 50°C
	Altitude	Up to 1000m ASL without derating Up to 4000m maximum
	Humidity	95% Max, non condensing
	Vibration	Conforms to EN61800-5-1

Enclosure	Ingress Protection	IP20, IP66
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Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad
	Display	7 Segment LED

Control Specification	Control Method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance	
	PWM Frequency	4–32kHz Effective	
	Stopping Mode	Ramp to stop: User Adjustable 0.1–600 secs Coast to stop	
	Braking	Motor Flux Braking Built-in braking transistor (not frame size 1)	
	Skip Frequency	Single point, user adjustable	
	Setpoint Control	Analog Signal	0 to 10 Volts 10 to 0 Volts 0 to 20mA 20 to 0mA 4 to 20mA 20 to 4mA
		Digital	Motorised Potentiometer (Keypad) Modbus RTU CANopen EtherNet/IP

Fieldbus	Built-in	CANopen	125–1000 kbps
		Modbus RTU	9.6–115.2 kbps selectable

I/O Specification	Power Supply	24 Volt DC, 100mA, Short Circuit Protected 10 Volt DC, 5mA for Potentiometer	
	Programmable Inputs	4 Total 2 Digital 2 Analog / Digital selectable	
	Digital Inputs	8 – 30 Volt DC, internal or external supply Response time < 4ms	
	Analog Inputs	Resolution: 12 bits Response time: < 4ms Accuracy: ± 2% full scale Parameter adjustable scaling and offset	
	Programmable Outputs	2 Total 1 Analog / Digital 1 Relay	
	Relay Outputs	Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 6A AC, 5A DC	
Analog Outputs	0 to 10 Volt		

Application Features	PI Control	Internal PI Controller Standby / Sleep Function
	Fire Mode	Bidirectional Selectable Speed Setpoint (Fixed / PI / Analog / Fieldbus)

Maintenance & Diagnostics	Fault Memory	Last 4 Trips stored with time stamp
	Data Logging	Logging of data prior to trip for diagnostic purposes: Output Current Drive Temperature DC Bus Voltage
	Monitoring	Hours Run Meter

Standards Compliance	Low Voltage Directive	Adjustable speed electrical power drive systems. EMC requirements
	EMC Directive	2004/108/EC Cat C1 according to EN61800-3:2004
	Machinery Directive	2006/42/EC
	Conformance	CE, RCM



### Company Information:

TEC Electric Motors were formed following a management buyout of the former TEE Distribution Company.

**Year formed: 2005**

**Number of staff: 42**

**HQ location: Worcestershire**

**Turnover: £16 million**

**Markets: HVAC, Conveyor, Pump, Hydraulic, Offshore, Distribution**

### Products:

- 2/4/6/8/10/12 Pole
- 56-355 Frame
- Multi mount 56-200 Aluminium
- Multi mount 80-280 Cast Iron
- Fixed feet 315-355 Cast Iron
- IE1, IE2, IE3, IE4 Efficiency rated motors
- IE3 motors ECA approved
- Increased output IE1 and IE2
- 1ph motors 56-112 frame
- 1ph motors 230v/110v
- 60Hz 1ph motors also available
- ATEX EExde Zone 1 71-355 frame
- ATEX Zone 2/22 56-355 frame
- ATEX Zone 21 & ATEX 1ph
- Brake motors, retro brake fitting
- Two speed Dual & Tap wound
- Special voltage, special shaft
- Vector encoder motors
- Forced ventilated motors
- In-line helical gearboxes
- Right angle bevel helical gearboxes
- Right angle worm gearboxes
- Mechanical Speed Variators
- Slow speed combination units
- Inverter - IP65, IP31 & IP20
- kVA & MW (Mega Watt) motors



2015 saw the 10<sup>th</sup> year anniversary of TEC Electric Motors as a presence in the UK motor market. Along with the extended celebrations, 2015 also saw the extension of the HQ premises where £800,000 was invested in increased storage and office facilities. TEC also made expansions and improvements in the gearbox department as well as doubling the size of the sales team.



TEC's yearly growth over the last decade averages at 22% and the company is rapidly becoming the largest independent stockist of electric motors in the UK. The new purpose built warehouses at TEC's Worcestershire HQ has ensured growth in all of their additional products including specially modified motors and the gearbox department. Capital investment and storage additions have now taken our stock value to over £7m.

June 2011 saw the opening of their specials division. In recent years it has become apparent that many companies are able to provide "off the shelf" standard products. TEC have recognised the need for a motor company to be able to provide this along with specialist and custom product solutions on shortened delivery times.

