



# TAOGLAS®



# Datasheet

## Taoglas EDGE™ Locate EL20

**Part No:**  
EL20

### Description:

High Precision GNSS Solution

### Ordering Information:

EL20A – Taoglas EDGE™ Locate - cmLevel Positioning Module (With USB to PMOD interface)  
EL20B – Taoglas EDGE™ Locate - cmLevel Positioning Module (Module Only)

### Features:

- High-end RTK capable receiver
- Integrated u-blox ZedF9P multi-band GNSS Receiver
- Concurrent reception of GPS, GLONASS, Galileo and BeiDou
- Anti-spoofing and anti-jamming
- PMOD compatible and easy to integrate into third-party hardware
- Pre-certified and validated electronics
- Easy integration with EDGE Connect for full cellular connectivity
- REACH & RoHS Compliant

Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

Copyright © Taoglas Ltd.

## 1. Introduction

The Taoglas EDGE™ Locate solution is an energy efficient IoT platform that provides high precision GNSS location for both large scale and niche navigation and autonomous applications in an off-the-shelf, compact form factor. The Taoglas EDGE™ Locate GNSS L1/L2/E5b combines the antenna, RF electronics and receiver technology in a single package delivering reliable high accuracy positioning.

Below is a list various application the EDGE™ Locate has been utilised.

### Typical Applications



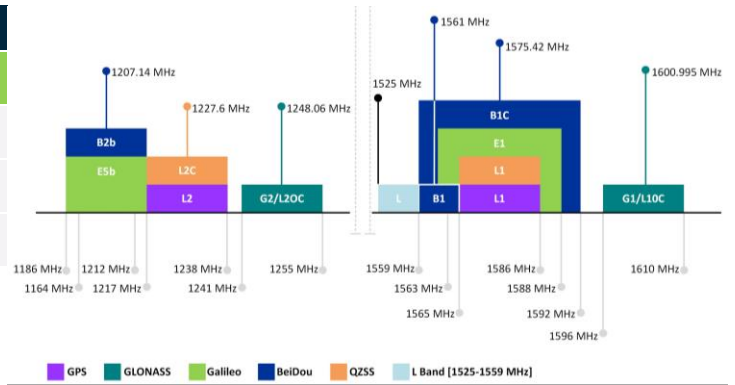
### Key Benefits

- Integrated u-blox ZED-F9P module for Multiband RTK to enable cm level positioning.
- Integrated Taoglas Antenna to maximise RF performance.
- Fast time to market, with an accurate navigation solution ready to use out of the box.
- Small form factor for ease of integration into your design.
- Industry standard UART & USB interfaces available.

## 2. Specifications

<b>Models Name:</b>	EL20
<b>GNSS Module:</b>	<u>u-blox ZED-F9P</u>
<b>Antenna:</b>	Taoglas <u>AGPSF.36G</u> Embedded Active Dual-band GNSS L1/L2 Stacked Patch Antenna
<b>GNSS Constellations:</b>	GPS/QZSS (L1/L2) + GLONASS (G1/G3) + GALILEO (E1/E5b + BeiDou(B1/B2b))
<b>Number of Channels:</b>	184
<b>TTFB:</b>	Cold start: <60s / Warm start <10s
<b>Interface:</b>	SPI/UART via PMOD header <i>Geofence output pin</i> <i>Power control pin (default On)</i>
<b>Operation Temperature:</b>	-40°C to +85°C
<b>Storage Temperature:</b>	-40°C to +85°C
<b>Weight:</b>	40g
<b>Input Voltage:</b>	5.0V
<b>Position accuracy:</b>	Up to 0.01m + 1 ppm CEP (RTK) Up to 0.05m (without RTK)
<b>Nav update rate:</b>	Up to 20 Hz
<b>Acquisition Sensitivity:</b>	-129dBm
<b>Tracking Sensitivity:</b>	-147dBm

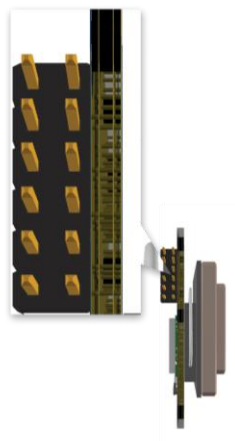
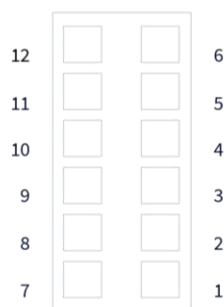
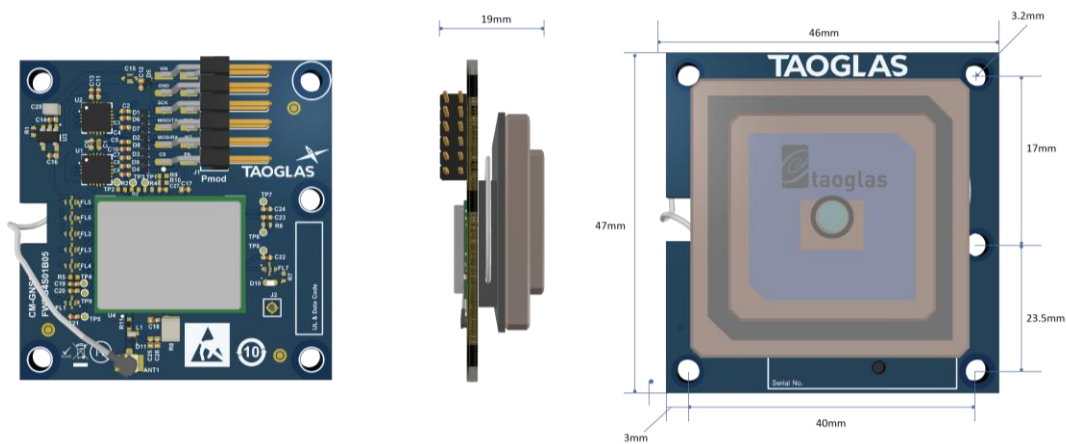
GNSS Electrical				
Frequency (MHz)	1227.6	1561	1575.4	1602
Group Delay (ns)	25.6	50.4	42.4	44.5
PCO (cm)	0.6	0.5	0.6	1.1
PCV (cm)	4.5	1.4	2	3



