

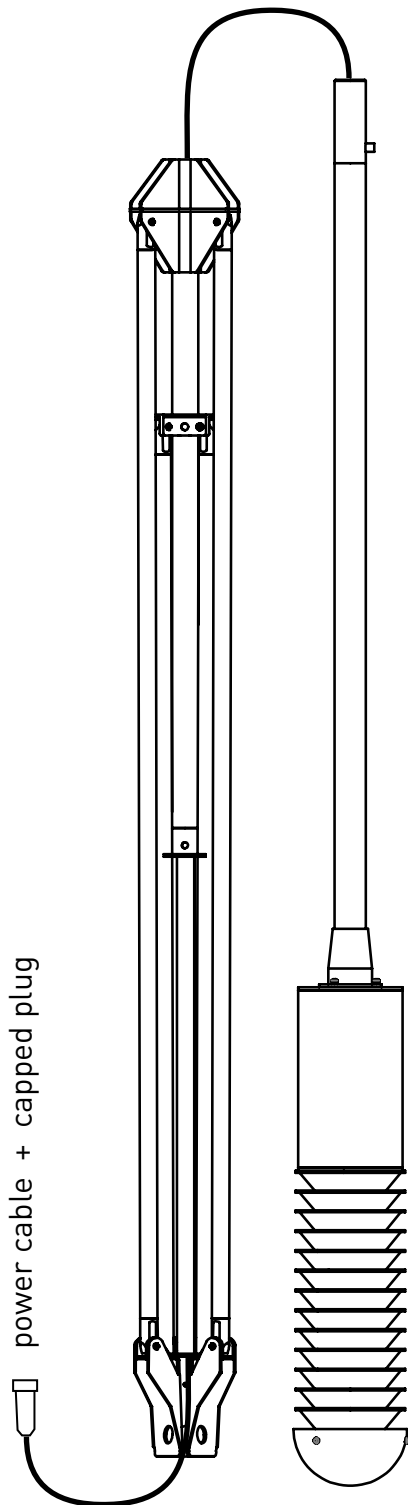
MANUAL

Cold Facts-3000B Weather Station

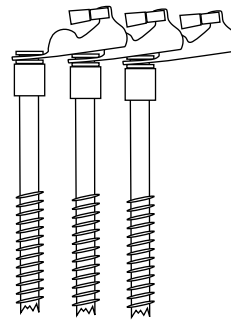
Version 1.5 April 2013



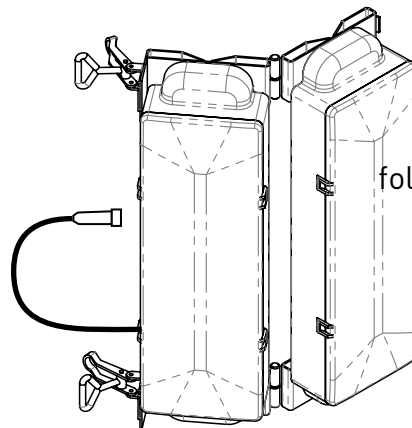
Content of the package



power cable + capped plug



3 x ice screw



foldable battery housing

Product overview

Introduction

Polar explorer Marc Cornelissen, Technical University of Delft and Leap Development teamed up to develop an autonomous battery powered polar weather station. Once deployed the station provides scheduled meteorological- and position reports via satellite. Special design and materials make the station light weighted, compact for transportation and easy to deploy and install.

