

Tripod-1 MANUAL

57-6015 Rev B

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DYACON Tripod-1™ are trademarks of DYACON, Inc.

All other trademarks are property of their respective owners.

Manufacturer

DYACON, Inc.
220 West 300 South
Newton, UT 84327
USA

Declarations

Met Station Tripod-1™ is a passive mechanical device.

FCC, IC, C-TICK, and CE radio frequency certifications are not required.

Warranty Information

Limited Hardware Warranty

DYACON, Inc. warrants that all DYACON Tripod-1™ products and components shall be free from defects in materials and workmanship for a period of one (1) year from the date of shipment when properly installed according to instruction manuals accompanying said hardware and used for the purpose for which said hardware was designed. In the event a defect in materials or workmanship is discovered and reported to DYACON within the warranty period, DYACON will at its option repair the defect or replace the defective product. This warranty does not apply where the product has been operated outside the specifications of the product. DYACON's obligation hereunder will be limited to such repair or replacement. Customers shall have the responsibility to ship the defective equipment to DYACON at its (customer's) expense, with all cost of shipment prepaid. DYACON will ship the repaired or replaced item at its (DYACON's) expense using the preferred shipment method of DYACON.

Disclaimer of Warranties

The warranties set forth above are in lieu of all other warranties of DYACON, whether written, oral, or implied. DYACON makes no warranties regarding its products (hardware or software), including without limitation warranties as to merchantability, fitness for a particular purpose, any warranty arising from course of performance, course of dealing or usage of trade whether any of the foregoing warranties are either expressed or implied. DYACON specifically makes no warranties as to the suitability of its products for any particular application. DYACON shall in no event be liable for performance, or use of any product covered by this agreement whether such claim is based upon warranty contract (express or implied), strict liability, negligence, or otherwise. Any responsibility and/or liability of DYACON shall, in connection with a warranted product, be limited in maximum amount to the original purchase price of that product.

Updates or Modifications

DYACON shall be under no obligation to update or modify its products except as herein noted to correct defects or errors. Customer agrees that all representation and warranties contained herein shall be immediately null and void in the event of any modification, alteration, or change in or to any product affected by or on behalf of customer except for a change made by DYACON or other direct supervision thereof.

TRIPOD-1 INTRODUCTION

Scope

The content of this document is intended for integrators, installers, and users of Tripod-1[™], hereinafter referred to as Tripod or tripod.

This document includes installation instructions and technical specifications. Some aspects of the equipment operation may be covered in other documents. Please contact DYACON or visit the DYACON.com website.

User's should seek competent professional services for tasks where overhead electrical lines are present, when working at heights greater than the user's height, or when connecting electrical ground.

Technical Support

Contact Information

DYACON, Inc.

220 West 300 South
Newton, UT 84327

Phone: (435) 753-1002

Fax: (435) 753-1262

Email: support@DYACON.com

Internet: www.DYACON.com

Normal business hours are from 8:00 a.m. to 5:00 p.m. (Mountain Time Zone, GMT -0700)

Phone / Email Support

If you need technical support via the phone or email, please have the following information ready:

Product name, model number, and serial number.

Your name and name of the purchaser of the equipment.

Name of company, institution, or agency.

Phone number, email address.

Billing and Shipping address.

A clear description of the question or problem.

Repairs

If your equipment is in need of repair, call or email for a Return Materials Authorization (RMA) number. Place the RMA number on the outside of the shipping container next to the shipping label or make it a part of the shipping label. Make sure to include a detailed description of the problem and any other additional services that should be performed on the returned unit.

For equipment that is not under warranty, extended warranty, or a maintenance agreement, a purchase order is required before repairs can begin.

PRODUCT OVERVIEW

Product Description

DYACON Tripod-1™ an equipment mounting system designed to support DYACON weather station equipment. The tripod may also be used for general purpose equipment support applications including weather stations, data loggers, antenna systems, lighting, and cameras.

