

Aiming to become an environmentally friendly
and customer-trusted company

TAMAGAWA NEWS

Vol. **30**
2023. Mar.

New Product Modular Absolute Encoder

Announcement of
New Chairman and President

New Product VR Resolver • R/D Converter

Tamagawa

Announcement of New Chairman and President

TAMAGAWA SEIKI CO., LTD. and TAMAGAWA TRADING CO., LTD. held an Annual General Meeting of Shareholders on February 11, 2023 and Yasuo Hagimoto was appointed as the Board Chairman & CEO and Tadanori Matsuo was appointed as the President & COO.



Board Chairman & CEO
Yasuo Hagimoto

With Hiroyuki Hagimoto's inauguration as the Honorary Board Chairman, I was appointed as the Board Chairman and CEO of TAMAGAWA SEIKI CO., LTD. and TAMAGAWA TRADING CO., LTD. to succeed him at the Annual General Meeting of Shareholders and the Board of Directors Meeting held on February 11.

TAMAGAWA SEIKI has three characteristics based on its corporate philosophy.

The first is that we have long been involved in the defense-related business, which often develops products that meet the individual needs of our customers, and that our business style is closely aligned with individual customers.

The second is that the founder's belief for his hometown have been passed down to the present. "Minami Shinshu·Iida", the hometown of the founder and where the current head office is located, was poor with no major industries. The founder of TAMAGAWA SEIKI CO., LTD. started the company with the desire to entrench industry in such a hometown and to preserve it for future generations. That thought has permeated into our company as our corporate philosophy, and we believe that it is our great social responsibility to establish roots in the land and develop industries, in other words, to grow together with the local community. The Hachinohe Region of Aomori Prefecture, where we have moved into by a good chance, has the same concept and is now becoming an important base for the development of our core products.

The third is that "developing technology and selling technology", in other words, it is a business style that emphasizes technology development. Since our founding, we have been disseminating our unique technology cultivated in the development of servo components, including "Sensors", from local areas to the world.

The market surrounding us will become more and more competitive in the future, and it is also an era where unexpected situations occur naturally. In order to respond to such markets and times, when we are at a loss for a decision, we will make decisions by returning to the aforementioned corporate philosophy. We would like to continue to be closer to our customers and walk forward together, hence we ask for your further guidance and encouragement.



President & COO
Tadanori Matsuo

I was appointed as the President and COO of TAMAGAWA SEIKI CO., LTD. and TAMAGAWA TRADING CO., LTD. at the Annual General Meeting of Shareholders and the Board of Directors Meeting. I am determined to push forward with all our might toward the development of the company and humbly ask for your favor.

TAMAGAWA SEIKI celebrates its 85th anniversary this year, and has been able to grow with the support of many people. Since our founding, we have established roots in the local community under the corporate philosophy of "developing technology and selling technology" and have grown by expanding our markets into the fields of Defense Application (Defense, Aviation and Space), Car Application (Automotive, Railroads) and Factory Application (Robots, Automation). Domestically, these businesses are carried out at the First, Second, and Third Plants in the area of Iida city of Nagano Prefecture, and five other plants in the area of Hachinohe city of Aomori Prefecture. Overseas, TAMAGAWA SEIKI SUZHOU CO., LTD. which was established in Taicang City, China, manufactures automation and automotive products, and in Vietnam, we are preparing for future market changes for automotive products by operating an EMS factory near Hanoi. However, the recent world situation is becoming more unpredictable, with the unabated corona crisis, Russia's military invasion of Ukraine, energy shortages, soaring commodity prices, weak yen, and semi-conductor shortages.

Under these circumstances, the competitiveness of companies is being questioned more and more, and it is important to strengthen it. We believe that we will be able to win the trust of our customers by further strengthening our competitiveness by working together as a trinity by linking the development, manufacturing and sales capabilities. In the future, TAMAGAWA SEIKI will continue to train its own technologies, refine its technologies, and take on challenges in new technologies, and aim to be a strong company that can compete globally in cooperation with our group companies and partner companies. I would like to conclude my greetings by asking for your continued patronage.

