

# WTDR

## *Drive for pool industry*



**Flexible, simple, economical**



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# WTDR | Drive for pool pump

## **Simplicity**

By making Watertec products easy to install, program and commission, we can provide the ideal motor control solution for both OEM designers and electrical systems engineers. An innovative removable memory chip feature allows instant programming of multiple drives before or after installation, and a simple intuitive front panel display also facilitates easy in-situ operation.

## **Flexibility**

The WTDR range of inverter drives offer fast dynamic torque response, sophisticated auto-tuning and impressive low speed operation from a compact, and simple to use package. The WTDR range is designed for motor applications where dynamic speed and torque control are required, ideal for Fan and Pump systems.

## **Quality**

A firm commitment to design quality and continuous development of our products ensures both high performance and reliability. Manufacturing facilities have recently been expanded with manufacturing systems and quality control procedures also upgraded to provide the highest possible quality product is delivered to customers.

## **Technical Support**

With a worldwide network and certified distributors we have hundreds of experienced engineers on hand to help customers at all levels to solve problems and find the best solutions for their applications. End users can also be assured that Watertec is always there throughout the lifecycle of its products. Technical information, literature and guides are also available from our website.

# WTDR NEMA1 | DRIVE FOR POOL PUMP

3



## World Class Control

### Modes of Operation

Open Loop Flux Vector, Speed or Torque Control with/without Auto Tuning  
V/Hz (Constant or Variable)

Base Frequency Adjustable to Motor Specs  
Enhanced V/Hz with Auto-tuning

### Acceleration/Deceleration Profiles

Two Independent Accel Ramps  
Two Independent Decel Ramps  
Linear, S-Type

Auxiliary Ramp(or Coast)-to-Stop

Fixed Accel Boost for Improved Starting

500 Hz Output Frequency

High Carrier (PWM Sine-Coded) Frequency  
4, 6, 8, 10 kHz

### Universal Logic Assertion (Selectable)

Positive or Negative Logic Input  
Digital Reference Available

### Braking Functions

DC Injection Braking  
Optional Dynamic Braking  
Flux Braking w/ Adjustable Flux Level & Decel Time

### Speed Commands

Keypad, Potentiometer  
Jog, 8 Preset Speeds  
Floating Point Control  
Sequencer, 16 Segments  
Voltage: Scalable 0 –10 VDC  
Current: Scalable 4 – 20 mA

### Process Control

PID Modes: Direct and Reverse Acting  
PID Sleep Mode w/ Adjustable Recovery Threshold  
Analog Output (Speed, Load, Torque, kW)  
Network Speed (Baud Rate)  
Terminal and Keypad Status  
Elapsed Run or Power On Time (Hours)

### Status Outputs

Programmable Form "A" Relay Output  
Programmable Open Collector Output  
Scalable 0-10 VDC / 2-10 VDC Analog Output  
4-20mA w/500 Ohm Total Impedance

## Environment

### Ambient Temperature

-10 to 55°C  
Derate 2.5% per °C Above 40°C

## Comprehensive Diagnostic Tools

### Real Time Monitoring

8 Register Fault History  
Software Version  
Drive Network ID  
DC Bus Voltage (V)  
Motor Voltage (V)  
Output Current (%)  
Motor Current (A)  
Motor Torque (%)  
Power (kW)  
Energy Consumption (kWh)  
Heatsink Temperature (°C)  
0 – 10 VDC Input (User Defined)  
4 – 20 mA Input (User Defined)  
PID Feedback (User Defined)

## Vigilant System Protection

### Voltage Monitoring

Low and High DC Bus V Protection  
Low Line V Compensation

### Current Monitoring

Motor Overload Protection  
Current Limiting Safeguard  
Ground Fault  
Short Circuit Protection

### Four ReStarts

Three Flying and One Auto  
User Enabled

### Loss of Follower Management

Protective Fault  
Go to Preset Speed or Preset Setpoint  
Initiate System Notification

