

THE **LEGACY** OF A GPS PIONEER



Front

Dear JAVAD Extended Family and Beyond

As you already know my father passed away Saturday, May 30th from COVID-19. I wanted to get a message out to all the friends of JAVAD to provide some insight into our plans for the future.

There are dozens and dozens of articles on the web and in print about the great Javad Ashjaee, and his 37-year history in this country, and his various achievements. Here, I'd like to address you all on a more personal level.

My father was very proud of all that he had accomplished, including setting up the Moscow office dating back to the late 1980's (through the financial crisis in Russia), the ahead-of-the-state-of-the-art manufacturing facilities in CA (following the US financial crisis), and the technical and operational capabilities that they possess. No other company in our industry was ever at the forefront of innovation and technology like the products we continually introduced into the market, and all of you had an integral part in making that happen. Most of all, my father was proud of his extended "family", as well as the partnership he had created between US and Russia—it was his "success story of cooperation".



Javad Ashjaee taking a break just before InterGeo 2019

We have a group of 200+ energetic, intelligent, passionate, and above all, kind employees, some of whom have been with the JAVAD group of companies for decades. And on May 30th, many of them lost someone whom they had worked with in business for many years. No matter how long it has been, we know that for all of you it was a meaningful impact on your lives.

JAVAD Nuclear Family



*JAVAD Russia Family
(JGNSS LLC)*



*JAVAD Armenia Family
(JCOM)*





1949



1983



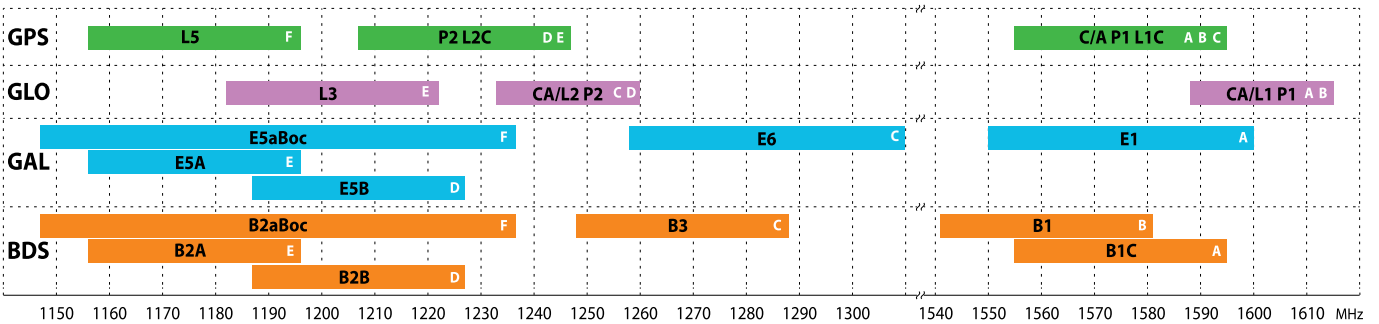
1987



1989

All Available Signals Tracked

...and used in RTK!



GNSS signals in the improved TRIUMPH-LS Plus with TRIUMPH 3 ASIC

GNSS bands for GPS, GLONASS, Galileo, and Beidou signals are depicted in the above figures

There are a total of 22 signals in 6 frequency bands labeled "A" to "F". We categorize the GNSS signals, as shown on the right, and assign them a quality score. For example, Galileo and Beidou AltBOC signals are assigned a quality score of 1.5 because of their wider band and higher signal quality.

The columns (in order) represent the following:

- Name of signal and related noise in its band
- Designated band letter and quality score
- Number of satellites broadcasting the signal at the given moment. The multiplication of columns 2 and 3 defines the overall value of that signal for RTK

