Aspen 10 Specifications



Electrical specifications are valid over a -20 to +60 °C (noted as ST), unless otherwise specified. Extended electrical specifications (noted as XT) are valid over a -40 to +75 °C. Recalibration is recommended every three years. Critical specifications and system configuration should be confirmed with Campbell Scientific before purchase.

System specifications

Processor: 32-Bit Arm Cortex CPU

Memory:

- 2 MB flash640 KB SRAM
- **Program Execution Period**: 1 s to one day; 1 s increments

Real-Time Clock:

- Resolution: ±1 sAccuracy: ±1 s
- Synchronized with CampbellCloud once per day

Physical specifications

Dimensions 16.2 x 8.0 x 5.8 cm (6.4 x 3.2 x 2.3 in)

Weight/Mass:

ST: 395 g (0.9 lb)XT: 352 g (0.8 lb)

Case Material:

- High-impact-resistant and UV-resistant ASA, recycle code 7
- IP65 water resistant, Gore-Tex breathability
- IK06 (equivalent to an impact energy level of 1 J). Test conducted using the pendulum and sphere method

Power requirements

Protection: Power inputs and outputs are protected against surge, over-voltage, over-current, and reverse power. IEC 61000-4 Class 4 level.

Charge Source:

Integrated solar panel: Maxeon Gen V

NOTE:

May take up to 72 hours of full sun to charge a fully discharged battery.

Battery:

Charge and discharge characteristics controlled internally according to battery type.

- -20 to +60 °C (ST): 3.2 VDC, 7.2 Ah, Li-Po PHD26650: After 3000 charge/discharge cycles, the capacity remains above 80% of initial capacity. Battery stops charging below -10 °C and above 60 °C.
- -40 to +75 °C (XT): 3.65 VDC, 5.6 Ah, Li-ion
 Saft MP176065 xtd: After 1500 charge/discharge
 cycles, the capacity remains above 80% of initial
 capacity.
 Battery stops charging below -30 °C and above

Average Current Drain @ 3.2 VDC:

- **Deep sleep**: <0.35 uA
- Idle: <1 mA

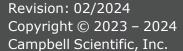
+75 °C.

- Sensor power supply current at no load
 - 5 VDC: 10 uA (ultra-low power)
 - 5 VDC: 5 mA
 - ° 8 VDC: 14.3 mA
 - ° 12 VDC: 30 mA

Cellular Module (Cat M1) On. Additional Current Contribution: 50 to 150 mA

Idle: 1.7 μA
 Receive: 21.2 μA
 Transmit: 219 mA

BLE Active: 4 mA average GPS: included w/ cellular







Power output

Regulated 5, 8, or 12 VDC. Disabled when battery capacity < 0.5 Ahr.

Pin: 5

Current limit:

• 5 VDC: 30 mA (ultra-low power)

5 VDC: 210 mA
8 VDC: 210 mA
12 VDC: 210 mA

Digital input/output specifications

Terminals configurable for SDI-12.

Terminals: Pin 6, 7

Maximum Input Voltage: ±20 V

Communications

Protocols: SDI-12

Internet Protocols: HTTP(S), MQTT

Near-field Communications (NFC): Target device compatible

with CampbellGo

Bluetooth Low Energy (BLE):

Compatible with CampbellGoMaximum distance: 50 m (165 ft)

SDI-12: Two SDI-12 compliant terminals meet SDI-12 Standard v 1.4.

• Pins: 6,7

Cellular

Maximum speed		
	Download	Upload
	(kbps)	(kbps)
Cat M1	588	1119
Cat NB1	32	70
Cat NB2	127	158.5

Standards compliance specifications

View compliance and conformity documents at www.campbellsci.com/aspen10 ☑.

Shock and Vibration: ASTM D4169

Protection: IP65

EMI and ESD protection:

• Immunity: Meets or exceeds following standards:

ESD: per IEC 61000-4-2; ±15 kV air, ±8 kV contact

 Radiated RF: per IEC 61000-4-3; 10 V/m, 80-1000 MHz EFT: per IEC 61000-4-4; 4 kV power, 4 kV I/O

Surge: per IEC 61000-4-5; 4 kV power, 4kV I/O

 Conducted RF: per IEC 61000-4-6; 10 V power, 10 V I/O

• Emissions and immunity performance criteria available on request.

