ECONOMY SOLAR LIGHT TOWER

MODEL WLTS-S
PRODUCT SPECIFICATIONS | FEBRUARY 2024

1. SYSTEM

1.1. Description

The Wanco® Economy Solar Light Tower provides bright LED lighting on a compact, portable trailer. Four adjustable light fixtures atop a telescoping mast can be aimed individually. The mast rotates nearly 360 degrees without lowering the lights, which operate at any height. A winch and cables raise and lower the tower smoothly and easily.

Switches on the control panel turn lights on and off individually. A function selector switch determines the operating mode: off, manual, and a choice of automatic operating modes.

Power is provided by batteries, which are charged by an automated solar charging system. The solar panel array tilts from horizontal to nearly vertical to optimize charging year-round.

1.2. Model

WLTS-S small solar light tower

1.3. Temperature limits

Operating   −40 to 122°F (−40 to 50°C)

Storage   −40 to 158°F (−40 to 70°C)

2. FEATURES

2.1. Setup

- Compact trailer is easy to tow and deploy
- Extendable rear bumper and four leveling jacks provide stability
- Light fixtures tilt and rotate independently and hold their position without tools
- Single winch raises and lowers the tower smoothly and easily
- Single hand-crank tilts solar array to any angle from horizontal to nearly vertical
- Tower rotates nearly 360 degrees, reducing the need to frequently move the trailer
- Lights operate at any height

2.2. Operation

- Control panel behind hinged door panel with latch
- Individual on/off switch for each light
- Function selector switch for off, manual on, or automatic on/off
- Status LEDs indicate charge status
- Voltage meter with push-button activation for quick view of battery charge

2.3. Power system

- Battery powered and solar charging
- Energy-efficient operation
- Solar panels charge batteries automatically without intervention
- Charging system shuts down when batteries are fully charged, preventing damage
- Power system allows battery charging with solar panels or commercial power
- Low-voltage-disconnect circuit shuts down power if battery voltage drops below setpoint, preventing damage to batteries and electronics
- Battery box cover is bolted closed to deter tampering

2.4.	Maintenance	• All-welded structural steel frame ensures durability and long life
		• Durable powder-coat finish resists the elements
		• Standard trailer tires
		• Bolt-on fenders can be replaced if damaged

2.5.   Application   Common applications include:

- Utility sites
- Road repairs
- Special events
- Security checkpoints
- Gated entrances
- Flagger stations
- Personal work areas

3.   LIGHTS

3.1.   Description   Four high-efficiency LED light fixtures

3.2.   Standards   IP65

IEC protection: Safety Class I

CE certified

RoHS compliant

3.3.   Luminous flux   8615 lumens per fixture

34,860 total lumens

3.4.   Light color   5000K

3.5.   Field angle   45 degrees

3.6.   Photometrics

3.6.1.   Coverage area   Total coverage ≥ 0.5 fc with fixtures tilted 15° down from vertical:

8200 sq ft (762 m²)

0.1883 acres

3.6.2.   Isolines

3.7.   LED lifetime   50,000 hours

3.8.   Power draw   60W

3.9.   Input voltage   24Vdc

3.10.   Input current   2.5A max.

3.11.   Polarity protection   Reverse voltage up to 45 Vdc

3.12.   Temperature limits   Operating   −40 to 122°F (−40 to 50°C)

                               Storage   −40 to 158°F (−40 to 70°C)

3.13.   Fixture   Black aluminum housing

                              Clear polycarbonate lens

                              11.3 x 10.5 x 2.2 in (288 x 266 x 55 mm), W x H x D

3.14.   Mounting brackets   Each light fixture installed on a swivel bracket

                               Bracket allows light to rotated and tilted without tools; friction and tensioning hold lights
                               in place

3.15.   Weight   5.07 lb (2.30kg)

4.   CONTROL SYSTEM

4.1.	Control box	
4.1.1.	Location	Inside battery box
4.1.2.	Material	18 ga sheet steel
4.1.3.	Door	Hinged door panel with sliding latch
4.1.4.	Finish	Control box and door are coated with oven-baked, equipment-white powder-coat finish to ensure durability and corrosion protection. Assemblies are run through a five-stage, high-pressure phosphate-wash prior to application of the finish coat.
4.1.5.	Serviceability	Hinged control panel with single fastener provides access to interior of control box
		Modular design; entire control box is removable for servicing
4.2.	Control panel	
4.2.1.	Controls	Rotary switch for selecting operating mode
		Toggle switches for switching lights on and off
		Amber LED indicates solar charge system status
		Red LED indicates battery charge status and low voltage shutdown
4.2.2.	Operating modes	A rotary switch allows selection of operating mode:

	Off	All lights off regardless of toggle position
	On	All lights that are toggled on are on
	Dusk to dawn	All lights that are toggled on automatically turn on at dusk and off at dawn
	Dusk + hours	Lights automatically turn on at dusk and off the selected number of hours later
		Choices: 4, 6, 8, or 10 hours
	Motion	Lights automatically turn on when motion is detected and off after a specified number of minutes
		Optional owner-supplied motion detector is required for this function
	Timer	Lights automatically turn on and off at specified times
		Optional 7-day timer required
		See "Options and Optional Equipment" for timer

Lights that are toggled off remain off regardless of operating mode

4.2.3.	Access	Front exterior of battery box
4.3.	Compass	Removable compass stored on interior of door for use when positioning trailer to optimize solar charging
		Compass attached to door with lanyard
4.4.	Solar charger	Internal regulator controls the solar charging process
		Switching solar controller
4.5.	PC boards	
4.5.1.	Coating	100% coated with military-spec, low-VOC, silicone conformal coating to provide long-term protection against moisture and other atmospheric contaminants. Resists corrosion and shorts due to high humidity.
4.5.2.	Temperature limits	Operating: –40 to 176°F (–40 to 80°C)
		Storage: –40 to 185°F (–40°C to 85°C)
4.5.3.	Humidity limits	Conformal coating rated to 95% relative humidity

5. TRAILER

5.1.	Frame	
5.1.1.	Construction	All welded structural steel
5.1.2.	Tie-downs	One on each side at front of trailer frame, one centered on rear frame
5.1.3.	Forklift pockets	Forklift guides located at front of trailer
5.1.4.	Rear bumper	Rear bumper telescopes inside trailer frame for transport and storage, slides out to extend trailer length for added stability when deployed
		Two wire-lock pins, one on either side of trailer, secure the rear bumper in place
5.1.5.	Finish	Oven-baked, black powder-coat finish, applied prior to assembly to ensure durability and corrosion protection. Assemblies are bead-blasted and then run through a five-stage, high-pressure phosphate wash prior to finish coat.
5.2.	Fenders	Round, full wheel coverage, bolted to trailer frame, removable and replaceable
5.3.	Axle assembly	2000 lb (907.2kg) capacity, 5 on 4.5" B.C. idler hub
5.4.	Springs	Double-eye leaf springs
5.5.	Tires	ST205/75D15 steel-belted trailer tires

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5.6.	Drawbar	
5.6.1.	Construction	Hinged on bracket welded under trailer frame. Folds up for shipping and storage when needed. Secures up or down with a single locking pin.
5.6.2.	Material	3" (7.62cm) square steel tubing, 3/16" (0.476cm) wall
5.6.3.	Jack	Swivel jack with caster wheel
5.6.4.	Tow hitch	Standard 2-inch ball coupler tow-hitch, SAE Class 2, 3500 lb (1588kg) capacity. Bolts to drawbar, removable and replaceable.
		See "Options and Optional Equipment" for tow-hitch options.
5.6.5.	Tow chains	Two high-test proof coil chain assemblies with "latching" S-hooks for towing. Chains attached to tongue with quick connectors.

Material diameter	0.406" (10.3mm)
Working load limit	5400 lb (2450kg)
Breaking force	16,200 lb (72kN)

5.7.	Stabilizer jacks	Four swivel jacks, each with 2000 lb (907kg) capacity, mounted on corners of trailer frame
5.8.	Wiring	
5.8.1.	Description	Wiring to connect tow vehicle and trailer for trailer taillights is installed inside drawbar with pigtails and connectors at both ends; no crimping required
5.8.2.	Trailer plug	A sealed, molded, 4-square connector plugs into harness under trailer
5.8.3.	Tow-vehicle plug	Two-piece assembly with 4-flat molded connector on harness plugs into tow vehicle
		Meets SAE J1239
		See "Options and Optional Equipment" for tow-vehicle plug options
5.8.4.	Protection	All trailer wiring encased in UV protective loom, and attached with P-clamps riveted to trailer frame; no exposed wires
5.9.	Taillights	Two oval-shaped, sealed, LED, combination stop, turn and taillights integrated with fenders
5.10.	License plate	Lighted license plate holder is mounted under rear of trailer frame
5.11.	Reflectors	Two amber reflectors, one on each side of solar tilt-frame near front of trailer
		Two red reflectors, one on each side of solar tilt-frame near rear of trailer