The facility has the full machining capabilities to take standard stock motors and modify for encoder fitting, retro brake fitting, customer specific shafts, turning, milling, welding, shaft pressing. Basically anything that can be done at the factory will be available "in-house" and at a highly competitive price.

TEC's strategy is to eliminate the need to wait for factory deliveries which can vary on country of origin from 6 weeks to 20 weeks. Many customers are looking for single or low quantity volume special products on a reduced lead time. TEC can provide delivery times from point of order to shipping within 2 weeks, unbeatable in the UK!



TEC Electric Motors entered a joint venture partnership with Shanghai Top Motor Co in April 2012. TECHTOP are the largest manufacturer of aluminium electric motors in China, accounting for some 66% of China's motor exports in 2015 and having many high profile customers. TEC will now form part of a global organisation with TECHTOP's partners in America, Canada, Australia,

France, Germany, Spain, Italy, Holland and UAE to name just a few. This gives access to a global stock holding of over 50 million Euros.

If you are looking for a motor supplier with a dedicated team, integrity, reliability and Total Engineering Commitment, you will not be disappointed in choosing TEC as your power transmission supply partner.



- AUSTRALIA - Techtop Australia Pty Ltd.
- CANADA - Techtop Canada Inc.
- ITALY - Simotop Group SpA
- SPAIN - Dimotor S.A.
- THE NETHERLANDS - Simotop N.V.
- U.A.E. - Global Power Engineering Co. Ltd.
- UK - TEC Electric Motors Ltd.
- USA - Techtop Industries, Inc.
- GERMANY - Techtop ADDA MOTOR GmbH
- SINGAPORE - Elektrim Techtop Motors Pte Ltd

	<p><b>TECA/TA Aluminium Motors 56-200 Frame</b> Multi mount and highly versatile. IE1, IE2 and IE3 0.09kW-37kW.</p>
	<p><b>TPC and TCC 1PH Aluminium Motors 56-112 Frame (including 3.7kW!)</b> TPC: Ideal for fan, pump and square law torque applications. TCC: Ideal for applications where high starting torque is required.</p>
	<p><b>FCNDK Worm Boxes Size 30-150</b> Ratios from 5/1 to 100/1. Helical worm and combination worms available.</p>
	<p><b>Varvel SRD Helical In-Lines</b> Sizes 02-52. All ratios available on short lead times. TEC are an in house build centre for Varvel and can create custom ratios and boxes in short lead times.</p>
	<p><b>KONČAR Zone 1 EExde Motors 71-200 Stocked</b> EExde IIC T4 motors 2 and 4 pole stocked. Thermistors as standard and suitable for use with any VSD.</p>
	<p><b>TEC Zone 2 EXNA and Zone 22 EXT 56-315 Frame</b> Thermistors as standard throughout the range. Multi mount to 280 frame.</p>

	<p><b>TECA BM Brake Motors 71-200 Frame</b> TECA aluminium range with integrated brake at the none drive end fitted with hand release as standard. Multi mount and highly versatile.</p>
	<p><b>ECOL Cast Iron Frame</b> Multi mount and highly versatile. IE1, IE2 and IE3 0.75kW-315kW.</p>
	<p><b>Lightweight, High Efficiency Bevel Helical Gear Units</b> TKM28 to TKM58. Also interchangeable with worm gears from many popular manufacturers.</p>
	<p><b>TEC DC motors</b> Many styles, speeds and powers available for a variety of hydraulic applications.</p>
	<p><b>B48 and B56 Motors</b> Imperial framed B48 and B56 motors available.</p>
	<p><b>Specials and Extras</b> Epoxy painting, anti condensation heaters, special bearings, IP upgrades, slide bases and rails, shaft extensions, retro fit brake motors, vector motors, forcevent motors, flying lead motors and much more.</p>

**View our full stock list at [www.tecmotors.co.uk](http://www.tecmotors.co.uk)**



### Low Power Applications

Dedicated to low power applications, TECDrive combines innovative technology, reliability, robustness and ease of use in a range of compact IP20 & IP66 enclosures.

### Simple Commissioning

14 parameter basic setup. Default settings suitable for most applications. Contactor style connection for simple wiring.

### TECDrive IP66

Environmentally protected, IP66 rated models can be mounted directly on your processing equipment.

### Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, TECDrive IP66 models are ideal for high-pressure washdown applications.

### On-drive Control

IP66 models feature optional, convenient controls for speed control, REV/OFF/FWD and Power ON/OFF, complete with safety lock.



[www.tecmotors.co.uk/TECDrive](http://www.tecmotors.co.uk/TECDrive)



HQ

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Westfield,  
Cumbernauld,  
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**Tel: 01236 793460**

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### NORTHERN

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