MixRite™ E-300PRO

user guide

tefen

Keep your business flowing. **Tefenitely.**

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MixRite™ E-300PRO
introduction

What is the E-300PRO?

An advanced electric dosing pump designed for precise, stable, and reliable fertilizer injection in agricultural irrigation systems.

Key applications

	Greenhouses		Drip irrigation
	Open fields		Sprinkler systems

Core advantages

- ✓ Accurate fertilizer dosing with electric control
- ✓ Manual or flow-proportional operation (Auto / Manual modes)
- ✓ Compatible with a wide range of fertilizers
- ✓ External control and monitoring via irrigation controllers
- ✓ Reliable performance with built-in protection mechanisms

Critical safety sarnings
& operating protocols

- Keep the pump protected from sun and water. Avoid water splashes. All hazardous electric voltage jobs must be conducted by a local qualified electrician and according to local regulations
- Do not leave the electrical compartment, hood, or any connection box open while the machine is running or while you are away
- When installing always observe national regulations. Electrical installation must comply with the local safety standards and regulations

Before any operation

- always read chemical Material Safety Data Sheet (MSDS)
- always discharge the liquid end before servicing the pump
- empty and rinse the liquid end before work on a pump that has been used with hazardous or unknown chemicals
- Always use protective equipment, gloves, and goggles when handling fertilizers, acid and other chemicals!
- Do not use in explosive area (EX)
- Do not use with flammable chemicals
- Do not use with radioactive chemicals
- This equipment requires regular maintenance to ensure potability requirements of the water and maintenance of improvements as declared by the manufacturer

Technical data

Specification	Details
Power Supply	Input: 100–240 VAC @ 50–60Hz
Motor	Operation Voltage: 12 VDC | Max Current: 8 A
Performance	Max Flow Rate: 300 L/h (@ 2 bar) Max Pressure: 5 bar
Hydraulic Connections	3/8"–18 NPT Female
Wetted Materials	Diaphragm: Santoprene Piston: Viton Pump House: PP