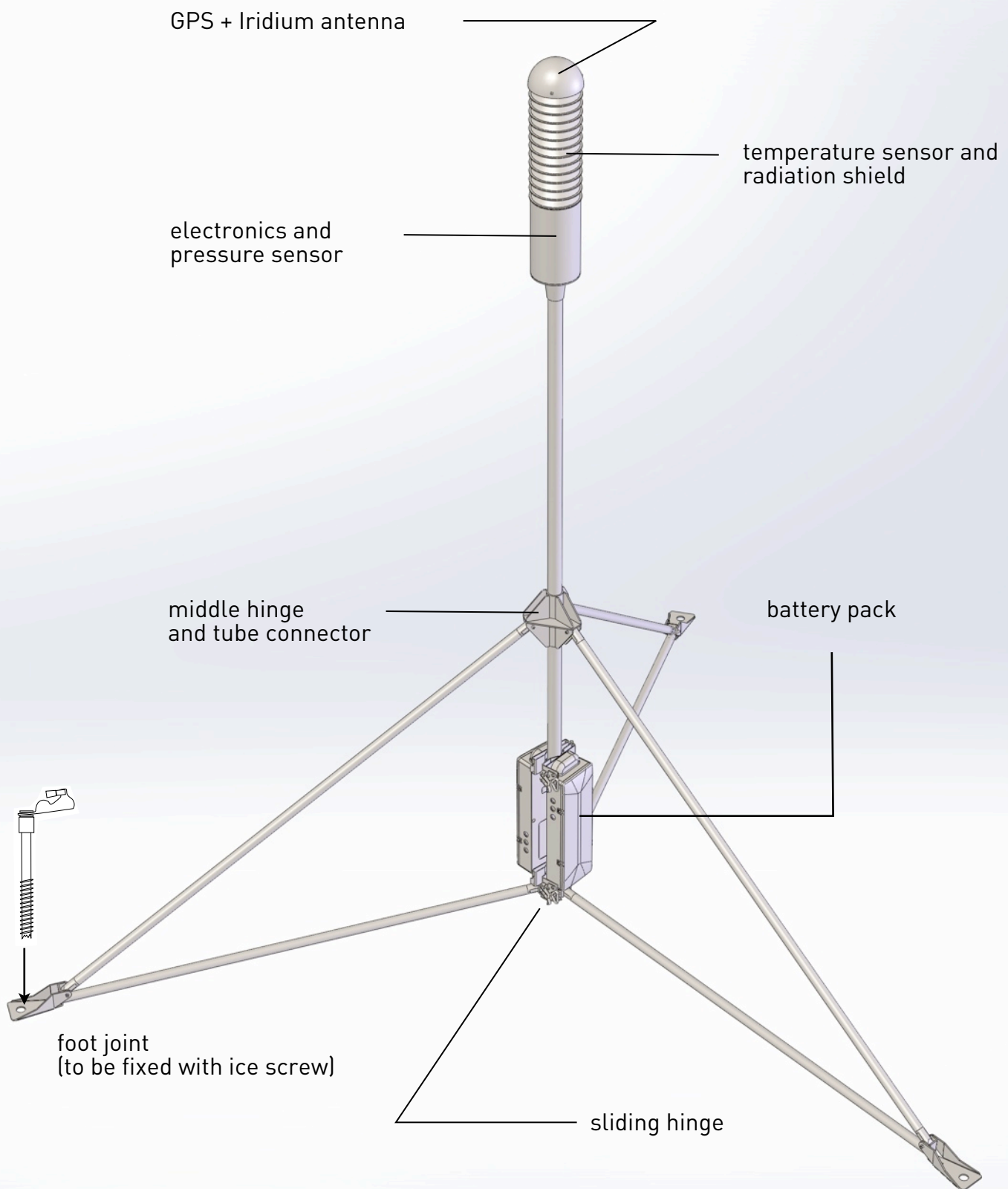
Applications

Monitoring sea ice movements and key parameters such as: air pressure and wind (optional sensor). Monitoring climate and seasonal changes in temperature.