Tripod-1 is composed of un-anodized aluminum in order to improve electrical conductivity and reduce system cost. Anodized versions may be purchased as OEM products.

Field Serviceability Features

Common mast and leg segments. (Facilitates field configuration and repair.)

Minimal tool requirements (Only the guy cable clips require a wrench.)

Large feet with 4 stake holes and 4 screw holes.

Quick release pins and buttons for all mechanical fittings.

Light-weight.

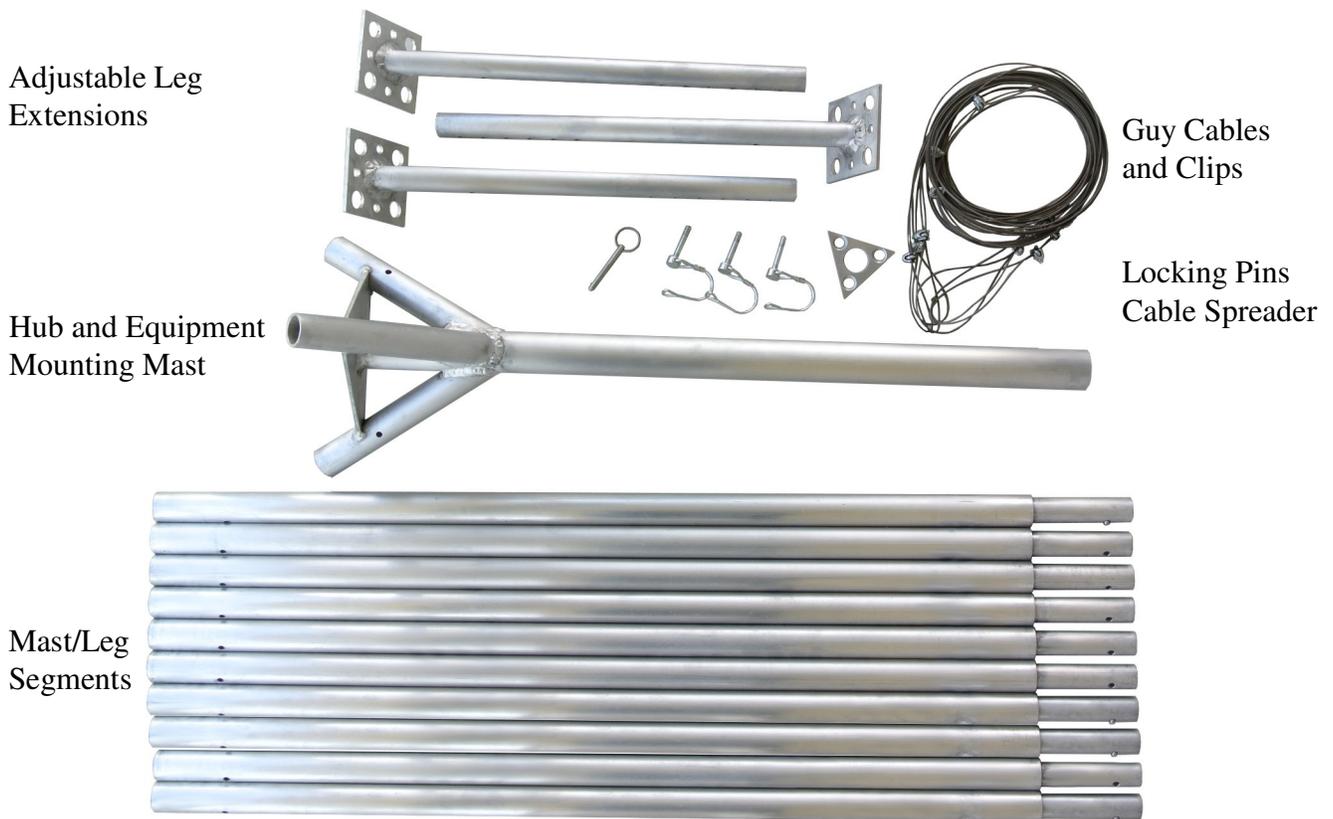
Adjustable leg extensions.