5.12.   Tower assembly

5.12.1.	Function	Lights are raised and lowered on a telescoping vertical tower
5.12.2.	Tower construction	Four sections of square steel tubing, each with a successively smaller circumference, telescope inside the adjacent section below it. Each section is supported by a single cable that loops under it inside the next larger tower section.
		Nylon guide blocks keep the sections tight, eliminating the need for greasing the tower and preventing dirt from building up on the inner tower section. Dirt would cause performance problems and maintenance issues.
5.12.3.	Swivel base	A steel tubular weldment is bolted to the trailer frame. The bottom tower section rotates on a thrust bearing and washers inside the swivel base, reducing rotating friction.
5.12.4.	Lights crossbar	Crossbar supports four light fixtures during operation and transport
5.12.5.	Finish	All tower sections are treated for corrosion resistance
5.12.6.	Height	At fully deployed height, 21 ft (6.4m) from ground to top of lights
5.12.7.	Wiring	Durable electrical cable for lights is attached to tower, extends with raised tower and loops when tower is telescoped down

5.12.8.   Winch assembly

Function	Hand-operated winch raises and lowers tower
	See "Options and Optional Equipment" for power winch
Capacity	1500 lb (680kg)
Brake	Safety friction-brake prevents tower from falling should operator lose grip on winch handle
Cable	1/4" (6.35mm) diameter galvanized aircraft cable

5.12.9.	Rotation	Tower assembly rotates by hand, pivoting nearly 360 degrees; tower includes handle for gripping while rotating
5.12.10.	Tower lock	Tension knob locks tower rotation
		Locking pin with cotter pin and lanyard locks tower in travel position

6.   POWER SYSTEM

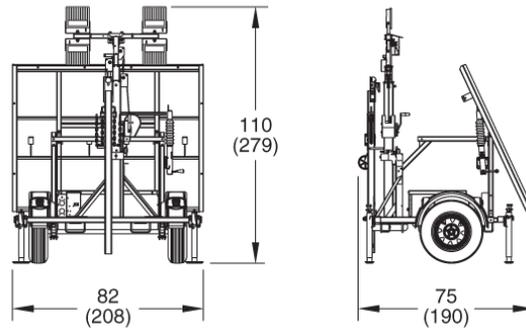|		
6.1.	Description	Lights powered by batteries, which are charged automatically with integrated solar charging system
6.2.	Battery box	
6.2.1.	Function	Holds batteries and electronics
6.2.2.	Construction	Riveted all-steel construction, cover is bolted in place
		Divider panel inside box separates batteries from electronics
		Louvers with filters provide ventilation
		Access panel on back of battery box provides access to AC charger
6.2.3.	Finish	Cabinet panels are coated with oven-baked, white powder-coat finish, applied prior to assembly to ensure durability and corrosion protection. Parts are run through a five-stage, high-pressure phosphate wash prior to application of the finish coat.
6.2.4.	Location	Over axle
6.3.	Batteries	
6.3.1.	Description	Four 4D AGM batteries, wired in parallel and series for a 24-volt system
6.3.2.	Features	100% maintenance-free
		Sealed and spill-proof
		Faster recharge and greater freeze resistance than conventional batteries
6.3.3.	Voltage	12Vdc each
6.3.4.	Weight	120 lb (54.4kg) each
6.3.5.	Capacity	400 Ah total
		30 hr approx. run time, batteries only (no solar charge) with all lights on
6.4.	Low-voltage disconnect (LVD)	To protect batteries from full discharge, the LVD system automatically shuts down power when battery voltage drops to preset level, and re-engages power when battery charge returns to optimum
6.5.	Remote charger	
6.5.1.	Function	Plugs into a standard commercial power source to recharge batteries if battery voltage drops due to lack of sun for automated solar charging system
6.5.2.	Type	24-volt 3-stage smart battery charger
6.5.3.	Location	Inside battery box, mounted to side panel on opposite side of divider from batteries