| Biography | |
|-------------------------------------|---|
| | Born on Aug. 1959 in Tokyo Metropolitan |
| Apr. 1985 | Joined Sales Department TAMAGAWA TRADING CO., LTD. |
| Nov. 1999 | Manager in Procurement Department |
| Nov. 2008 | General Manager in Production Control Department for aerospace business |
| Mar. 2011 | President of TAMAGAWA LOGISTICS CO., LTD. |
| Feb. 2013 | Director of TAMAGAWA TRADING CO., LTD. |
| Feb. 2018 | Managing Director of TAMAGAWA TRADING CO., LTD. |
| Feb. 2022 | Senior Managing Director of TAMAGAWA SEIKI CO., LTD. & TAMAGAWA TRADING CO., LTD. |
| Hobby: Swimming, Listening to music | |

| Biography | |
|---------------|---|
| | Born on Jan. 1957 in Nagano Prefecture |
| Mar. 1984 | Joined Engineering Design Department TAMAGAWA SEIKI CO., LTD. |
| Nov. 1997 | Manager in Quality Assurance Department |
| Nov. 2001 | General Manager in Quality Assurance Department |
| Nov. 2009 | Plant Manager at Third Factory |
| Feb. 2011 | Director of TAMAGAWA SEIKI CO., LTD. |
| Mar. 2013 | President of TAMAGAWA SEIKI SUZHOU CO., LTD. |
| Feb. 2019 | Managing Director of TAMAGAWA SEIKI CO., LTD. |
| Feb. 2022 | Senior Managing Director of TAMAGAWA SEIKI CO., LTD. |
| Hobby: Chorus | |

Notice of Executive Officer
TAMAGAWA TRADING CO., LTD.

We would like to inform you that the Executive Officer appointed at the Annual General Meeting of Shareholders as follows.
Managing Director Tadasu Takigawa

NEW

Modular Absolute Encoder



Battery-Less



Energy saving



Resolution
23bit

Sales of two types of 23-bit modular encoders have begun.

One is a battery-less type that does not require an external battery, and another is an energy-saving type, both of which are multi-turn absolute encoders. The body is thin, low in current consumption, and capable of operating at temperatures up to +105 degree C.

Quick and easy installation Modular type Absolute Encoder with 23/16 bit in **flat and slim body**

High Robustness

High noise resistance by using feedback system in interpolation circuit

Operating / Storage temperature range : **Up to 105 degree C**
Usable in higher temperature compared to conventional models(Up to 85 degree C)

Common Specification

| | | |
|---|---|-------|
| Resolution | Single-Turn | 23bit |
| | Multi-Turn | 16bit |
| Output Code | Pure Binary Code | |
| Supply Voltage | DC+5V ± 5% | |
| Output Form | Line Drive | |
| Maximum Allowable Rotation Speed (Mechanical Spec.) | 8,000min ⁻¹ | |
| Operating Temp. Range | -10 to +105°C | |
| Ingress Protection | Not enclosed | |
| Vibration | 5 to 58Hz, total amplitude1.50mm 58 to 2,000Hz, 98m/s ² | |
| Shock | 1,960m/s ² ,11ms | |

Battery-Less

No external battery required.

Specification

| | | |
|----------------------------|---|---------------|
| Part Number | TS5966 | |
| Outside Diameter | Φ35mm | |
| Shaft Diameter | Φ5mm | |
| Consumption Current | 55mA TYP. | |
| Moment of Inertia | 0.25 × 10 ⁻⁶ kg·m ² | |
| Serial Communication Rate | TS5966N0001 | 5.0Mbps |
| | TS5966N0020 | 2.5Mbps |
| Serial Data Transfer Cycle | TS5966N0001 | 18 to 32 μsec |
| | TS5966N0020 | 35 to 63 μsec |
| Mass | 0.05kg Max. | |

Energy saving

Power consumption is drastically reduced compared to conventional models.

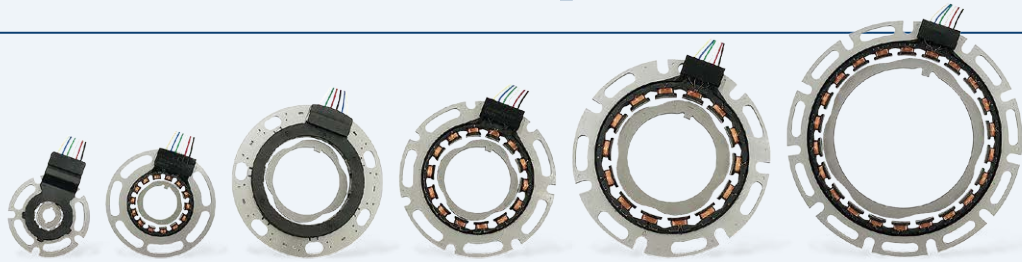
Specification

| | | |
|----------------------------|---|---------------|
| Part Number | TS5723 | |
| Outside Diameter | Φ35mm | |
| Shaft Diameter | Φ6mm | |
| Consumption Current | Normal Operation | 50mA TYP. |
| | Battery Operation | 30 μA TYP. |
| Moment of Inertia | 0.17 × 10 ⁻⁶ kg·m ² | |
| Serial Communication Rate | TS5723N0140 | 2.5Mbps |
| | TS5723N0143 | 5.0Mbps |
| Serial Data Transfer Cycle | TS5723N0140 | 35 to 63 μsec |
| | TS5723N0143 | 18 to 32 μsec |
| Mass | 0.03kg Max. | |

NEW

VR Resolver(Singsyn)

Reborn into 6 Lineups!



