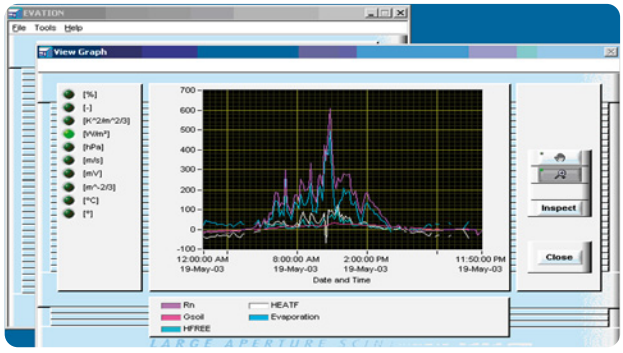
LAS-BET



LAS Basic Evapo-Transpiration (BET) Systems comprise a LAS, a number of meteorological sensors, a data logger and a software package. It is specifically designed for field-scale observations where the meteorological data will be representative of the path average when the meteorological sensors are co-located with the LAS receiver. A 4 m high telescopic meteorological mast is available as an accessory. The data logger collects the signals from all the sensors and from the LAS. The unique 'EVATION' software includes system installation, set-up, configuration and help files. It accepts the logged data and calculates Sensible Heat Flux, Evapo-Transpiration and other parameters.

The BET system is also available with the X-LAS for measurements over greater distances.

Specifications LAS-BET

Scintillometer	LAS or X-LAS
Data logger	COMBILOG in weather-proof enclosure, pre-wired and configured
Data storage	Flash memory cards and card reader for a desktop PC
Software, Windows™	Kipp & Zonen EVATION package
Meteorological sensors	Wind speed Atmospheric pressure Ambient temperature at two heights Soil heat flux at two depths Net radiation (Kipp & Zonen NR Lite2)

Article	Part number
LAS-BET Basic Evapo-Transpiration System with LAS Large Aperture Scintillometer, path length 250 m to 4.5 km with 10 cm diameter aperture restrictors (included), path length 100 m to 1 km	**0357920-1**
X-LAS-BET Basic Evapo-Transpiration System with X-LAS Extra Large Aperture Scintillometer, path length 1 to 8 km	**0357920-2**
Note: Transmitter and receiver each require 12 VDC power	

The BET System includes the following equipment

COMBILOG

Records C_n^2 and signal strength outputs from LAS receiver and signals from meteorological sensors.
Mounted in weather-proof enclosure with, cables, connectors, surge protection.
Formatted data stored on removable 2 MB flash memory card.
2 Cards supplied, one for recording new data, one for transfer of old data.
Card reader and driver software for PC.
Takes 12 VDC power from LAS receiver supply.

Meteorological Sensors

Sensors for wind speed and direction, atmospheric pressure, ambient temperature at two heights, soil heat flux at two depths, net radiation (Kipp & Zonen NR Lite2).

Note: For fitting to customer supplied mast or accessory telescopic meteorological mast

EVATION

Windows™ software specially developed by Kipp & Zonen.
Includes system installation, set-up, configuration and Help files.
Accepts formatted data from COMBILOG data logger and calculates Sensible Heat Flux, Evapo-Transpiration and other parameters.

Note: PC not included

Accessories for LAS-BET	Part number
Telescopic Meteorological Mast 4 m high with cross arms, guy ropes, fixings and lightning rod	**3303047**
Tripod Floor Stand For transmitter and receiver (one required for each) For easy mounting and levelling of the X-LAS, height 0.45 m Very stable and rugged. As used with Kipp & Zonen Brewer and 2AP Tracker	**0353710**
Height Extension Tube Extends the tripod mounting height by 0.60 m to a total of 1.05 m	**0353750**
Adjustable Heavy-Duty Tripod Package Aluminium folding tripod, adjusts up to 3 m height, includes base-frame for hard surfaces and fixing bolts for LAS. Two supplied, one each for transmitter and receiver, in a convenient wood carrying case.	**0357703**
Note: This tripod is only suitable for short-term field use over relatively short path lengths. Not suitable for use with X-LAS.	
POWERBOX (X-)LAS For transmitter and receiver (one required for each) Weatherproof heavy-duty AC-DC power supply unit for outdoor use Wide AC input range, fully protected output 12 VDC at 3.5 A Operating temperature range -20 °C to +50 °C Pre-wired with 5 m cable and connector for (X-)LAS, 5 m AC power input cable and 10 m cable for (X-)LAS signal outputs	**0357701**
LAS UPS for LAS and X-LAS For locations where the mains AC supply is unreliable and continuous measurement is critical. Allows at least 24 hours of operation on backup batteries during AC mains supply failure. One set required for the transmitter and a second set for the receiver and COMBILOG data logger. Each set consists of AC-DC converter, charger / regulator, spill-proof batteries, cables, connectors and weather-proof housing.	**0357710**
Training Course in Delft	**On request**