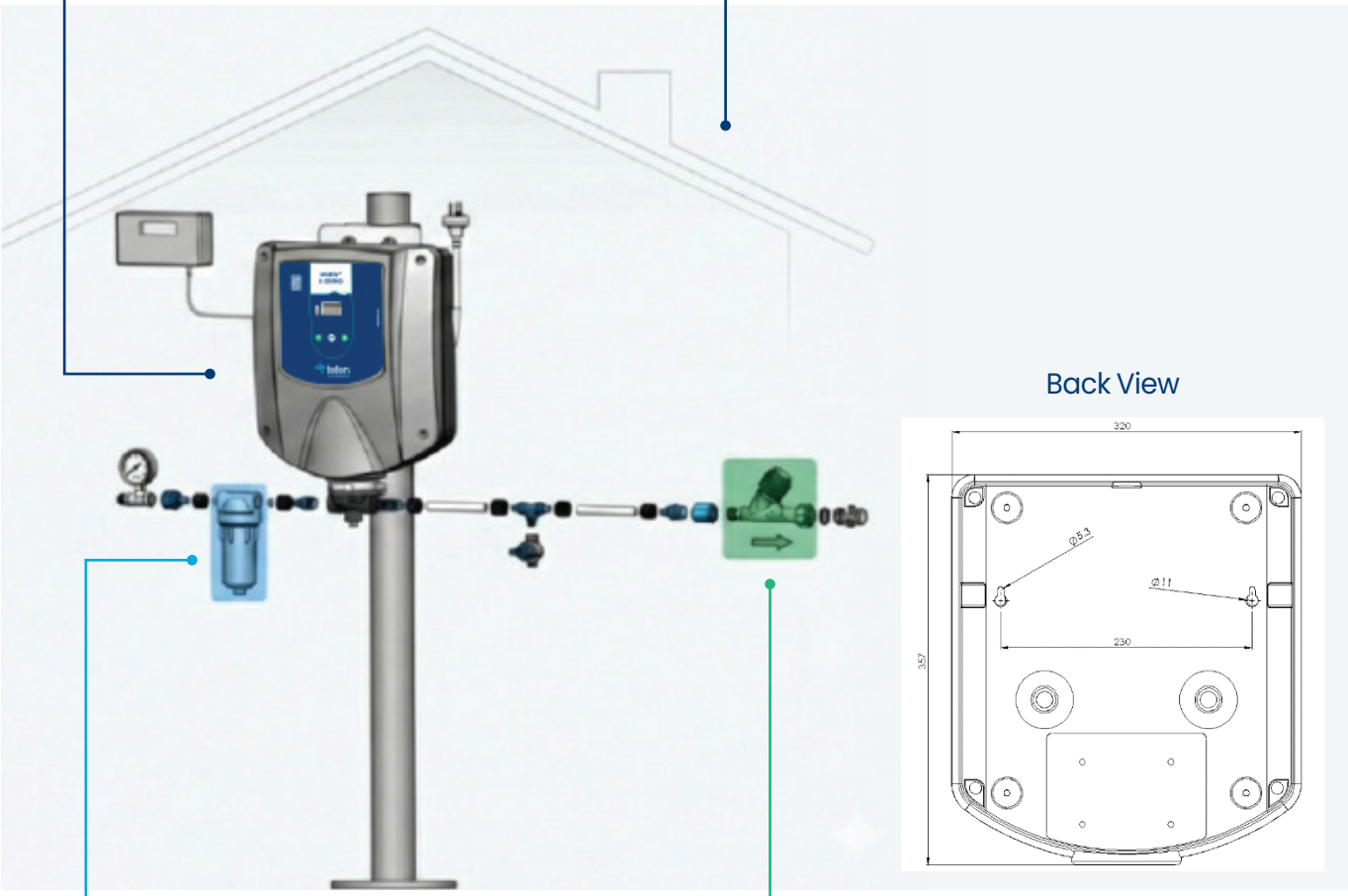
Pump installation

Tefen pump installation

Key steps for successful setup

1. Position the pump vertically.

2. Pump must be Installed under shelter protected from sun and water. Avoid water splashes.



Back View

3. Make sure that filter ¾" (120 micron) is installed at the pump inlet.

4. Verify that check valve is positioned according to the arrow - horizontal or vertical position.

Connection guide
for inputs & outputs

Main electric supply specifications

Main power Input

AC power
100-240 VAC
50-60Hz

DC Power
12 VDC

Input Requirements: Verify your power source matches one of the following specifications before connecting.

Connectors

Add Meter	● red	(+) Signal
	● black	(-) Signal
	○ white	Repeater
	● green	Repeater
Water Meter	● red	(+) Signal
	● black	(-) Signal
	○ white	Repeater
	● green	Repeater
Command	● red	(+) Signal
	● black	(-) Signal
Alarm	● red	(+) Signal
	● black	(-) Signal

- The white/green wires are for connecting multiple devices
- Water/Add input – up to 60,000 pulses per minute

E-300PRO
control panel guide

Primary controls

Ⓟ Button (Dual Function)
Short Press: Toggles between ▶ **Work** and ⏸ **Pause** states.
Long Press: Accesses and exits the **Parameters Menu**.

⊖ Button
Adjusts parameters down. In Manual Mode: Decreases required motor power.

⊕ Button
Adjusts parameters up. In Manual Mode: Increases required motor power.

System feedback

Green LED: Power On
Indicates the controller is powered on and operating normally.

Red LED: Alert / Error
Indicates an alert or error state. This light will illuminate instead of the green LED when there is a fault.

Use **+** / **-** bouton to Increase / Decrease

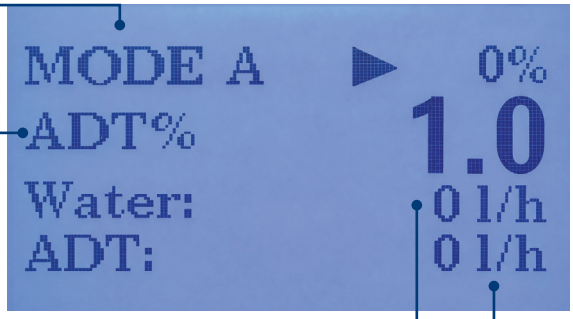
How to
read the main control screen

How to read the main control screen

System Status
Operating Mode: Displays Manual **(M)** or Auto **(A)**.
State Indicator: Shows ⏸ **Pause** or ▶ **Work**.
After power-up in Auto mode, the state is Work. Otherwise, the state is ⏸ **Pause**.

Setpoint / Target Value
Target Value: This critical field changes its meaning based on the operating mode. See the next slide for a detailed breakdown.

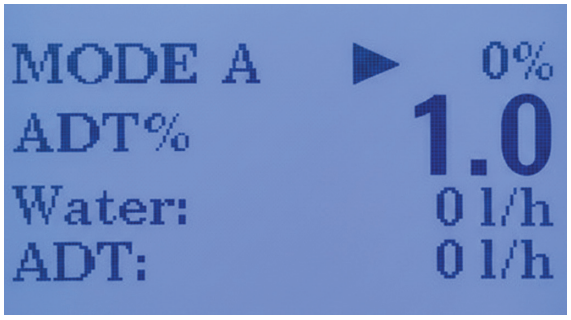
Water Flow
Water Flow Rate: The current flow of water, measured in liters per hour (l/h) or gallons per minute (GPM).