| GPS | GLO | GAL | BDS |
|-----------------------------|-------------------------------|--------------------------------|--------------------------------|
| C/A 0% A 1.0 9 ₉ | P2 0% D 1.2 6 ₆ | E5aBoc 2% F 1.5 7 ₇ | B2aBoc 0% F 1.5 9 ₉ |
| P1 0% B 0.8 9 ₉ | P1 0% B 1.2 6 ₆ | E5A 0% E 1.2 7 ₇ | B2B 0% D 1.2 10 ₁₆ |
| P2 0% D 0.8 9 ₉ | CA/L2 3% C 1.0 7 ₆ | E5B 0% D 1.2 7 ₇ | B2A 0% E 1.2 9 ₉ |
| L2C 0% E 1.1 5 ₅ | CA/L1 0% A 1.0 7 ₆ | E6 0% C 1.1 7 ₇ | B3 0% C 1.1 10 ₁₅ |
| L5 0% B 1.2 4 ₄ | L3 0% E 1.2 2 ₁ | E1 0% A 1.0 7 ₇ | B1 0% B 1.0 10 ₁₅ |
| L1C 1% C 1.1 2 ₂ | | | B1C 6% A 1.1 9 ₉ |

Esc Engine 1 Signals Set

This screenshot to the left shows the four super engines. Each column shows the signals that are used for that engine.

The numbers below each engine are:

- Number of RTK resets (last reason id) and counter of failed fixes
- Number of signals used/number of signals rejected
- Epochs since last reset
- Solution difference from the first engine
- Total run time Fixed Epochs

The Four Super Engines Available now on TRIUMPH-LS Plus!

| | USA | EU | RU | USA | EU | RU | USA | EU | RU | USA | EU | RU |
|---|-------------|------------|-----------|------------|----|----|-----|----|----|-----|----|----|
| A | 8 | - | - | - | 5 | - | - | - | 5 | - | - | 2 |
| B | 8 | - | - | - | 5 | 10 | - | - | 6 | - | - | 10 |
| C | - | - | - | - | 5 | 10 | - | - | 5 | 10 | - | 10 |
| D | 8 | - | - | - | 5 | 10 | - | - | 5 | 10 | - | 10 |
| E | 5 | - | - | - | - | - | - | - | 5 | - | - | 9 |
| F | 3 | - | - | - | - | - | - | - | 4 | - | - | 9 |
| △ | 16(16) 3000 | 9(16) 1876 | 2(-) 1447 | 4(16) 1448 | | | | | | | | |
| ▽ | 32/0 | 50/0 | 50/0 | 50/0 | | | | | | | | |
| ○ | 74 | 80 | 80 | 84 | | | | | | | | |
| ⊙ | 0.000m | 0.006m | 0.004m | 0.004m | | | | | | | | |
| ⊕ | 356 | 142 | 80 | 76 | | | | | | | | |

Auto Setup Engines Reset Engines J-Mate Charts Gns Status

Esc Independent 0|44|0

Clicking on each engine resets the RTK fix
Long-clicking on each engine shows the settings



1989



1999



2002



2007

RTPK

Major post-processing advancement for surveyors!

PATENTS PENDING

If RTK fails, RTPK comes to your rescue in a fraction of a second.

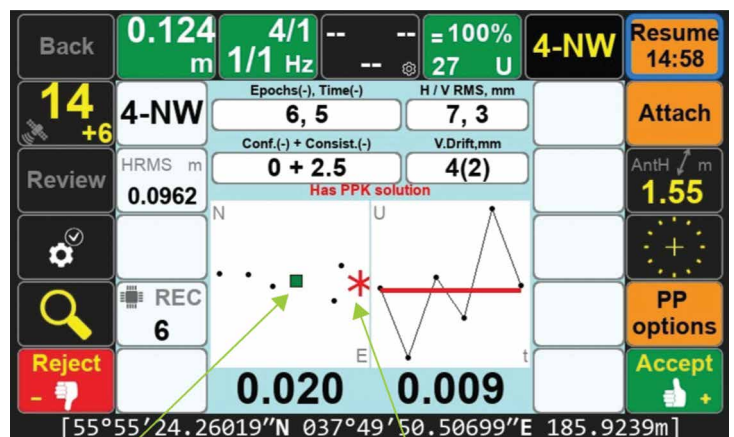
JAVAD GNSS introduces the new Real Time Postprocessed Kinematics (RTPK) solution, combining the strengths of RTK and PPK. This system can post-process your RTK data in parallel.

Available on the new TRIUMPH-LS Plus.