What Do You Get?

Tripod-1 is sold in either 7-segment or 10-segment kits. The segments are fully interchangeable between mast and leg positions. This allows for in-field modifications, configuration flexibility, minimal repair parts, and easy setup.

Parts include:

- 7 or 10 mast/leg segments (1 inch pipe – 1.32 in/33.5 mm)
- 3 adjustable leg extensions
- 3 wire loop locking pins
- 1 ball detent locking pin
- 1 cable spreader
- 1 tripod hub (1.25 inch pipe – 1.66 in/42.2 mm)
- 3 each 20 ft (6.1 m) guy cables
- 12 cable clips
- 7 or 10 quick-release buttons (pre-installed)



Ground Kit (Option)

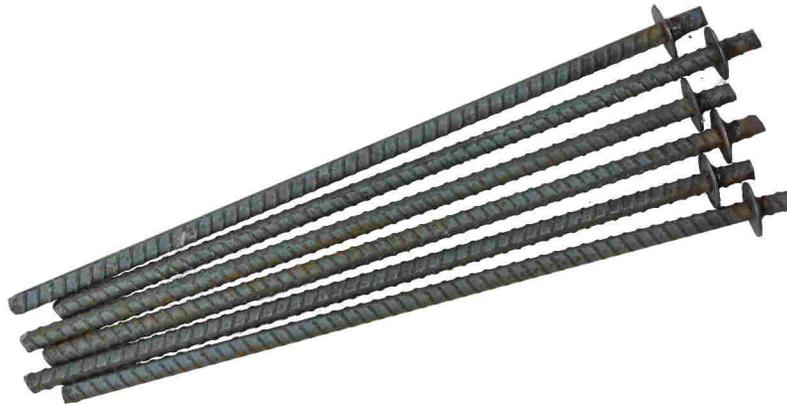
A grounding kit is available for tripods or poles mounted on the ground. It consists of a standard ground rod (optional), clamps, stranded wire, and equipment ground wire. User's should seek professional assistance for grounding of roof-mounted equipment.



Anchoring Stakes (Option)

Anchoring stakes are available through the DYACON website. Since installations may differ, these stakes are not included. Users may also choose to fashion their own stakes using their own materials. Full drawings are available from DYACON for this purpose.

A minimum of six stakes are recommended. Additional stakes may be required in sandy or loose soils.