Additive Flow
Additive Flow Rate: The current flow of the additive, measured in liters per hour (l/h) or gallons per minute (GPM).

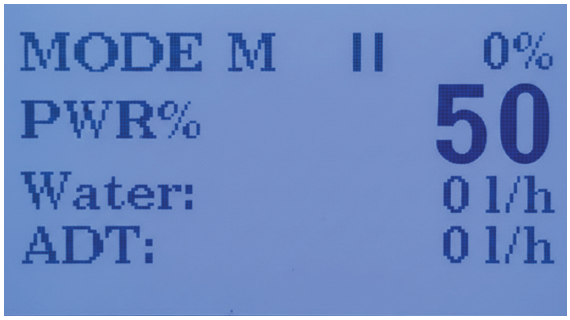
Operating modes: auto vs. manual

1. Auto Mode (A)



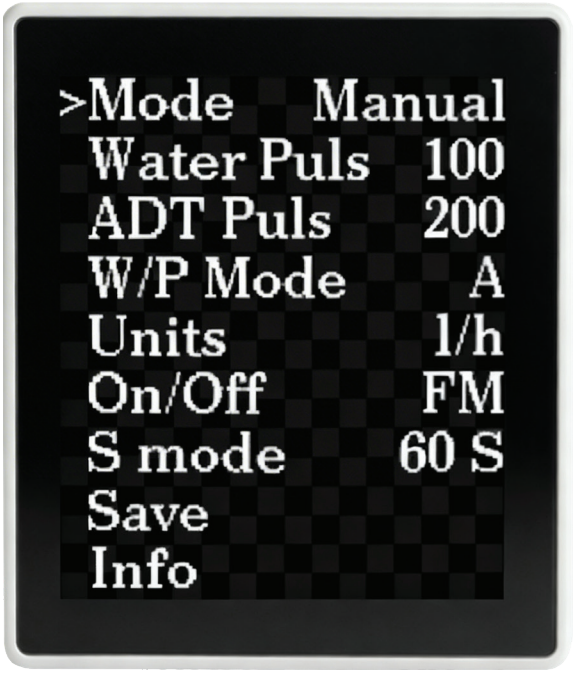
Function: Proportional dosing based on water flow.
Requires: Water meter and additive (fertilizer) flow sensor.
Setting: Adjust Additive Dose Target (ADT%). Range: 0%–50%.

2. Manual Mode (M)



Function: Fixed-rate dosing based on user setting and system pressure.
Setting: Adjust Motor Power (PWR%). Range: 0%–100%.

Parameters reference guide



Parameter	Function	Notes / Options
Mode	Changes the operating mode	Manual (M) or Auto (A)
Water Puls	Configures pulses per liter for the main pulse input	
ADT Puls	Configures pulses per liter for the additive pulse input	
W/P Mode	Sets the Main pulse mode	**Mode A:** select for SSR **Mode B:** Select for Analog / dry contact
Units	Configures the measurement system	iters per hour **(l/h)** or gallons per minute **(GPM)**
On/Off	Configures controller activation mode	**FM** (Fixed Mode): AC/DC constant **PM** (Polar-Pulse): DC latch
S mode	Sets the Self-priming execution time	**10–180 seconds** See Special Mode section below
Save	**Saves all modified parameters** in the controller's memory	Changes not saved here will be lost after restart
Info	Enters the Info menu	

Info screen

Motor driver supply voltage

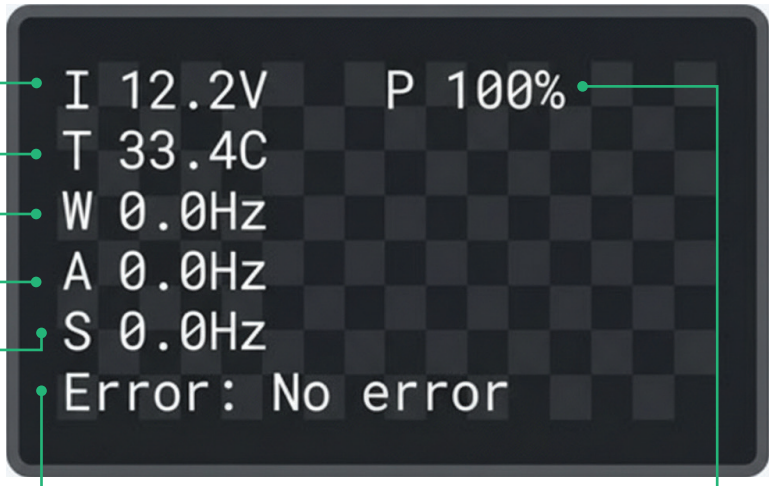
Motor temperature

~ **Water** input signal frequency (Hz)

~ **ADDITIVE** input signal frequency (Hz)

The **target** ADDITIVE frequency the controller must set based on MAIN flow, ADDITIVE percentage, and pulses-per-liter ratio.