The Highlights

- TRIUMPH-LS Plus combines RTK and RTPK
- RTPK can post process the RTK data and **verify** your results in parallel and in real time.
- If RTK fails, RTPK comes to rescue in a fraction of a second.



RTK Solution

RTPK Solution



2010



2012



2013



2014

TRIUMPH-3

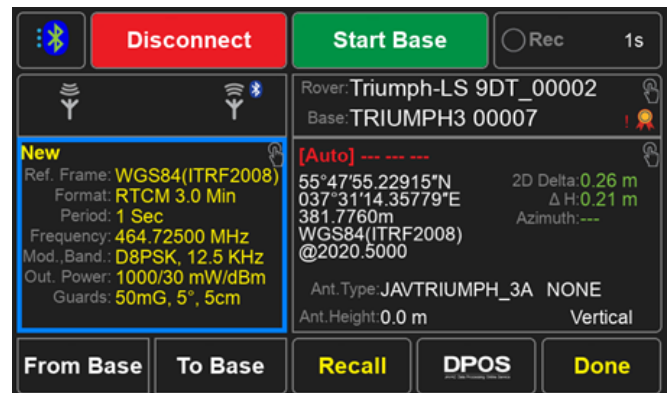
The latest-generation GNSS Receiver from JAVAD



TRIUMPH-3 is capable of efficient tracking even in difficult conditions. It can track all current signals (GPS/GLONASS/GALILEO/BEIDOU/QZSS/IRNSS) and is ready for any future satellite signals.

TRIUMPH-3 is self-sufficient for all jobs. No need to pay RTN service providers! The communications are done via integrated UHF, 4G/LTE, Wi-Fi, and Bluetooth channels.

Your own RTK base station is not far from your rover, and RTK solutions will be provided much faster and more reliably.



TRIUMPH-3 is designed to operate as a base together with TRIUMPH-LS and TRIUMPH-LS Plus to efficiently accomplish any geodetic job.

The list price of TRIUMPH-3 starts from \$10,990.00

For more information, visit www.javad.com or contact us at sales@javad.com



2019



2019

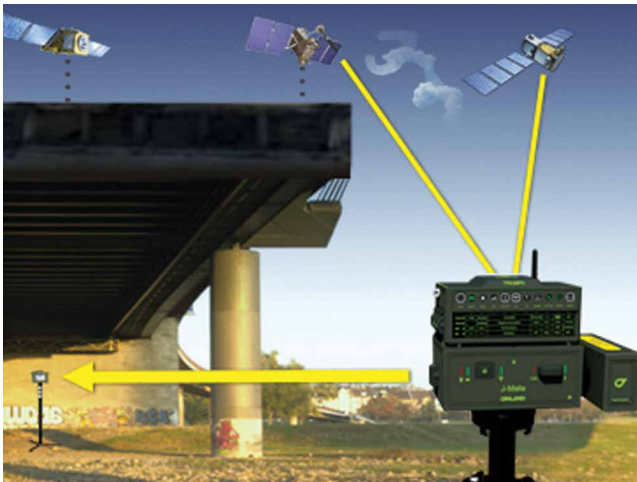


2020

The legacy continues...