Safety: IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016

Environmental conditions

The Aspen 10 can be operated safely under the following conditions.

Location: outdoor

Location: wet environment as defined by IEC 61010-1

Maximum elevation: 4,000 m (13,100 ft)

Temperature:

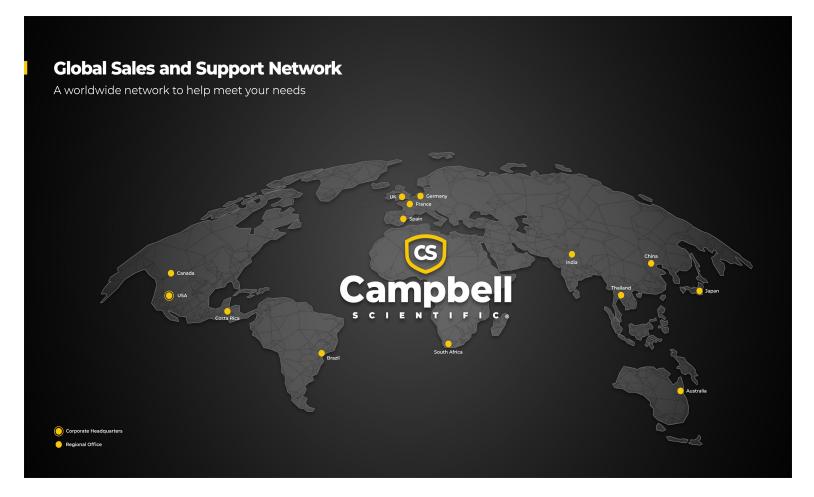
• **Standard (ST)**: -20 to +60 °C

• Extended (XT): -40 to +75 °C

Relative humidity: up to and including condensing

environments

Pollution degree: 2 as defined by IEC 61010-1



Campbell Scientific Regional Offices

Australia

Location: Garbutt, QLD Australia *Phone*: 61.7.4401.7700

Email: info@campbellsci.com.au Website: www.campbellsci.com.au

Brazil

Location: São Paulo, SP Brazil Phone: 11.3732.3399

Email: vendas@campbellsci.com.br Website: www.campbellsci.com.br

Canada

Location: Edmonton, AB Canada

Phone: 780.454.2505

Email: dataloggers@campbellsci.ca Website: www.campbellsci.ca

China

Location: Beijing, P. R. China Phone: 86.10.6561.0080

Email: info@campbellsci.com.cn Website: www.campbellsci.com.cn

Costa Rica

Location: San Pedro, Costa Rica Phone: 506.2280.1564 Email: info@campbellsci.cc Website: www.campbellsci.cc

France

Location: Montrouge, France
Phone: 0033.0.1.56.45.15.20
Email: info@campbellsci.fr
Website: www.campbellsci.fr

Germany

Location:Bremen, GermanyPhone:49.0.421.460974.0Email:info@campbellsci.deWebsite:www.campbellsci.de

India

Location: New Delhi, DL India Phone: 91.11.46500481.482 Email: info@campbellsci.in Website: www.campbellsci.in

Japan

Location: Kawagishi, Toda City, Japan 048.400.5001

Email: jp-info@campbellsci.com
Website: www.campbellsci.co.jp

South Africa

Location: Stellenbosch, South Africa

Phone: 27.21.8809960

Email: sales@campbellsci.co.za
Website: www.campbellsci.co.za

Spain

Location:Barcelona, SpainPhone:34.93.2323938Email:info@campbellsci.esWebsite:www.campbellsci.es

Thailand

Location:Bangkok, ThailandPhone:66.2.719.3399Email:info@campbellsci.asiaWebsite:www.campbellsci.asia

UK

Location: Shepshed, Loughborough, UK
Phone: 44.0.1509.601141
Email: sales@campbellsci.co.uk
Website: www.campbellsci.co.uk

USA

Location:Logan, UT USAPhone:435.227.9120Email:info@campbellsci.comWebsite:www.campbellsci.com