The last **error** that caused the stop. The controller at the current moment



Electrical **power** output by the controller at the current moment

Self priming mode – S mode

Special mode (self-priming) activation

To Activate: Press and hold (P), then press and hold (+).

Function: Motor operates at 100% power for the configured S mode time, regardless of the current operating mode.

Exit: After time expires, the controller returns to the configured mode and remains in the Start mode.

Operating mode:
auto (A) DATA

ADT % = dosage range – range is 0.1%-1%

Choosing the Dosing Percentage

	Injected Volume l/h at **2 bar**						
0.10%	N/A	N/A	N/A	N/A	N/A	N/A	50
0.20%	N/A	N/A	N/A	N/A	60	80	100
0.30%	N/A	N/A	N/A	60	90	120	150
0.40%	N/A	N/A	N/A	80	120	160	200
0.50%	N/A	N/A	50	100	150	200	250
1.00%	N/A	50	100	200	300	N/A	N/A
2.00%	N/A	100	200	N/A	N/A	N/A	N/A
3.00%	N/A	150	300	N/A	N/A	N/A	N/A
4.00%	N/A	200	N/A	N/A	N/A	N/A	N/A
5.00%	50	250	N/A	N/A	N/A	N/A	N/A
6.00%	60	300	N/A	N/A	N/A	N/A	N/A
7.00%	70	N/A	N/A	N/A	N/A	N/A	N/A
8.00%	80	N/A	N/A	N/A	N/A	N/A	N/A
9.00%	90	N/A	N/A	N/A	N/A	N/A	N/A
10.00%	100	N/A	N/A	N/A	N/A	N/A	N/A
	1000	5000	10000	20000	30000	40000	50000
	Flow Rate - l/h						

	Injected Volume l/h at **3 bar**						
0.10%	N/A	N/A	N/A	N/A	N/A	40	50
0.20%	N/A	N/A	N/A	40	60	80	100
0.30%	N/A	N/A	N/A	60	90	120	150
0.40%	N/A	N/A	40	80	120	160	200
0.50%	N/A	N/A	50	100	150	200	250
1.00%	N/A	50	100	200	N/A	N/A	N/A
2.00%	N/A	100	200	N/A	N/A	N/A	N/A
3.00%	N/A	150	N/A	N/A	N/A	N/A	N/A
4.00%	40	200	N/A	N/A	N/A	N/A	N/A
5.00%	50	250	N/A	N/A	N/A	N/A	N/A
6.00%	60	N/A	N/A	N/A	N/A	N/A	N/A
7.00%	70	N/A	N/A	N/A	N/A	N/A	N/A
8.00%	80	N/A	N/A	N/A	N/A	N/A	N/A
9.00%	90	N/A	N/A	N/A	N/A	N/A	N/A
10.00%	100	N/A	N/A	N/A	N/A	N/A	N/A
	1000	5000	10000	20000	30000	40000	50000
	Flow Rate - l/h						

Operating pode:
auto (A) DATA

ADT % = dosage range – range is 0.1%-1%

Choosing the Dosing Percentage

	Injected Volume l/h at **4 bar**						
0.10%	N/A	N/A	N/A	N/A	N/A	40	50
0.20%	N/A	N/A	N/A	40	60	80	100
0.30%	N/A	N/A	N/A	60	90	120	150
0.40%	N/A	N/A	40	80	120	160	200
0.50%	N/A	N/A	50	100	150	200	250
1.00%	N/A	50	100	200	N/A	N/A	N/A
2.00%	N/A	100	200	N/A	N/A	N/A	N/A
3.00%	N/A	150	N/A	N/A	N/A	N/A	N/A
4.00%	40	200	N/A	N/A	N/A	N/A	N/A
5.00%	50	250	N/A	N/A	N/A	N/A	N/A
6.00%	60	N/A	N/A	N/A	N/A	N/A	N/A
7.00%	70	N/A	N/A	N/A	N/A	N/A	N/A
8.00%	80	N/A	N/A	N/A	N/A	N/A	N/A
9.00%	90	N/A	N/A	N/A	N/A	N/A	N/A
10.00%	100	N/A	N/A	N/A	N/A	N/A	N/A
	1000	5000	10000	20000	30000	40000	50000
	Flow Rate - l/h						