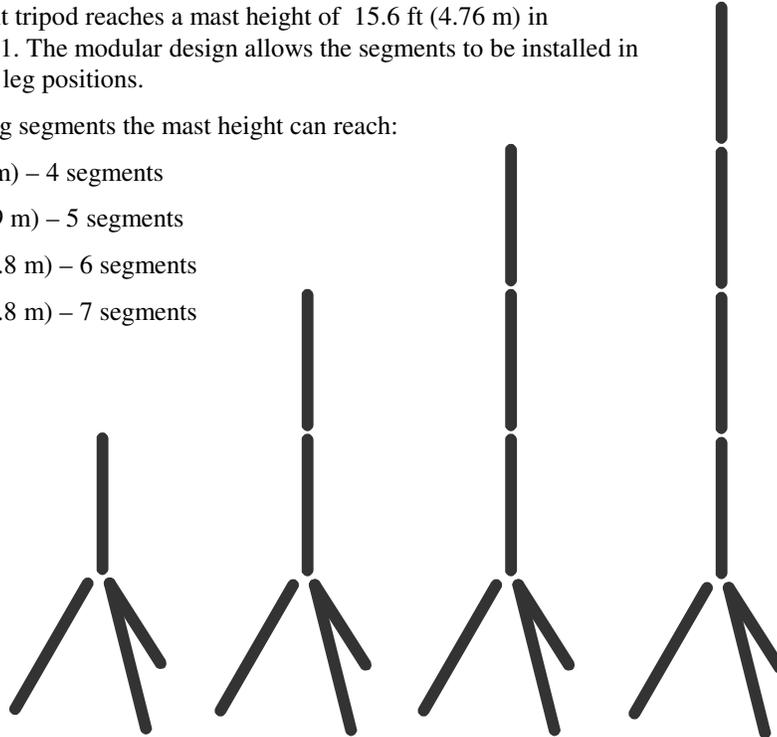
TRIPOD CONFIGURATIONS

7-Segment

The 7-segment tripod reaches a mast height of 15.6 ft (4.76 m) in configuration 1. The modular design allows the segments to be installed in either mast or leg positions.

With single leg segments the mast height can reach:

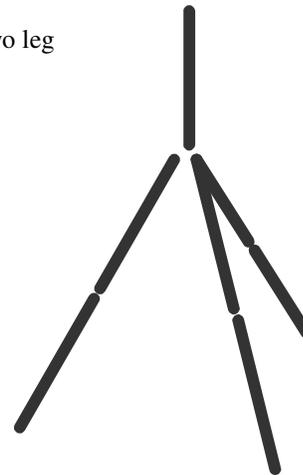
- 6.6 ft (2 m) – 4 segments
- 9.6 ft (2.9 m) – 5 segments
- 12.6 ft (3.8 m) – 6 segments
- 15.6 ft (4.8 m) – 7 segments



Using all 7 segments, they can also be configured with two leg segments and a single mast segment.

The resulting height is approximately:

- 8.8 ft (2.7 m) – 7 segments



10-Segment

The 10-segment tripod has the same configurations as the 7-segment version. The additional segments may be retained for service and repair. Alternatively, they may be used to extend the legs.

The extended legs may be helpful in managing uneven terrain, spanning rocks, ditches, or fences, or elevating the mast above vegetation.

Please be aware that adding the segments to the legs will elevate the tripod hub and mounting mast. This may make equipment servicing more difficult, requiring a ladder or step stool.

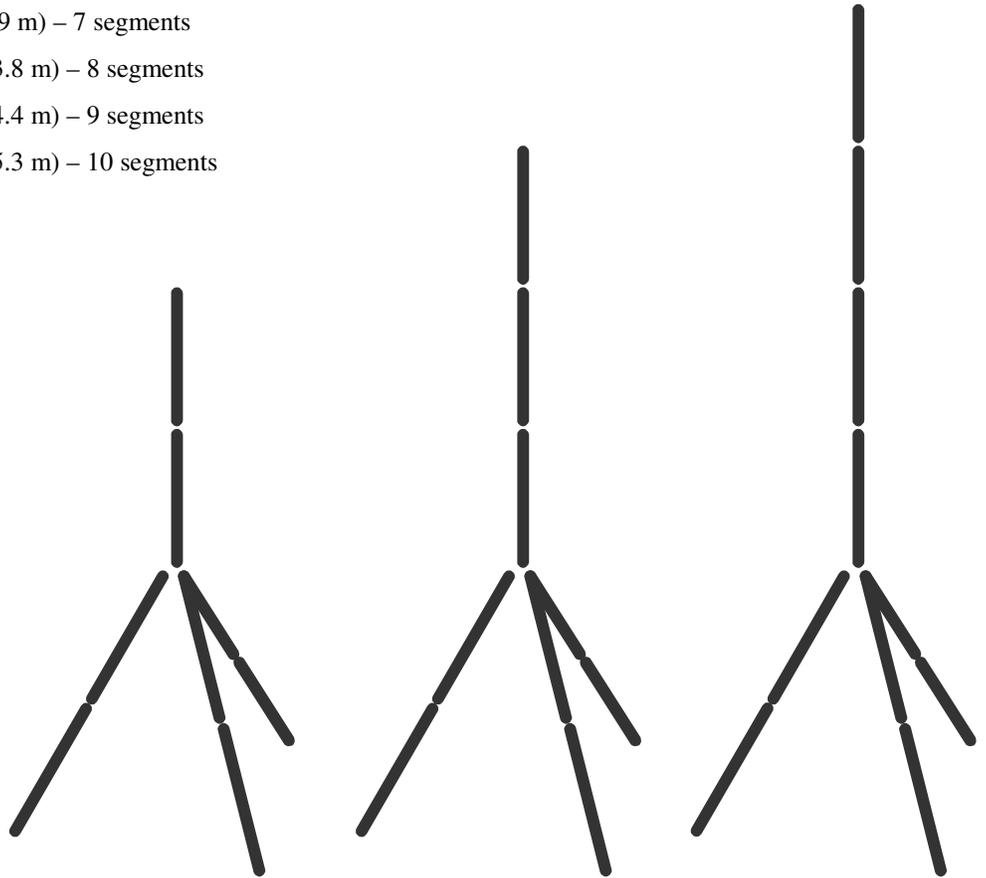
With double leg segments and the adjustable leg extensions fully retracted (shortest), the resulting height is approximately:

9.4 ft (2.9 m) – 7 segments

12.4 ft (3.8 m) – 8 segments

14.4 ft (4.4 m) – 9 segments

17.4 ft (5.3 m) – 10 segments



ASSEMBLY INSTRUCTIONS

Required Tools

7 mm (9/32 inch) open end wrench (Not a socket driver.)

Anchoring tools (Site dependent, such as hammer for stakes or wrenches for screws.)

As Shipped

The tripod is shipped with,

the leg extensions installed into mast segments,

a mast segment installed into the tripod hub,

cable spreader installed on the mast segment in the hub,

and

cable clips installed on the guy cables.

Assembly Procedure

Tripod assembly is intuitive. The headings may serve as adequate instructions for most users.

Assemble the Base

1. **Install each leg** into the tripod hub.
2. **Extend adjustable leg** extensions fully.
3. **Clear debris** from under each tripod foot to ensure a stable installation.
4. Using the adjustable legs and pins, **plumb the mounting mast** for a vertical position.

Guy Line Installation - Top

1. Verify that the cable spreader is installed on the mast segment in the tripod hub. The cable spreader is a triangular plate with a hole in each corner. Each hole is chamfered (beveled) in order to minimize stress on the guy lines. **The chamfer should be facing up.**
2. The wire rope clips are pre-installed on the guy lines, forming a loop at each end. One end of each guy lines will have a small loop. **Thread the small loop** up through one of three holes in the cable spreader and over the top of the mast.
3. **Repeat** this procedure for each guy cable, inserting a cable into each of the three holes.



Image 1: Guy Line Spreader

Guy Line Installation – Bottom

The guy lines may be **staked separate from the tripod** or they may be **attached to the tripod legs**. (See Image 3.) Use the following steps if the lines will be attached to the tripod legs.

1. Locate the large loop on each guy line.
2. Lift each tripod leg and **thread the large loop over the foot**. **Leave these loose**, they will be secured and tightened later.

Attach Equipment

1. **Attach equipment to the tripod mast**, such as a wind sensor, light, or antenna.
2. **Align the equipment** before erecting the mast.
3. Attach equipment to the tripod mounting mast. This may also be done later, depending on equipment needs.

Anchor

Anchor the tripod with two stakes or screws per foot, depending on the mounting surface.

Erect the Mast

With the adjustable legs fully extended or when two leg segments are used, the tripod mast may be assembled from the bottom.

1. **Position a new mast** segment under the tripod mast.
2. While holding the bottom of the installed mast, **remove the ball detent locking pin**.
3. **Lower the mast to seat onto the new segment.**
4. **Raise the mast.**
5. **Add more** segments as required.
6. **Re-insert the locking pin.**



Image 2: Mast Insertion

Tripod Leg Guy Line Anchoring

1. At this point, the guy lines should be draped from the top of the mast and will be either hanging loose or looped around each tripod leg.
2. If the tripod legs are intended as the anchor points, the lines need to be positioned on the adjustable leg pin.
3. Open wire clip on the adjustable leg pins.
4. Position the guy line loop below the pin.
5. Close the wire clip over the guy line.