### Over Temperature Protection

## International Voltages

+10/-15% Tolerance  
120/240V, 1Ø  
200/240V, 1 or 3Ø  
480/600V, 3Ø

## Global Standards

UL EAC  
cUL C-Tick  
CE Low Voltage (EN61800-5-1)  
CE EMC (EN61800-3) with optional EMC filter

## Keypad & Display

### Simple Six Button Programming

- Start
- Stop
- Forward/Reverse
- Scroll Up
- Scroll Down
- Enter/Mode

### Informative LED Display

Vivid Illumination  
Easily Read from a Distance

### Five Status LEDs

- Run
- Automatic Speed mode
- Manual Speed Mode
- Forward Rotation
- Reverse Rotation

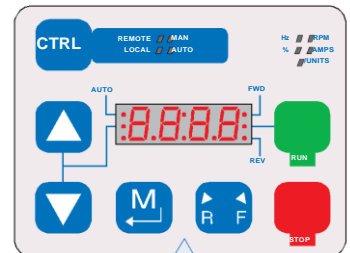
### Status Display

- Motor Status
- Fault Management
- Operational Information



NEMA1 (Up to 10 HP) Keypad

NEMA1 (15 HP and greater) Keypad



### Additional CTRL Button

Switch between control modes

- Local-Manual
- Local Auto
- Remote-Manual
- Remote Auto

### Additional LED Indicators

Define the units being displayed

- Hz
- RPM
- Amps
- %
- /Units

## Control Terminals

Digital Inputs  
• Dedicated Start/Stop  
• (3) Programmable  
• 0 - 10 VDC  
• 4 - 20 mA

Digital Outputs  
• Form "A" Relay  
• Open Collector  
• 0 - 10 VDC  
• 2 - 10 VDC

Power Supplies  
• 10 VDC Potentiometer Ref  
• 12 VDC, 20 mA DI Ref or 0VDC Com  
• 12 VDC, 50 mA Supply  
Common

### Additional Control Terminals (15 Hp & up)

1 Programmable Digital Input  
1 Common  
RS-485 Modbus Communications  
• TXA  
• TXB

# WTDR NEMA1 | DRIVE FOR POOL PUMP

## Ratings

### 120/240V\* - 1Ø Input (3Ø Output)

Power		Output Current		NEMA1	
Hp	kW	I <sub>n</sub> [A]		Model	Size
0.33	0.25	1.7		WTDR003120	G1
0.5	0.37	2.4		WTDR005120	G1
1	0.75	4.2		WTDR010120	G1
1.5	1.1	6.0		WTDR015120	G2

### 200/240V - 1 or 3Ø Input (3Ø Output)

Power		Output Current		NEMA1	
Hp	kW	I <sub>n</sub> [A]		Model	Size
0.33	0.25	1.7		WTDR003230	G1
0.5	0.37	2.4		WTDR005230	G1
1	0.75	4.2		WTDR010230	G1
1.5	1.1	6.0		WTDR015230	G2
2	1.5	7.0		WTDR020230	G2
3	2.2	9.6		WTDR030230	G2

### 200/240V - 3Ø Input (3Ø Output)

Power		Output Current		NEMA1	
Hp	kW	I <sub>n</sub> [A]		Model	Size
1.5	1.1	6.0		WTDR015240	G2
2	1.5	7.0		WTDR020240	G2
3	2.2	9.6		WTDR030240	G2
5	4	16.5		WTDR050240	G3
7.5	5.5	23		WTDR075240	H1
10	7.5	29		WTDR100240	H1
15	11	42		WTDR150240	J1
20	15	54		WTDR200240	J1