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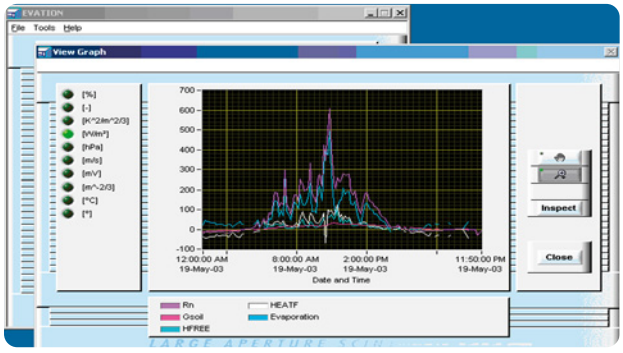
LAS-RET



LAS Radio Evapo-Transpiration (RET) System is equipped with a 2.4 GHz (license-free) radio link to improve flexibility, especially the site selection of the LAS and the meteorological sensors. The RF link transmits data from a slave data logger at the LAS receiver to the data logger of the meteorological station. This station comprises sensors, a 4 m telescopic mast, a battery and a solar panel charging system.

The RF link allows the user to place the meteorological station up to 5 km away from the LAS, preferably near the centre of the LAS path or at a suitable representative location.

The BET system is also available with the X-LAS for measurements over greater distances.

Specifications LAS-BET

Scintillometer	LAS or X-LAS
Data logger	COMBILOG in weather-proof enclosure, pre-wired and configured, with 2.4 GHz radio modem and antenna
Meteorological station data logger	COMBILOG in weather-proof enclosure, pre-wired and configured, with 2.4 GHz radio modem and antenna
Meteorological station data storage	Flash memory cards and card reader for a desktop PC
Meteorological station power supply	12 VDC battery and solar panel charging system
Software, Windows™	Kipp & Zonen EVATION package
Meteorological mast	Telescopic, 4 m high, guy ropes, sensor fittings, lightning rod
Meteorological sensors	Wind speed Atmospheric pressure Ambient temperature at two heights Soil heat flux at two depths Net radiation (Kipp & Zonen NR Lite2)

Article	Part number
LAS-RET Radio Evapo-Transpiration System with LAS Large Aperture Scintillometer, path length 250 m to 4.5 km with 10 cm diameter aperture restrictors (included), path length 100 m to 1 km	**0357921-1**
X-LAS-RET Basic Evapo-Transpiration System with X-LAS Extra Large Aperture Scintillometer, path length 1 to 8 km	**0357921-2**
Note: Transmitter and receiver each require 12 VDC power	

The RET System includes the following equipment

COMBILOG

Records C_n^2 and signal strength outputs from LAS receiver and transmits data to meteorological mast data logger via 2.4 GHz radio-modem (no transmission licence required).
Weather-proof housing, antenna, cables, connectors, surge protection.
Takes 12 VDC power from LAS receiver supply.

Telescopic Meteorological Mast

4 m high with cross arms, guy ropes, fixings and lightning rod.
Sensors for wind speed and direction, atmospheric pressure, ambient temperature at two heights, soil heat flux at two depths, net radiation (Kipp & Zonen NR Lite2).

COMBILOG with Solar Panel

Records signals from meteorological sensors. Receives scintillometer data from the COMBILOG at the LAS receiver via 2.4 GHz radio-modem (no transmission licence required). Mounted in weather-proof housing with antenna, cables, connectors, surge protection. Formatted data stored on removable 2 MB flash memory card. 2 cards supplied, one for recording new data, one for transfer of old data. Card reader and driver software for PC. Battery power supply built into data logger enclosure with solar panel charging system provides 12 VDC for COMBILOG and sensors.

EVATION

Windows™ software specially developed by Kipp & Zonen.
Includes system installation, set-up, configuration and Help files.
Accepts formatted data from COMBILOG data logger and calculates Sensible Heat Flux, Evapo-Transpiration and other parameters.

Note: PC not included

Accessories for LAS-RET	Part number
Tripod Floor Stand For transmitter and receiver (one required for each) For easy mounting and levelling of the X-LAS, height 0.45 m Very stable and rugged. As used with Kipp & Zonen Brewer and 2AP Tracker	**0353710**
Height Extension Tube Extends the tripod mounting height by 0.60 m to a total of 1.05 m	**0353750**
POWERBOX (X-)LAS For transmitter and receiver (one required for each) Weatherproof heavy-duty AC-DC power supply unit for outdoor use Wide AC input range, fully protected output 12 VDC at 3.5 A Operating temperature range -20 °C to +50 °C Pre-wired with 5 m cable and connector for (X-)LAS, 5 m AC power input cable and 10 m cable for (X-)LAS signal outputs	**0357701**
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