

# EcoWell

## Smart Rod Rotator (SRR)



### What's New

EcoWell Smart Rod Rotator (SRR) is an advanced, integrated solution that combines proven rod rotation technology with smart wireless monitoring. Designed for modern rod pumping operations, the SRR converts reciprocating motion into controlled rotational movement, helping to distribute wear evenly and extend equipment life. The SRR utilizes a helical worm gear mechanism to convert the vertical motion of the pumping unit into rotational movement of the polished rod. The upgraded gear shaft and internal components deliver durability comparable to leading industry standards.

With built-in wireless sensing capability, the SRR provides real-time monitoring of rotational performance and alerts operators when efficiency drops—enabling proactive maintenance and improved operational reliability.

EcoWell's Smart Rod Rotator combines mechanical reliability with smart monitoring technology, delivering a next-generation solution that improves operational efficiency, reduces field intervention, and enables data-driven decision making.

EcoWell - Accuracy, Reliability, and Ease of Use.

### Features

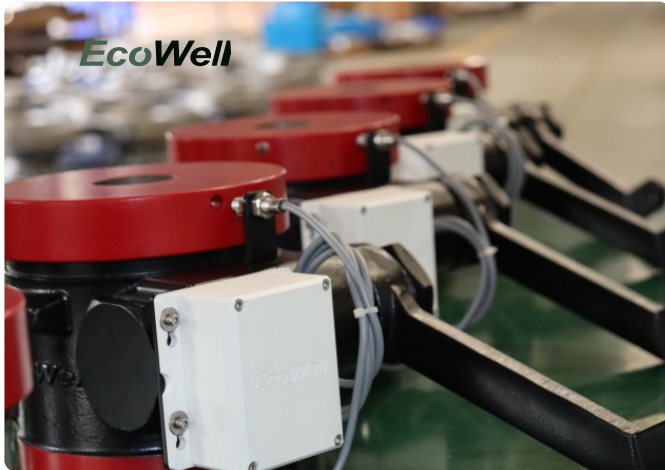
- ✔ Integrated wireless rotation monitoring system
- ✔ Built-in magnet and sensor mounting plate for seamless sensing
- ✔ Helical worm gear design for reliable motion conversion
- ✔ Durable gear shaft and internal components
- ✔ Continuous monitoring of rotation status
- ✔ Alarm functionality for abnormal rotation behavior
- ✔ Rotation angle per stroke available via Modbus
- ✔ Rugged construction for harsh oilfield

### Benefits

- ✔ Extended Rod System Life
- ✔ Improved Well Performance
- ✔ Real-Time Monitoring
- ✔ Smart Alarms
- ✔ Simplified Installation
- ✔ Reduced Maintenance Costs

## Applications

Suitable for all rod pumping wells, particularly heavy oil and paraffin-prone wells, deviated wells, and high-wear wells.

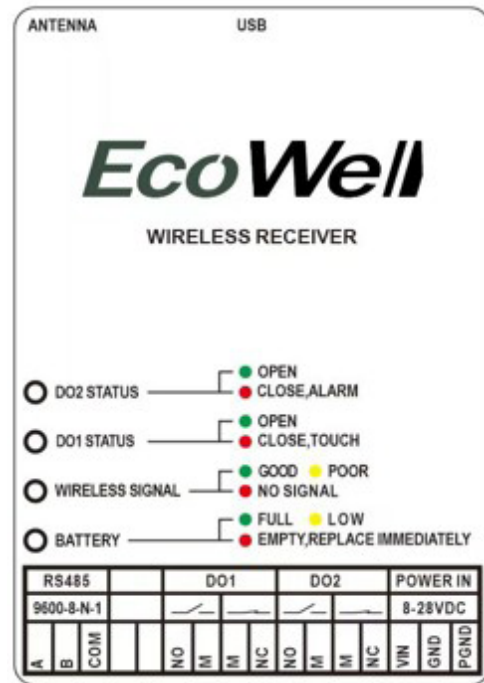


## Specifications

### MODEL 403/403SG

- ✓ **Maximum Load**  
50,000 lbs
- ✓ **Max Output Torque**  
240 ft/lb
- ✓ **Polished Rod Size**  
1 1/8" - 1 3/4"
- ✓ **Pull Per Revolution**  
77 / 154
- ✓ **Rotation Type**  
Helical Worm
- ✓ **Actuator Type**  
One-Way Bearing
- ✓ **Body Material**  
Ductile Iron
- ✓ **Height**  
6.35 in
- ✓ **Weight**  
43 lbs
- ✓ **Cable Length**  
25 ft