Power Consumption					
Symbol	Parameter	Conditions	GPS+GLO+GAL+BDS	GPS	Unit
IPEAK	Peak current	Acquisition	130	120	mA
I <sub>VCC</sub> <sup>10</sup>	VCC current	Acquisition	90	75	mA
I <sub>VCC</sub> <sup>10</sup>	VCC current	Tracking	85	68	mA

Low Power Mode: 1.4 mA to achieve a warm start. VCC/VIN Range - 3.3-5.5V.  
For more information please refer to the U-blox ZED-F9P datasheets.

## Mechanical Specifications



Pin	Name	Description
1	CS	SPI Chip select
2	MOSI	SPI input / UART_TXD
3	MISO	SPI output / UART_RXD
4	SCK	SPI clock
5, 11	0VDC	GND
6, 12	VIN	3.3V Min / 5.0V Typical / 5.5V Max
7	EN	Power enable, Active high (Internally Pulled up)
8	INT	GNSS module external interrupt, unused
9	TXR	SPI Module TX ready
10	GEO	Geofence status from GNSS module

### 3. Field Test

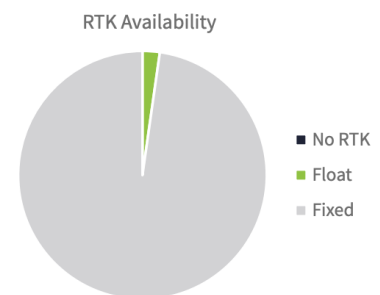
Taoglas have tested the EL20 in Static and Dynamic environments to verify the performance of the unit. Field tests were performed in static surroundings in a roof-top open-sky test station for at least 6 hours.

Open-Sky Roof Top testing – Static

**Receiver:** u-blox ZED-F9P  
**Correction service:** u-blox PointPerfect PPP-RTK

**Characteristics:**

- Multi-band GNSS: 184-channel GPS L1/L2, GLONASS: G1/G2 Galileo: E1/E5a, BeiDou: B1/B2b, QZSS: L1/L2C
- Multi-band RTK with fast convergence times and reliable performance
- Nav. update rate RTK up to 20 Hz



2D Accuracy Table					
Test Condition	Correction Service	CEP (50%)	DRMS (68%)	2DRMS (95-98.2%)	TTF (sec)
EDGE Locate Board	PPP-RTK DISABLED	54.2 cm	64.97cm	129.93 cm	15
	PPP-RTK ENABLED	11.15 cm	13.38 cm	26.75 cm	

Additionally dynamic testing was performed on emobility vehicles in various urban setting over a number of separate trials. A detailed report on this test is available on request.



**TAOGLAS®**

[www.taoglas.com](http://www.taoglas.com)



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Antennas](#) category:*

*Click to view products by [Taoglas](#) manufacturer:*

Other Similar products are found below :

[930-033-R](#) [EXE902SM](#) [108-00014-50](#) [66089-2406](#) [A09-F8NF-M](#) [A09-F5NF-M](#) [RGFRA1903041A1T](#) [W1049B090](#) [TRABT1560](#)  
[WTL2449CQ1-FRSMM](#) [CPL9C](#) [CB27S](#) [0600-00060](#) [Y4503](#) [PAL90209H-FNF](#) [GD53-25](#) [MAF94051](#) [S9025PLSMF](#) [QWFTB120](#)  
[MAF94300](#) [FG4403](#) [BB1442NR](#) [GPSCPMM00](#) [ANTDOM-05-01-WPM](#) [ANT-WP868SMA-Y](#) [EXW30BNX](#) [S4908WBFNM](#) [B4305CN](#)  
[C27](#) [C27S](#) [CBNC58](#) [EXH160MXI](#) [EXH160SFK](#) [EXC902SM](#) [CB27](#) [ABFT](#) [BB4502NR](#) [B4502N](#) [S4908WBFNF](#) [NMOQ88C](#) [NMOQB](#)  
[NMOQC](#) [ANT-GSMGPSPUKS](#) [60210](#) [60140](#) [ANT-8WPIG-UFL](#) [ANT-GPSPUKS](#) [A21H0](#) [29000863](#) [29000848](#)