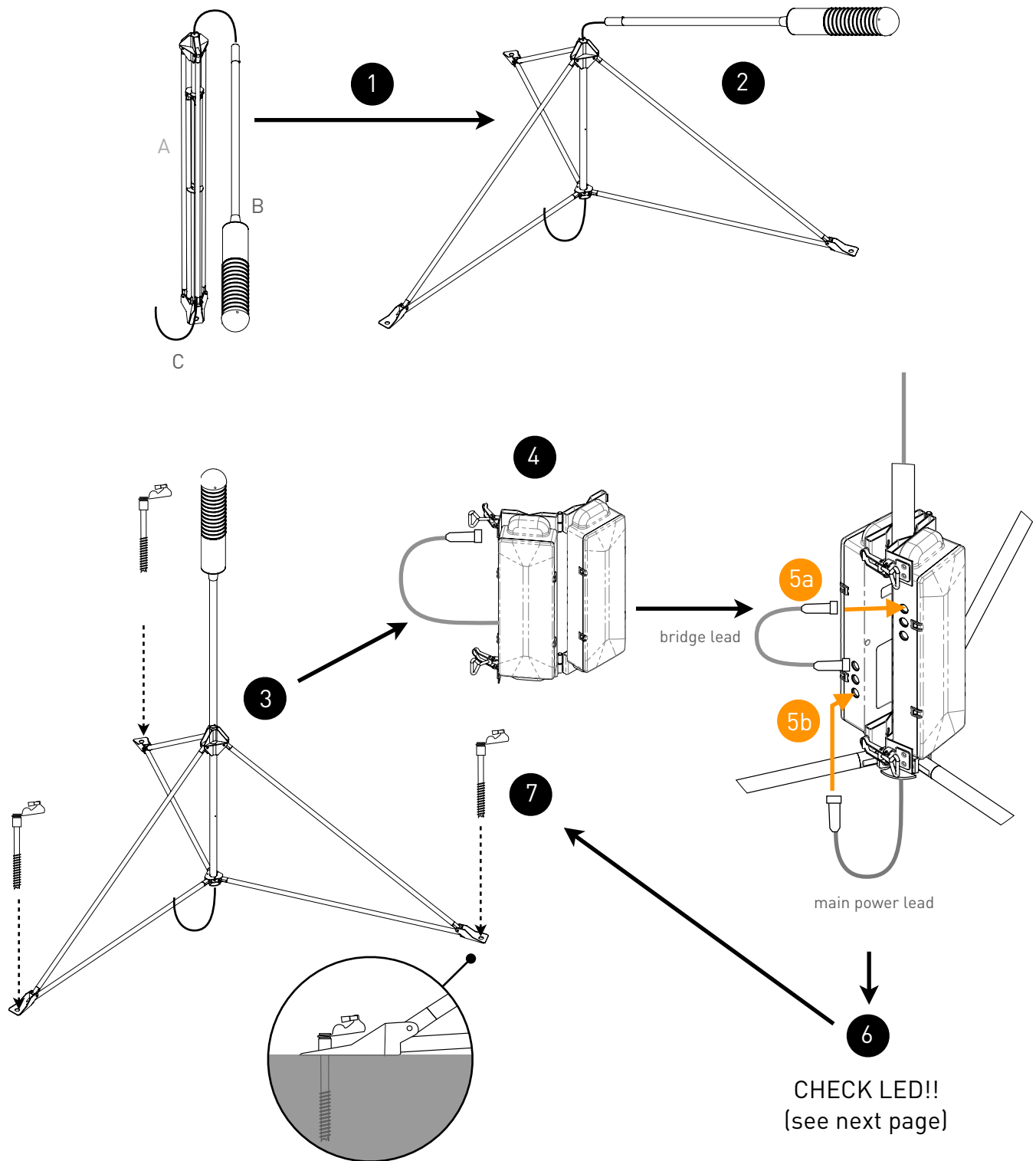
Product specifications

Physical	Size triangle mounting base	213x213x123 cm
	Height	215 cm
	Weight	7.5 kg (max)
Environmental	Operating temperature	-40°C / +65° C
	Storage temperature	-40°C / +65° C
	Humidity	Relative 100%
Electrical	Working voltage	7 to 24 Volts
	Battery pack voltage	11.6 Volts max
	Battery pack capacity	31,2 Ah
	(2 packs in parallel)	2 years of operation (est.)
	Battery chemistry	LI-SO2
Sensors	Temperature & humidity	Vaisala HMP155
	Barometric pressure	R.M. Young 61302V
	Wind speed & direction	Optional
Satellite	Iridium constellation	True Global Coverage
	Frequency	1616 - 1626.5 MHz
	Transmission	Short Burst Data (TDMA/FDMA)
	Communication	Direct IP or email
	Iridium RX/TX Antenna	integrated Patch Antenna
	GPS (L1band)	uBlox IT-500
	Accuracy	1.8 m
	GPS RX Antenna	Integrated Patch

Product overview



How to set it up?



How to set it up

Step 0

Select a suitable location and clean away the snow layer till you have an even patch of sea ice, large enough to place the tripod's base.

Step 1

Unpack the instrument. The weather station consists of 2 sections: the tripod base (A) and upper section with electronics housing, sensor and antenna dome (B).

Please note there is a pre-mounted power cable running from the upper section's tube through the tripod's central tube (C).

Step 2

Unfold the tripod by moving the sliding hinge down. Push it down firmly to the very end.

Step 3

Place the tube of the upper section in the middle hinge. Make sure the spring lock is aligned and locks in the hole when the tube is fully inserted. While doing so, make sure the power cable is pushed further down, out from the tube. You will need the full length to plug it in the battery pack (Step 5).

Step 4

Clamp the foldable battery pack as low as possible around the tripod's mast. Fasten the clips. (The clamped battery pack also serves to lock the spread of the tripod.) Please note that the white power cable coming out from the battery pack should be positioned low (see picture).

Step 5

Connect the power cable from the battery pack (bridge lead) to the opposite housing unit. Use the highest plug inlets on both units (5a). Only when male and female plugs are aligned correctly they will fit. Screw the connector tightly but don't force it. Now you can also connect the power cable coming out from the central tube of the tripod (main power lead). Choose the lower plug inlet as this will be easier (5b). (Actually you will not cause a malfunction or a hazardous situation if you reverse the connecting order. This is only to describe the easiest way to connect the cables)

Step 6

Directly after plugging in the main power lead and thereby powering up the instrument, you should check the behaviour of the control LED. (See next page.) If it works correctly, you can secure the tripod with ice screws.

Step 7

Firmly push down the ice screws through the holes of the connector feet while turning slowly. Keep the ice screws vertical in the process so they 'eat in' and get a grip.

Screw them in entirely until the white plastic tube sections touch the metal base plate.

Start-up sequence

At the bottom of the weather station measurement unit, there is one red LED. This LED is only active at startup (battery being plugged in) and can be used to test if the weather station is working correctly after installation. In the table below the startup sequence and corresponding LED behavior is shown.

Start-up sequence state	LED behaviour
Plug in battery	LED continuously on (+/- 60 sec.)
Taking GPS fix and measurements	LED blinks (1 / sec)
Waiting for Iridium network	LED blinks fast (4 / sec)
Message sent	LED is off
Error	LED continuously on (+/- 60 sec)

Please Note:

The LED behaviour as described above is sequential. When everything works correctly the LED will not flash after having blinked 4 / sec. It will switch off. Only when there is a malfunction it will finish it's sequence by lighting up another 60 seconds.

If that happens, de-power the instrument by unplugging the power cable coming out of the mast from the battery pack. Re-connect it again after 2 minutes to restart the procedure.

For technical assistance please contact:

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