	Injected Volume l/h at **5 bar**						
0.10%	N/A	N/A	10	20	30	40	50
0.20%	N/A	10	20	40	60	80	100
0.30%	N/A	15	30	60	90	120	150
0.40%	N/A	20	40	80	120	160	200
0.50%	N/A	25	50	100	150	200	250
1.00%	10	50	100	200	N/A	N/A	N/A
2.00%	20	100	200	N/A	N/A	N/A	N/A
3.00%	30	150	N/A	N/A	N/A	N/A	N/A
4.00%	40	200	N/A	N/A	N/A	N/A	N/A
5.00%	50	250	N/A	N/A	N/A	N/A	N/A
6.00%	60	N/A	N/A	N/A	N/A	N/A	N/A
7.00%	70	N/A	N/A	N/A	N/A	N/A	N/A
8.00%	80	N/A	N/A	N/A	N/A	N/A	N/A
9.00%	90	N/A	N/A	N/A	N/A	N/A	N/A
10.00%	100	N/A	N/A	N/A	N/A	N/A	N/A
	1000	5000	10000	20000	30000	40000	50000
	Flow Rate - l/h						

Operating mode:
manual (M) DATA

PWR % = motor electrical power: range is 20%–100%

Injection point pressure 1 Bar	
PWR%	L/H
20	59
30	94
40	131
50	166
60	200
70	228
80	258
90	291
100	314

Injection point pressure 2 Bar	
PWR%	L/H
20	49
30	86
40	120
50	153
60	181
70	205
80	236
90	266
100	301

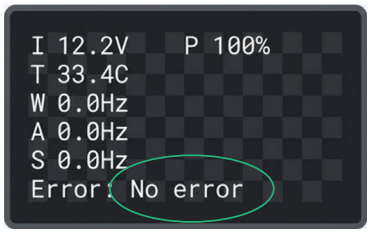
Injection point pressure 3 Bar	
PWR%	L/H
20	36
30	72
40	104
50	140
60	171
70	189
80	224
90	245
100	287

Injection point pressure 4 Bar	
PWR%	L/H
20	32
30	64
40	94
50	125
60	151
70	168
80	191
90	234
100	256

Injection point pressure 5 Bar	
PWR%	L/H
20	8
30	39
40	71
50	98
60	129
70	150
80	186
90	214
100	252

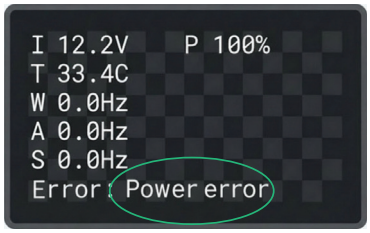
Troubleshooting
understand errors and alarms

Protection and errors



If an error occurs:
1. The controller switches to the **Pause ||** state.
2. The **red AL LED** lights up instead of the green one.
3. The **ALARM** output is activated through the solid-state relay.
Exit from Error State: Performed by restarting the controller via the button or the external control input.

Error Message



Condition
Power error: Supply voltage is outside the 11–13 V range.
Motor error: Motor current consumption is above 7 A.
Overheat: Motor temperature is higher than 80 °C.
ADT error: No pulses from the additive sensor for more than two seconds when the electrical power exceeds 60% in Auto (A) mode.

Operation and technical notes

Condition
The controller performs a quick start (3 s) in the motor dead zone up to 17% power.
Non-Proportional Mode (W/P Mode: B): The water pulse frequency is determined by averaging the number of pulses received over 5, 10, 15, 20 seconds with different weighting factors. Shorter intervals have higher priority. The minimum input frequency for the additive sensor is 0.05 Hz. Lower frequencies are considered as no pulses. Example calculation for flow Q with a 10 pulses/liter sensor: Q = (60 \0.05) / 10 = 0.3 L/min.

Firmware Update Procedure

1. Format the SD card as FAT32. (≤32 GB)
2. Save the firmware file to the card with the name ‘tefen.img’.
3. Power off the controller.
4. Insert the card into the SD slot.
5. Press and hold BTN P, and then power on the controller.

Thank you

Tefenitely
SINCE 1970

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PLEASE CONTACT US FOR MORE INFORMATION

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EDITION EN 04/26

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