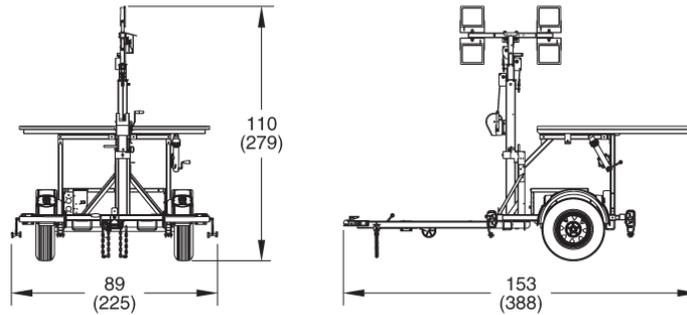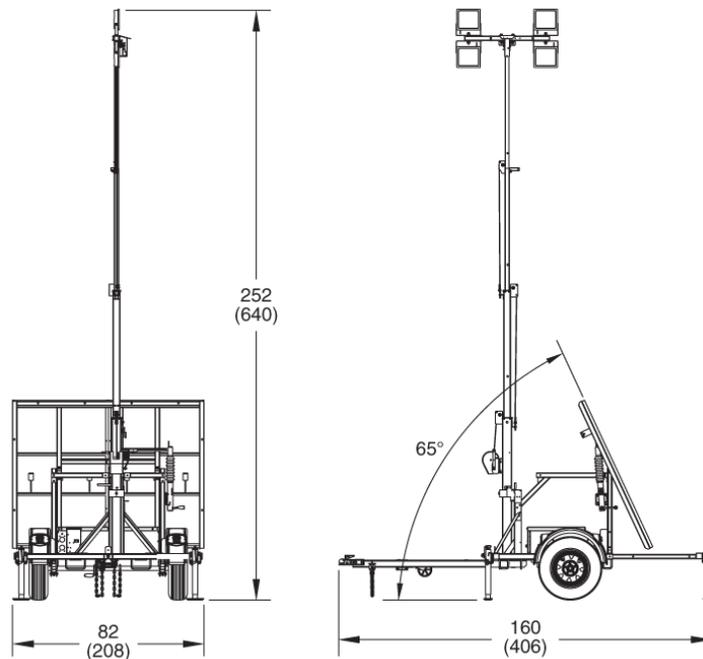| 6.5.4.	Output capacity	50A
6.5.5.	Output voltage	26 to 33 Vdc
6.5.6.	Input voltage	108 to 132Vac, standard three-prong plug
6.5.7.	Input current	14A max.
6.5.8.	Cooling	Automatic fan cooling
6.5.9.	Protection	Reverse polarity protection, automotive style replaceable fuses
6.6.	Condition meter	
6.6.1.	Description	Lighted voltage meter provides quick battery bank charge state from outside the battery box
6.6.2.	Location	Front of battery box
6.6.3.	Activation	Momentary push-button; meter is on only while button is pressed
6.7.	Solar	
6.7.1.	Panels	Two high-efficiency monocrystalline photovoltaic modules with half-cut cell technology
6.7.2.	Tilt-frame	Solar array installed on tilt-frame above battery box. Array can be tilted using hand-operated telescoping lift with no-back-drive gear system. The angle range is 0 to 65 degrees up from horizontal.
6.7.3.	Power output	730W
6.7.4.	Current	21.3A max. system current 22.6A open short-circuit current
6.7.5.	Voltage	34.3Vdc max. system voltage 40.8Vdc open short-circuit voltage
6.7.6.	Efficiency	20%
6.7.7.	Regulation	Solar power input regulated by control system
6.7.8.	Security	Solar panels attached to frame with security screws

7. DIMENSIONS & WEIGHT

7.1. Dimensions

inches
(cm)

Storage Position

110 (279)

82 (208)

75 (190)

Travel Position

110 (279)

89 (225)

153 (388)

Deployed

252 (640)

65°

82 (208)

160 (406)

7.2. Weight   Approx. 1680 lb (762kg)

8.   OPTIONS AND OPTIONAL EQUIPMENT

8.1.   Tow hitch   Standard lunette ring for pintle hook, 2½" ID x 1" cross-section

8.2.   Tow-vehicle plug   Many types of plugs available, prewired at the factory; contact factory for details

8.3.   Programmable timer   7-day, 24-hour digital timer provides automatic on/off operation of lights

Allows daily and/or weekly programming

Up to 8 on/off operations per day, 56 total switching cycles per week

Push-button operation

LCD display

8.4.   Asset tracker   Wanco Asset Tracker provides location tracking information and more, viewed remotely using Wanco Fleet Manager

Includes Wanco Fleet Manager, a web-based service for managing Wanco equipment

View GPS location (longitude and latitude) and geofencing on interactive Google map

View equipment battery voltage, including voltage history

View location history—hourly updates, up to 50 locations

Get email or text notifications for low voltage and geofence violations