Staked Guy Line Anchoring

1. Drive at least one stake for each guy line anchor. Two stakes that cross in a 'X' above ground are recommended.
2. Place the lower guy line loop around the stakes.



Image 3: Guy Line to Leg Anchor

Guy Line Tensioning

1. Loosen all of the lowest guy line clips until they slide freely.
2. Loosen the upper clips and finger tighten. The wire rope should pull through, but can be held in tension with your fingers while you tighten the clip nuts enough to hold the initial tension.
3. Tension each guy line in turn.
4. Make sure that the wire rope seats against the locking pins rather than the head of the pin.
5. Re-check each guy line for tension. Adjust as necessary.
6. With all guy lines tensioned, slid the lower wire rope clip to the bottom of the loop so that it pulls the guy line closed around the stakes or tripod leg.
7. Tighten the lower wire rope clips.
8. For shorter tripod configurations, the excess wire rope can be coiled and secured with a wire tie.

WEATHER STATION SITE SELECTION

Radio Link Path

Radio propagation is always an unknown and should be tested before drilling holes in your roof or pouring concrete for a mast. Similar site review will also avoid unnecessary effort when using a portable tripod.

Radio range is typically given as a “line of sight” (LOS) distance, free of obstructions. Vegetation, ambient humidity, radio reflections, radio signal interference, brick walls, energy efficient windows, metal structure, magnetic dry-erase boards, and other obstacles will reduce the effective range of the radio link.

Select a location that allows for a clear line-of-sight sight between the station equipment and the receiver location. Vegetation and buildings will attenuate the radio signal.

If a DYACON wireless weather station is intended, the control module may be mounted to the tripod hub and legs and activated before connecting peripheral equipment. This allows the site to be evaluated prior to full assembly.

Ground Mounting

While not all locations may not benefit from ideal installation convention, the following rules may help identify a the best location for your weather station.

Install the station on level ground.

Keep the station as far away from tall objects such as trees and buildings. A minimum distance of 10 times the object height is recommended.

Mount the sensors as high as possible, ideally, this would be 10 m, which is impractical for most industrial and amateur weather stations. 3 m (10 ft) height is recommended for wind measurements and at least 1.25 m (4 ft) for surface temperature measurements.

Avoid proximity to buildings which can reflect sunlight and radiate heat.

Rain gauges should be positioned in an open area to avoid dripping or shadowing from other objects or structures. The gauge should be located at a distance of at least twice the height of any nearby objects.

Rain gauges are often mounted at a height of 1 m (3 ft).

If fencing is used to protect the station, the sensors should be mounted higher than the fence.

Please refer to the Equipment Installation section before driving stakes or pouring concrete.

Roof Mounting

Roof mounting is not the ideal location due to the affects of the structure that affect the wind and temperature, nevertheless, for casual observations it may be the only option available to some users.

!!! Care should be taken to avoid proximity to live power and utility lines!!!

Seek the assistance of a professional if the weather station tower is near any power lines or public utility lines. We don't want a cooked customer and we don't want your goose cooked if you damage a utility line.

Avoid mounting the sensor suite on existing antenna towers. The additional wind load and clamp force on the mast may affect the stability and structural integrity of the tower.

Roof mounting may be a convenient location in most urban and suburban areas. It allows the sensor suite to be located above nearby structures with minimal tower requirements.

Sensor height should be 2 m (6 ft) above the ridge of the roof or above the highest point, such as a chimney. If surrounding structures are higher than the base structure, the minimum distance rule used for ground mounting may apply.

Please refer to the Equipment Installation section before mounting your tripod on the roof.

REVISION HISTORY

Rev	Description	Author	Date
A	Initial Release	E. Bodrero	07OCT2013
B	Brand change	E. Bodrero	21FEB2014