J-Mate

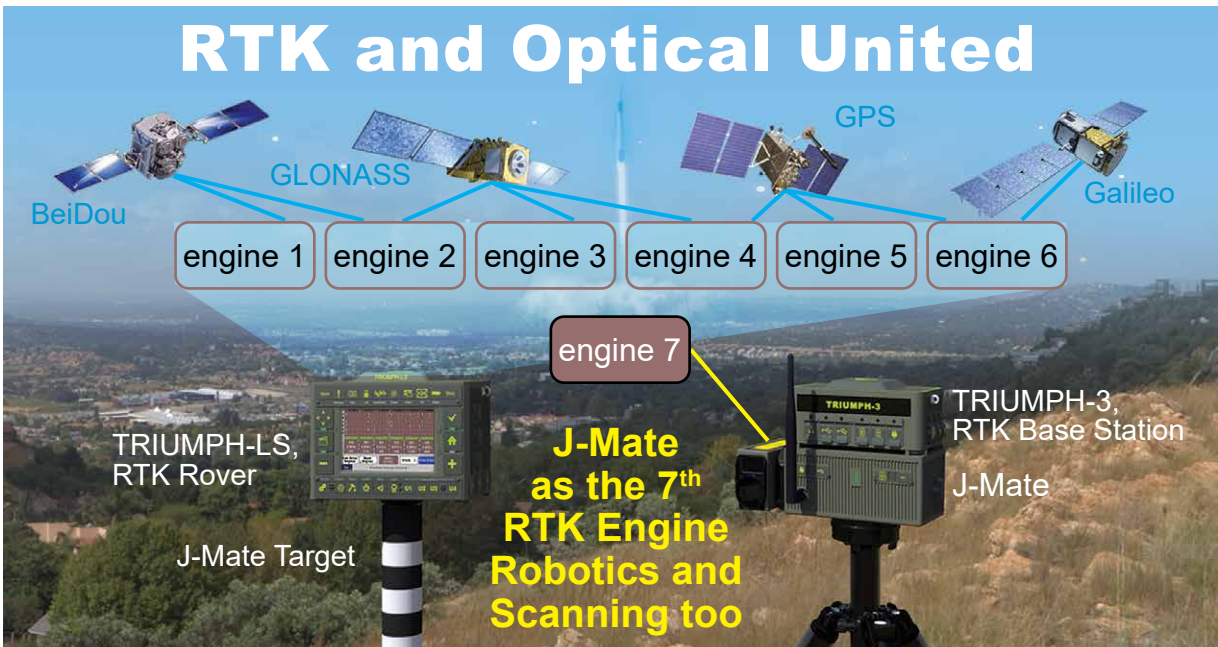
J-Mate is a bridge between RTK and areas that GNSS signal is not available.



J-Mate is not a total-station. J-Mate and TRIUMPH-LS together make the "Total Solution" which is a combination of GNSS, RTK, camera, angle encoders and laser range measurements that together do, conveniently and cost-effectively, a lot more than a total station. For long distances, you use GNSS and for short distances (maximum of 300 feet in Direct mode and 150 feet in Remote/Robotic mode), you use the J-Mate along with the TRIUMPH-LS. Together they provide RTK level accuracy (few centimeters) in ranges from zero to infinity.

- Direct up to 300 feet
- Remote (Robotic) up to 150 feet

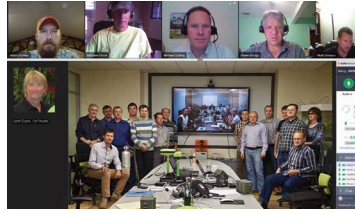
RTK and Optical United



*JAVAD USA Family
(JGNSS & JEMS)*



*JAVAD PLS Family
(associated with JGNSS)*



To honor the legacy and all that our father had put into these companies, we will continue to push ourselves toward the goal of remaining the technological and innovative leader in our industries. That would be the minimum he would expect of all of us. He was so very proud of what had been accomplished but knew that we had to challenge ourselves each and every day to make it better. Everyone we have communicated with is motivated more than ever to carry on his legacy and implement all his visions and dreams.

Those of you who have worked with us know our similarities to our father, and know when we have our minds set, not much will deter us. We may have a gentler hand but can be a force like he was. Of course...our training started since day one, and we have earned some battle scars...



Our father also wrote me recently, "My only hope is that you and Nema focus on company as much as your energy allows." These words are in our heads and hearts every day, and with your help we will make him proud.



He was also a true visionary... including training the next generation early, and in his own special unique way.

Our hearts may be broken, but our resolve and spirits are not, and in fact are stronger than ever. The JAVAD group of companies is special, and the entire world knows this. We will harness his energy to carry on his legacy... and make us top not just in technology but also global presence.

To that end we will live and work each day with that expectation. We will continue to push ourselves to be better and continue to innovate and grow the companies that he started many years ago. This is the approach ingrained in all of us by Javad Ashjaee himself and this is something that we know for sure he would expect of all of us as we move forward without him. The best way to honor his legacy is to strive to make the company bigger, stronger and more successful than ever and that is what we will endeavor to do.