Singsyn is a VR-type resolver (sensor) capable of stable performance even under severe environmental conditions that are resistant to high temperatures, vibration, and shock. By connecting to an R/D Converter, it is capable of converting analog output signals of Singsyn to digital position (angle) and velocity signals. It connects to high-speed motors and is widely used in hybrid/electric vehicles and industrial robots. Now, we have revamped the stator shape and improved the angle detection accuracy to make the lineup much easier to use.

The lineup has been renewed with 6 sizes that were requested by many customers.

Mountability to the motor housing is improved by providing elongated holes and U-grooves on the stator outside diameter side.

Together with improving the angle detection accuracy, it now supports up to 5X for number of multiple (6X for TSY1050).

Features



High Temperature Resistance

Wide Temperature Range
-40~+150 °C

**High**

High Velocity Revolution

Max Operating Speed:20,000min⁻¹
(TSY1050Type:10,000min⁻¹)



Low Price

Compared to Smartsyn, we have achieved low price by reducing the number of parts.



Vibration Resistance/Shock Resistance

Vibration:196m/sec²(20G)
Shock:980m/sec²(100G)
Humidity:90% RH over



Super-thin Shape

Singsyn has achieved smallest mounting space because of its extremely thin built-in structure.

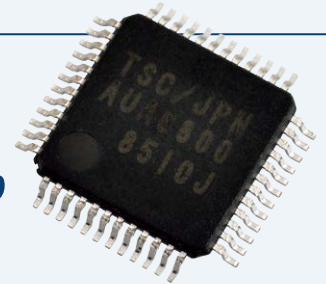
Line Up

| Type | TSY1010 | TSY1020 | TSY1030 | | TSY1040 | TSY1050 |
|------------------------------------|----------|---------|---------|---------|---------|---------|
| Stator Outer Diameter | Φ59.5 mm | Φ80 mm | Φ101 mm | Φ106 mm | Φ132 mm | Φ167 mm |
| Rotor Inner Diameter | Φ9.52 mm | Φ25 mm | Φ45 mm | Φ45 mm | Φ60 mm | Φ100 mm |
| Number of Multiple (Resolver Pole) | 2X~4X | | 2X~5X | | | 2X~6X |

NEW

R/D Converter (VRDC)

High-performance R/D Converter "VRDC" that supports all types of resolver signal



Type AUA6800

VRDC is an R/D converter that converts the analog signal of the resolver to digital signal. High-speed, high-precision angle detection is achieved by adopting a new R/D conversion method that is compatible with all resolver signal methods.

High-performance R/D output (Main-RDC)

Health monitoring function

R/D conversion function triple redundancy

Various built-in functions

Detailed product information can be found on our website.



◀ Singlsyn



◀ VRDC



01

New Factory for EV resolver in the Third plant

The production plant for EV resolver “Singlsyn” started operation at our third plant on January 23. Construction work started on April 15 of last year after the ground-breaking ceremony. The construction work progressed smoothly and was completed one month ahead of schedule. On January 11, the Completion Ceremony was held, and the production facilities were brought in and already started producing. The new factory is a steel-framed two-storied building with 600m² per story, and 1,200m² floor area in total. The construction was designed to boost production of Singlsyn, which has been on an increasing trend, thanks to a shift in EV. First floor is the molding factory, and second floor is the assembly factory, which is adjacent to the existing press factory, so all processes of “Singlsyn” production from pressing to molding, assembly, and shipping are directly connected. Therefore, it can be expected to greatly contribute to eliminating logistics loss and improving productivity.



▲New Factory “No.28”



▲Completion Ceremony



▲Assembly Line

02

Notice of establishment of new sales offices

We are pleased to inform you that we have established new sales offices on November 21.

