



**POWERTRAN<sup>®</sup>**  
Industrial Automation



## PT Series

AC Variable Speed Drive

0.37kW–37kW / 0.5HP–50HP

**220V–480V** Single & 3 Phase Input

**General Purpose Drive**  
Easy control for all motor types



# PT Series

## Easy to Use

### General Purpose Drive

Focused on ease of use, **PT Series E3** 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 37kW

- ❖ Easy to use
- ❖ Compact & robust

## IP66

### Up to 22kW

- ❖ Outdoor rated
- ❖ Dust-tight
- ❖ Washdown ready





### Simple Commissioning

With just 14 basic parameters and application macro functions providing rapid set up, PT Series E3 minimises start-up time.



### Intuitive Keypad Control

Precise digital control at the touch of a button.




### Application Macros

Switch between **Industrial**, **Pump & Fan** modes to optimise PT Series E3 for your application.

Industrial | Pump | Fan

### Key Features

- ❖ Internal Category C1 EMC filter
- ❖ Internal PI control
- ❖ Internal brake chopper
- ❖ Dual analogue inputs
- ❖ Operates up to 50°C
- ❖  Bluetooth connectivity

### Internal Category C1 EMC Filter

An internal filter in every PT Series E3 saves cost and time for installation.

Cat C1 according to EN61800-3:2004

### Modbus RTU CAN

on-board as standard



### 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

# PT Series

Compact, robust  
and reliable  
general  
purpose drive for  
panel mounting

**IP20**

Up to 37kW

## Simple Installation

DIN rail and keyhole mounting options

### Fast Connection

5mm rising clamp terminals  
with captive screws



Power supply  
connects at top

### Quick Reference

Integrated help card



Operates up to 50°C

## Modbus RTU CAN

on-board as standard



## Optistick Smart

Rapid commissioning tool




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

PT Series E3 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****Up to 22kW**

**JK Fenner**  
**POWERTRAN®**  
 PT Series 

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



Switched or non-switched

Conformal coating as standard



### Locally customisable

Flat front to terminal cover with mounting points for switches and an internal PCB.

#### IP66 outdoor rated

Built with tough polycarbonate plastics specifically chosen to withstand degradation by ultra violet (UV), greases, oils and acids. Also robust enough not to be brittle at -20°C.

#### 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 PT Series E3 IP66 is ideal for high-pressure washdown applications.

#### Switched models

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

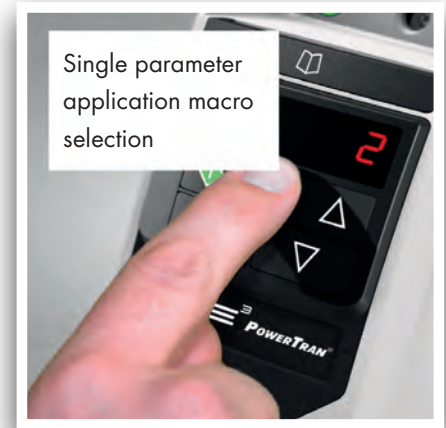




# PT Series

## Application Macros

Switch modes at the touch of a button to optimise PT Series E3 for your application



### Industrial Mode

**Industrial Mode** optimises PT Series E3 for load characteristics of typical industrial applications.

#### Applications include :

- ❖ Conveyors
- ❖ Mixers
- ❖ Treadmills



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

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



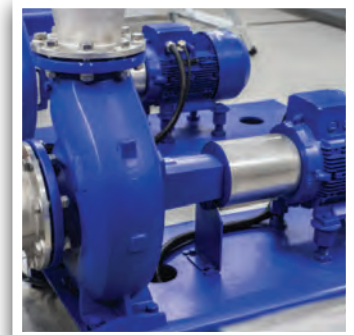
Rapid parameter cloning using **OPTISTICK** Smart