Javad Ashjaee started in 1986 with Ashtech and he will continue with the current JAVAD companies for generations to come. He is now literally with the stars and satellites (@International Space Station), still watching over us...so we better live up to his expectations!

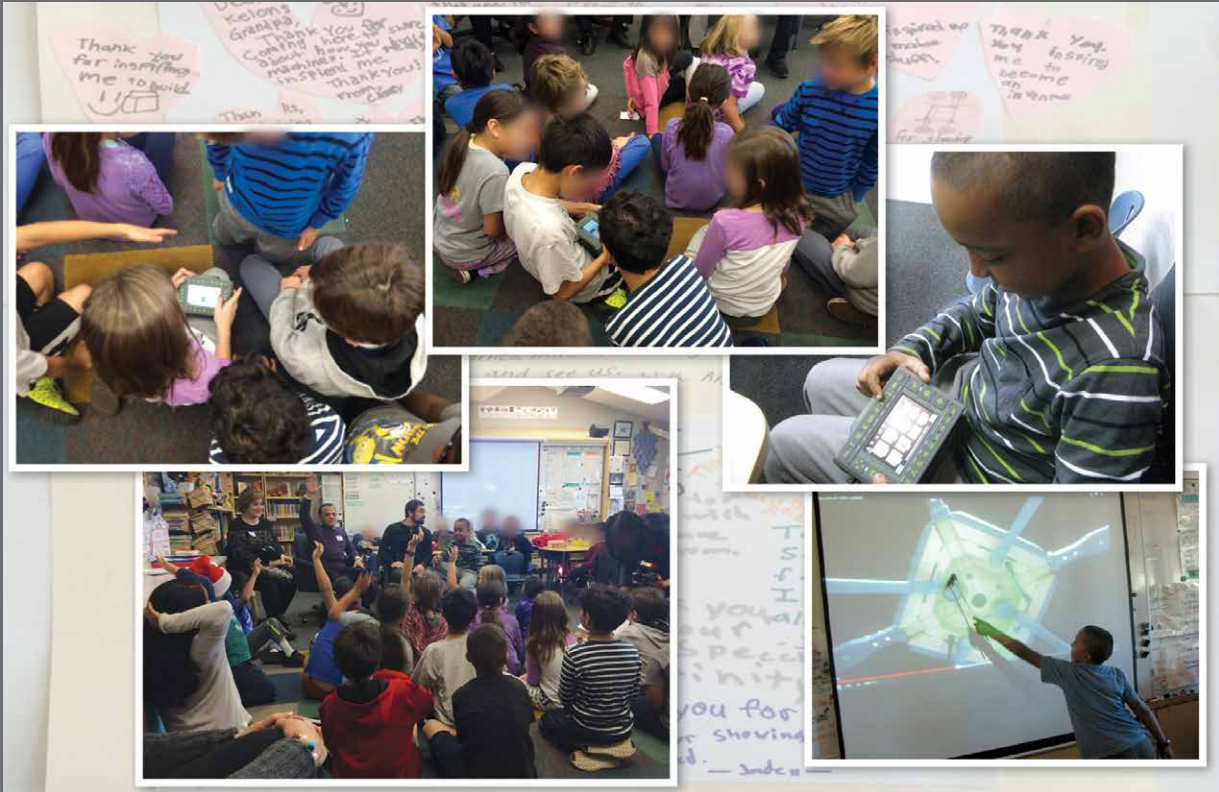


Warm Regards,
Nedda Ashjaee

Nedda Ashjaee



To the next generation of surveyors...



Students at Marshall Lane Elementary School and Rolling Hills Middle School in Saratoga, California, enjoying TRIUMPH-LS

Come see us online for future news and product updates!

**No more
print
media!**

JAVAD GNSS will stop advertising in print media and will work towards benefiting from the electronic communication and promotion tools provided by the magazines that have always communicated our message. They have far reaching e-blast services and electronic messaging.

In addition, we will be working on the following:

- Audio/Video tutorials
- Online publications
- Remote group video conferences (we have tools for up to 400 participants)
- Spreading the news through our sales channels
- Local state shows
- Word of mouth from our happy users



Visit our website for news and updates
www.javad.com/jgnss



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