Nagano Office
 (Domestic Marketing Sales Headquarters East Japan Sales Department II)
 [Responsible area : Nagano and Yamanashi Prefecture]
 Address : 1020 Kega, Iida, Nagano Prefecture, 395-8520 Japan

Tokyo Office (Sales Development Headquarters Special Equipment Sales Department)
 [Business in charge : Defense and Space Business]
 Address : 3-19-9 Shinkamata, Ohta-ku, Tokyo, 144-0054 Japan

03

Exhibition information

“Research and Development Forum” hosted by SJAC

The Research and Development Forum hosted by the Society of Japanese Aerospace Companies (SJAC) was held at Hotel Grand Hill Ichigaya on August 24 last year. This forum has been held annually since fiscal year 2018 for technical officials of the Ministry of Defense. Following 2019, we participate in the forum for the second time.

All of the products introduced by our company are currently under development. One is an optical oil gauge for aircraft. The second is an integrated optical rotary joint (i-FORJ®) that integrates an optical rotary joint and a slip ring that enable optical transmission of image data via a rotating shaft.

The optical oil gauge employs an innovative optical sensor that eliminates the temperature dependence of the capacitance type, which is currently the mainstream.

i-FORJ® employs an inexpensive ball lens instead of an expensive special lens in the optical rotary joint, and also newly developed a housing with a tapered shape inside to minimize optical axis misalignment. Both are products unique to our company that pursue low prices and high reliability.

The time allotted for the session was only 40 minutes, but after that it was a question and answer session with the attendees while they were holding the prototypes. It was a good opportunity to see how much attention was paid to both products.

The technical officers of the Ministry of Defense who have come to know this



▲Forum Venue



▲i-FORJ



Optical Level Gauging System▶

information will certainly expand our development trends widely for future development projects, and we are looking forward to receiving inquiries not only from the Acquisition, Technology & Logistics Agency but also from companies involved in the defense industry.

- Industry Day
- Japan-Germany Defense and Security Technology Forum

Exhibited at Forest Inn Showakan on October 21, 2022
 Exhibited at Ochanomizu Sola City from September 26 to 27, 2022
 Scene of the Forum

Cover
of this
issue

"Yakiniku Town, Iida City"

Shinshu Iida Yakiniku Research Institute opened on November 29, 2022 (good meat day). The 11.29m long iron plate used for the yakiniku (grilled meat) at the event is in the cover photo, and a panel showing the history of yakiniku in Iida are on display, as well as meat, processed products, and event goods. Please stop by when you come to Iida.

● Location: 3-9 Chuo-dori, Iida City,
Nagano Prefecture 395-0041



Hiraya Village 平谷村

Tour Minami Shinshu

vol.4

Introducing the food and culture of local areas around Tamagawa Seiki

Hiraya Village is located at the southern tip of Nagano Prefecture and is the least populated village in the prefecture. However, there are many sightseeing spots where you can fully enjoy the rich nature of the Highlands and Satoyama throughout the four seasons.



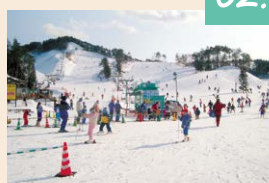
01. Take in the spectacular view from the summit of Mt. Takamine.



You can enjoy trekking along the trail up to the summit at an altitude of 1,574m while listening to the sounds of birds, and encountering monkeys & Japanese serow. You can also experience paragliding flight, so how about flying exhilaratingly?

Family-friendly Hiraya Kogen ski resort

This ski resort is located at the southernmost tip of Minami Shinshu, and is ideal for families to enjoy together. In the summer, there are rental villas and cottages where you can spend a relaxing time in nature.



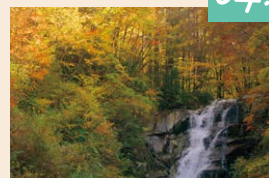
03. Shinshu Hiraya Onsen Himawari no Yu



It is a sodium bicarbonate hot spring, and is said to have skin beautifying effects, so it is also known as the "hot spring of beauty." In the summer, the area is surrounded by sunflowers, creating a beautiful scenery.

Hiraya Otaki Waterfall

With a drop of 41m and a width of 6.5m, Hiraya Otaki is the best waterfall in Hiraya Village and is also called Utsubo no Otaki. It is located in a place rich in nature, and you can enjoy the appearance of each season, such as fresh greenery and autumn leaves. You can refresh yourself by bathing in negative ions.



Enjoy fishing at Lake Hiraya



You can enjoy fishing in mountain streams and Lake Hiraya, which will be open from April 1st. At the Hiraya lake fishing spot, the staff who patrol will give you advice on how to fish.

Information

Hiraya Village Tourism Association
<https://www.pikan.net/>



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