### Pump Mode

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

#### Applications include :

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



- ❖ Constant or variable torque
- ❖ Internal PI control

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

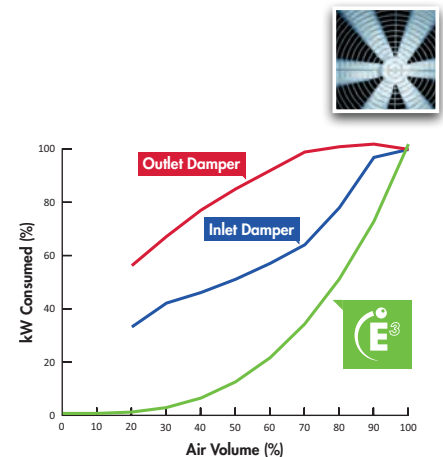
#### Applications include :

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

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

#### Instant Power Savings

The graph below shows the incredible efficiency of PT Series E3 for controlling airflow compared to traditional damper control methods.



## Drive Rating

	kW	HP	Amps	Frame	Model Code	Product Family	Generation	Frame Size	Voltage Code	Output Current x 10	Supply Phases	EMC Filter	Brake Transistor	Enclosure Option
200–240V ± 10% 1 Phase Input	0.37	0.5	2.3	1	PTE	-	3	-	1	2	0023	-	1	#
	0.75	1	4.3	1	PTE	-	3	-	1	2	0043	-	1	#
	1.5	2	7	1	PTE	-	3	-	1	2	0070	-	1	#
	1.5	2	7	2	PTE	-	3	-	2	2	0070	-	1	#
	2.2	3	10.5	2	PTE	-	3	-	2	2	0105	-	1	#
	4	5	15.3	3	PTE	-	3	-	3	2	0153	-	1	#
380–480V ± 10% 3 Phase Input	0.75	1	2.2	1	PTE	-	3	-	1	4	0022	-	3	#
	1.5	2	4.1	1	PTE	-	3	-	1	4	0041	-	3	#
	1.5	2	4.1	2	PTE	-	3	-	2	4	0041	-	3	#
	2.2	3	5.8	2	PTE	-	3	-	2	4	0058	-	3	#
	4	5	9.5	2	PTE	-	3	-	2	4	0095	-	3	#
	5.5	7.5	14	3	PTE	-	3	-	3	4	0140	-	3	#
	7.5	10	18	3	PTE	-	3	-	3	4	0180	-	3	#
	11	15	24	3	PTE	-	3	-	3	4	0240	-	3	#
	15	20	30	4	PTE	-	3	-	4	4	0300	-	3	#
	18.5	25	39	4	PTE	-	3	-	4	4	0390	-	3	#
	22	30	46	4	PTE	-	3	-	4	4	0460	-	3	#
	30	40	61	5	PTE	-	3	-	5	4	0610	-	3	#
	37	50	72	5	PTE	-	3	-	5	4	0720	-	3	#

Replace # in model code with colour-coded option

## Enclosure Types

A



**IP66  
Outdoor Use**  
Non-switched

B



**IP66  
Outdoor Use**  
Switched

2



**IP20**

## EMC Filter

- F** Internal EMC Filter
- 0** No Internal EMC Filter



### IP20

Size	1	2	3	4	5
mm Height	173	221	261	420	486
mm Width	83	110	131	171	222
mm Depth	123	150	175	212	226
kg Weight	1.0	1.7	3.2	9.1	18.1
Fixings	4xM5	4xM5	4xM5	4xM8	4xM8



### IP66

Size	1	2	3	4
mm Height	232	257	310	360
mm Width	161	188	210.5	240
mm Depth	162	182	238	275
kg Weight	2.5	3.5	7.0	9.5
Fixings	4xM4	4xM4	4xM4	4xM4

## Drive Specification

Input Ratings	Supply Voltage	200 – 240V $\pm$ 10% 380 – 480V $\pm$ 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	230V 1 Ph Input: 0.37–4kW (0.5–5HP) 400V 3 Ph Input: 0.75–22kW	
	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: –20 to 50°C	
	Altitude	Up to 1000m ASL without derating Up to 2000m maximum UL approved Up to 4000m maximum (non UL)	
	Humidity	95% Max, non condensing	
	Vibration	Conforms to EN61800-5-1	
Enclosure	Ingress Protection	IP20, IP66	
Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad	
	Display	7 Segment LED	
	PC	OptiTools Studio	
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, 10mA 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: $\pm$ 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	
Application Features	Analog Outputs		0 to 10 Volt
	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	2014/30/EU Cat C1 according to EN61800-3:2004	
	Machinery Directive	2006/42/EC	
	Conformance	CE, UL, RCM	



## PT Series

### ❖ Low Power Applications

Dedicated to low power applications, PT Series E3 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.