# Terminal & Function

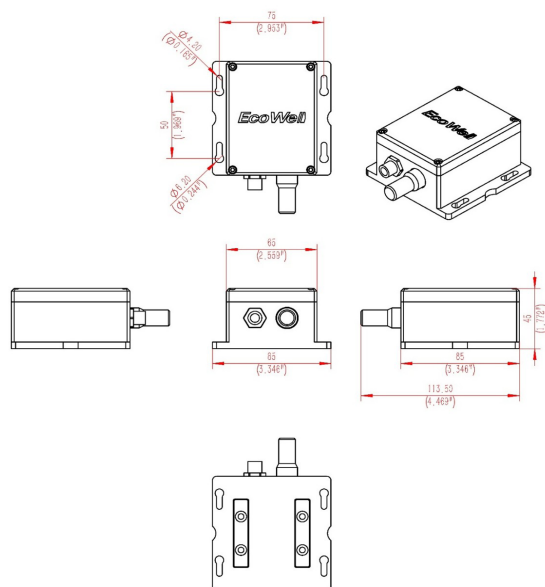


| Terminal | Specification | Signal | Description                          | Function                                            |
|----------|---------------|--------|--------------------------------------|-----------------------------------------------------|
| POWER IN | 5-28VDC       | VIN    | Power input +                        | Power input for Receiver                            |
|          |               | GND    | Power input -                        |                                                     |
|          |               | PGND   | Connect to Earth Ground              |                                                     |
| DO2      | RELAY OUTPUT  | NO     | Normal Open                          | Alarm status<br>Open: 0<br>Close: 1                 |
|          |               | M      | Common terminal                      | Alarm status<br>Open: 1<br>Close: 0                 |
|          |               | M      | Common terminal                      |                                                     |
|          |               | NC     | Normal Close                         |                                                     |
| DO1      | RELAY OUTPUT  | NO     | Normal Open                          | Synchronize to sensor status<br>Open: 0<br>Close: 1 |
|          |               | M      | Common terminal                      | Synchronize to sensor status<br>Open: 1<br>Close: 0 |
|          |               | M      | Common terminal                      |                                                     |
|          |               | NC     | Normal Close                         |                                                     |
| RS485    | 9600-8-N-1    | A      | RXD/TXD +                            | RS485 communicate interface                         |
|          |               | B      | RXD/TXD -                            |                                                     |
|          |               | COM    | Common port Connect to signal ground |                                                     |

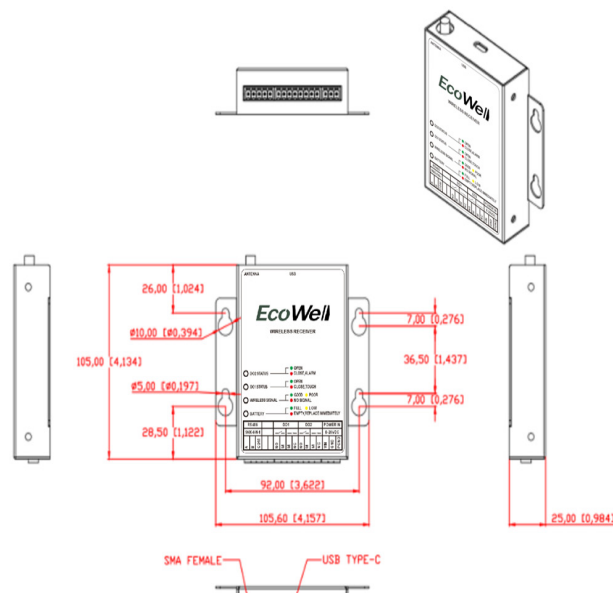
# Overall Dimension

**EcoWell**

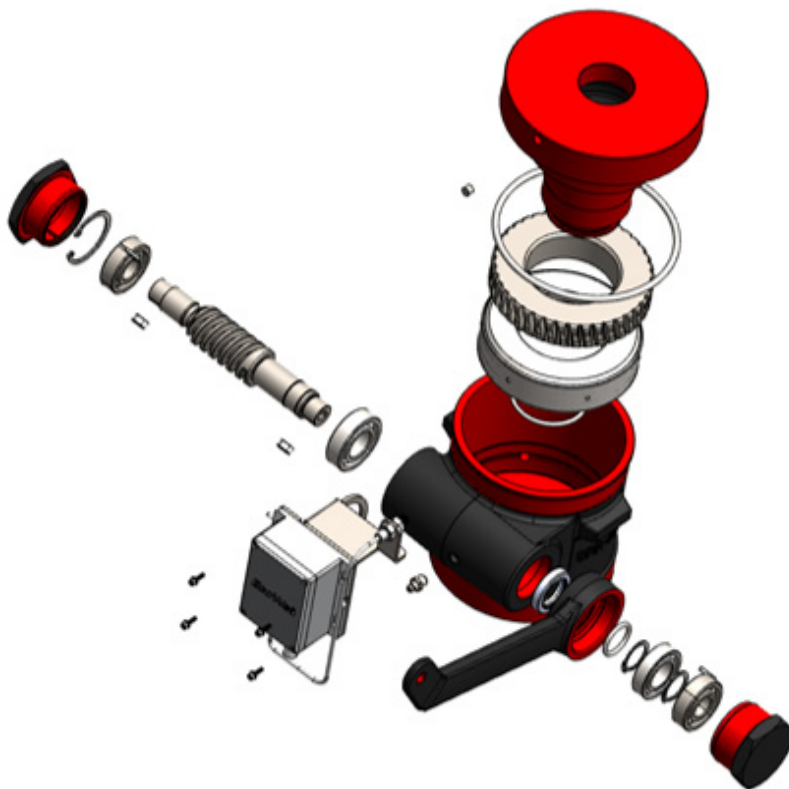
## Wireless Transmitter in mm [inch]