### 400/480V - 3Ø Input (3Ø Output)

Power		Output Current		NEMA1	
Hp	kW	I <sub>n</sub> [A]		Model	Size
0.5	0.37	1.3/1.1		WTDR005480	G1
1	0.75	2.4/2.1		WTDR010480	G1
1.5	1.1	3.5/3.0		WTDR015480	G2
2	1.5	4.0/3.5		WTDR020480	G2
3	2.2	5.5/4.8		WTDR030480	G2
5	4	9.4/8.2		WTDR050480	G3
7.5	5.5	12.6/11		WTDR075480	H1
10	7.5	16.1/14		WTDR100480	H1
15	11	24/21		WTDR150480	J1
20	15	31/27		WTDR200480	J1
25	18.5	39/34		WTDR250480	J1
30	22	46/40		WTDR300480	J1
40	30	60/52		WTDR400480	K1
50	37.5	75/65		WTDR500480	K2
60	45	88/77		WTDR600480	K3

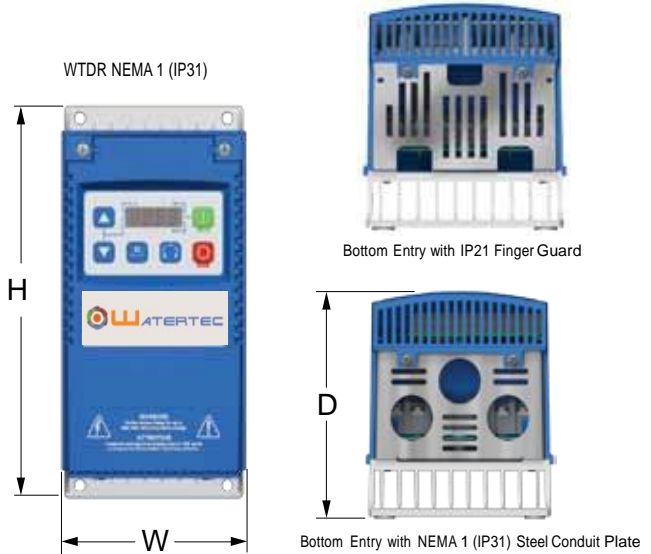
### 600V - 3Ø Input (3Ø Output)

Power		Output Current		NEMA1	
Hp	kW	I <sub>n</sub> [A]		Model	Size
1	0.75	1.7		WTDR010600	G1
2	1.5	2.7		WTDR020600	G2
3	2.2	3.9		WTDR030600	G2
5	4	6.1		WTDR050600	G3
7.5	5.5	9		WTDR075600	H1
10	7.5	11		WTDR100600	H1
15	11	17		WTDR150600	J1
20	15	22		WTDR200600	J1
25	18.5	27		WTDR250600	J1
30	22	32		WTDR300600	J1
40	30	41		WTDR400600	K1
50	37.5	52		WTDR500600	K2
60	45	62		WTDR600600	K3

## Dimensions

### Dimensions

	H		W		D	
	in.	mm	in.	mm	in.	mm
G1	7.48	190	3.90	99	4.35	111
G2	7.52	191	3.90	99	5.45	138
G3	7.52	191	3.90	99	5.80	147
H1	9.85	250	5.12	130	6.30	160
J1	12.50	318	6.92	176	8.09	205
K1	14.19	360	8.72	221	10.07	256
K2	17.19	436	8.72	221	10.07	256
K3	20.19	513	8.72	221	10.07	256



## Options

### Communication Modules \*

Item Number	Item Description
WTDRCANM	CANopen Communications Interface Module
WTDRMODB	RS-485/Modbus Communications Interface Module
WTDRPROF	PROFIBUS DP Communications Interface Module
WTDRDEVN	DeviceNet Communications Interface Module
WTDRETH	EtherNet/IP Communications Interface Module

\* Only one Communication module can be installed and used at a time.

### Keypad

WTDRKEY1	Remote Keypad w/ drive interface module & cable up to 10HP (7.5 kW)
WTDRKEY2	Remote Keypad w/ cable 15HP (11 kW) and up

### Additional I/O \*\*

WTDRNOR	Additional Form C Relay Output Module
WTDRINP	Additional I/O Module w/ 1 Form C Relay Output and 2 Digital Inputs

\*\* Additional I/O modules cannot be used with Communication modules or Remote keypad