### ❖ PT Series E3 IP66

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

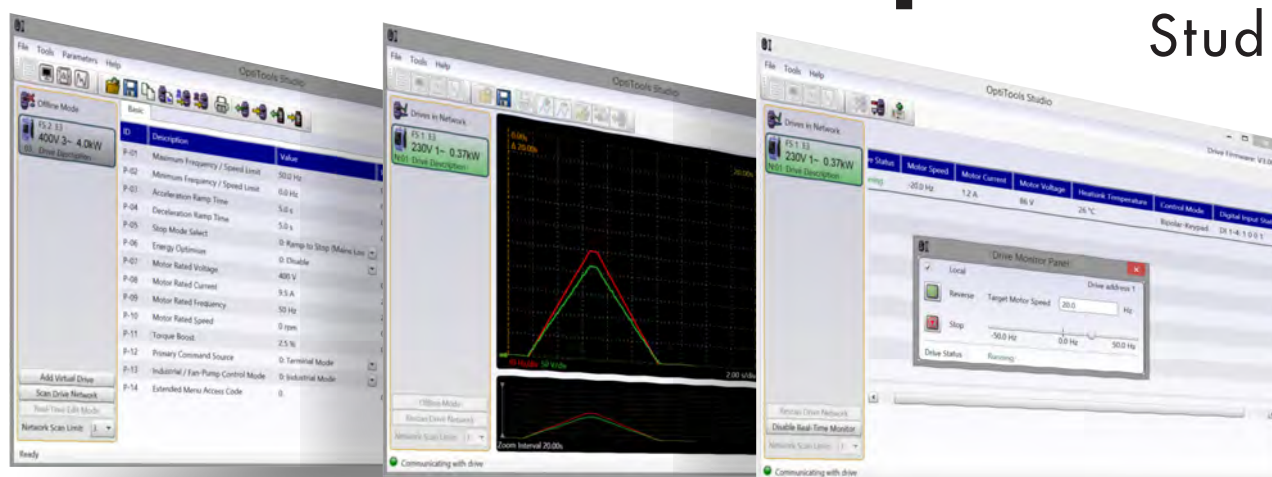
### ❖ Washdown Ready

With a sealed ABS enclosure and corrosion resistant heatsink, PT Series E3 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.

# OptiTools Studio



## Drive commissioning and parameter backup

- ❖ Real-time parameter editing
- ❖ Parameter upload, download and storage
- ❖ Real-time scope function and data logging

- ❖ Drive network communication
- ❖ Simple PLC function programming
- ❖ Real-time data monitoring

## Compatible with :

Windows Vista & Windows 7, Windows 8,  
Windows 8.1 & Windows 10

# Options & Accessories

## Optistick Smart



### Optistick Smart OPT-3-STICK-IN

Rapid Commissioning Tool

- ❖ Allows copying, backup and restore of drive parameters
- ❖ Provides Bluetooth interface to a PC running OptiTools Studio or the OptiTools Mobile app on a smartphone
- ❖ Onboard NFC (Near Field Communication) for rapid data transfer

## Remote Keypads



### Optipad OPT-3-OPPAD-IN

Remote Keypad & TFT Display

### Optiport 2 OPT-2-OPORT-IN

Remote Keypad & LED Display

## EtherNet Module



### 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

## RJ45 Accessories



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

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

## External EMC Filters, Input Chokes & Output Filters are available

See [www.jkfennerindia.com](http://www.jkfennerindia.com) for details





# AUTOMATION APPLICATIONS