## Receiver in mm [inch]



## Rod Rotator Exploded View



## Installation Instructions:

Note: there are various configurations of equipment utilized above carrier bars and in conjunction with rod rotators. The following instructions outline general procedures that may need to be adjusted based on the specific equipment being installed. Please be aware that the EcoWell Smart Rod Rotator requires a load to be applied to the top of the cover cap to generate the internal friction necessary between the cover cap and the worm gear for operation

1. All Smart Rod Rotators are pre-lubricated at the factory; no additional grease is necessary for the initial installation.
2. Stop the pumping unit slightly above the lowest point of the downstroke. Engage the pump's brakes and any additional safety lockouts.
3. Install a temporary polish rod clamp to the polished rod slightly above the top of the stuffing box. CAUTION: Do not install the rod clamps on the polished rod liners.
  - a. If there is a standard stuffing box installed on the well, secure the components of the stuffing box to ensure the weight of the polished rod does not damage the packing. To achieve this, thread the upper nuts on the gland bolts up to the underside of the upper lube gland and thread the lower nuts down to the body.
  - b. If a pulling unit or work over rig is on location, step 3a is not necessary.
4. Once the temporary polished rod clamp is secured, release the pump's brake and slowly lower the rod string onto the stuffing box. Once the temporary polished rod clamp is resting on the stuffing box, the upper polished rod clamp will be able to rise above the carrier bar and any additional equipment.
5. Once the pump is at its lowest point, re-engage the brakes and safety lockouts and remove the polished rod clamp from top of the carrier bar.
6. If using a leveling plate and/or a load cell, install now over the top of the polished rod. Place the concave leveling plate on top of the carrier bar, followed by the convex plate. Position the load cell on top of the convex plate, and finally, place a flat leveling plate on top of the load cell.
7. Place the aluminum bushing/pilot that matches most closely to the size of the polished rod with the narrow side going into the leveling plate.
8. Slide the smart rod rotator overtop of the polished rod and onto the leveling plate ensuring the pilot aligns the smart rod rotator and sit flush on the leveling plate.

CAUTION: Never install the rod rotator upside down. The rotating cover cap must always face upwards to function properly.

9. Reinstall the polished rod clamp on top of the smart rod rotator and tighten the bolts to their proper torque specification.
10. Follow the WRRS 2.0 Installation and Wiring Instructions to install and configure the wireless sensor device. The step of installation the clamp on the cover cap can be skipped as a magnet is pre-embedded on the Smart Rod Rotator.
11. Install and attach the safety beam clamp onto the walking beam and torque the set screws to 75 ftlb. Ensure that the safety beam clamp is in a position that horse head will not encounter the cable as it can wear out or break the cable.

Note: The design of some pumping units may require the beam clamp to be installed on Samson post or side of horse head.

12. Attach the crimped metal yoke end of the actuator cable to the predrilled hole that is adjacent to the spring on lever arm of the beam clamp. Crimp the cotter pin to ensure it will not slide out of yoke during use.
13. Attach adjustable yoke end of the actuator cable into the hole on the end of the smart rod rotator's actuator lever. Move the actuator lever to a horizontal position by hand. Slide the actuator cable through the shank of the adjustable yoke until a small amount to no slack is left in the actuator cable. Tighten the wing nut on the adjustable yoke firmly. Cut off most of the excess but leave enough for future adjustment.
14. Dis-engage the pump's brake and any electronic safety lockouts used. Slowly lift the carrier bar to allow the temporary polished rod clamp to raise enough to allow for safe removal.
15. Once the temporary polished rod clamp is no longer resting on the stuffing box, Re-engage the pump's brake and any electrical safety lockouts. Remove the temporary polished rod clamp and back off the hex nuts on the stuffing box to allow the packing to properly seal.
16. Release pump's brake and electrical safety lockouts. Start the pumping unit. Allow the rod rotator to start cycling. Watch the DO 1 indicator status. If DO 1 indicator light doesn't switch between red and green, turn off pumping unit at the bottom of the down stroke and apply pump's brake and electrical safety lockouts. Re-adjust actuator cable to allow for better operation.

## **Maintenance Instructions:**

Note: Routine preventative maintenance should be performed every 1-2 months of operation.

1. Turn off the pumping unit at the bottom of the down stroke and engage the pump's brake and any electrical safety lockouts.
2. Apply 2 shots of EP-2 lithium grease in the shaft housing, 10 shots of EP-2 lithium grease in the body.

CAUTION: Over grease of the rod rotator's body can cause the cover cap to hydraulically lift off of the worm gear causing the unit to be non-operational.