



an INWAVE AG brand

Frequency Reference Solutions

**GPS Guided Oscillators,
GPS Receivers
Distribution Systems
and Accessories**

Modules

RS-GGO10-T und RS-GGO10-T2:



15*25*10mm small GPS guided TCXO's with 1PPS input for use with an external GPS receiver. The custom designed circuit enables insensitivity to the quite common errors in 1PPS signals derived from GPS receivers and stability down to 0.5ppb can be achieved. It only requires a steady 1PPS

GPS stream for ~2min to achieve the specified accuracy. The modules differ only in their pin-out. The -T model footprint can also accommodate regular 1" size OCXO's whereas the -T2 has a more standard pin-out. These modules are intended for applications where a 1PPS signal can be provided externally and whenever there are several components which require a 1PPS signal as it is easier to distribute 1PPS than to split the GPS RF signal.

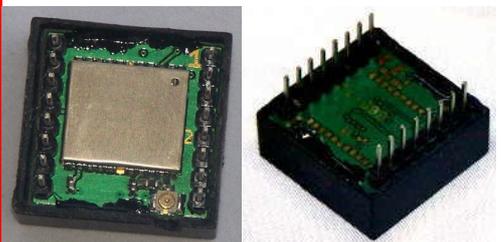
RS-GGO10-TG und RS-GGO10-T2G:



at the same size as the above models the RS-GGO10-TG/T2G also contain a GPS receiver and only need an external GPS antenna. Due to the additional noise and heat generated by the GPS module the typical stability is 1ppb. These modules are mainly intended for applications

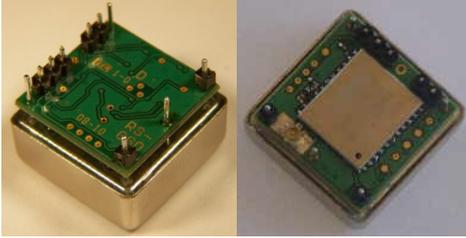
where only one reference source has to be supplied and the antenna cable can be kept short.

RS-GGO10-T3P und RS-GGO10-T3G:



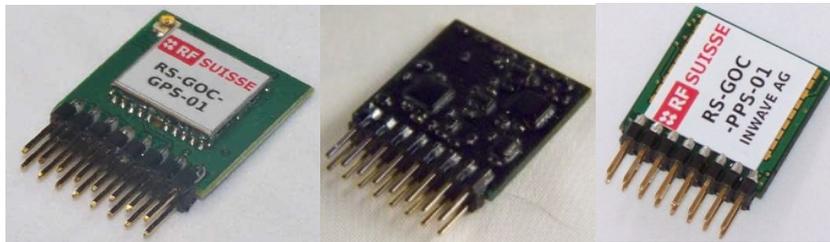
at the same size as the above and only 10mA current consumption these GPS guided references exhibit accuracy of $1 \cdot 10^{-10}$ and are available with 1PPS input (-T3P) or integrated GPS receiver (-T3G). Their accuracy exceeds that of double oven controlled crystal oscillators by far

and due to the GPS guidance they never require calibration. Footprint compatible with -T2 and -T2G models.

RS-GGO10-O und RS-GGO10-OG:

the high performance upgrade of the GPS Guided Oscillator series contains an OCXO with excellent stability. At a size of only 25.8*25.8*20.7mm they either come with (-OG) or without (-O) GPS receiver. Due to the warm-up time of the OCXO it requires ~15min to achieve specified and ~2h to

achieve final stability. These modules are mainly designed for stationary use as heavy vibration or changes of orientation can prevent that they reach their final stability of $1 \cdot 10^{-11}$.

RS-GOC-PPS and RS-GOC-GPS:

based on the same principle as the RS-GGO series the RS-GOC-xxx is a controller which can be adapted for all types of crystal

oscillators. Available with (-GPS) and without (-PPS) GPS receiver these modules are very flexible and with their 16-pin standard connector they can be mounted vertically or horizontally next to the crystal oscillator. As a special feature they have a 1PPS pulse output which continues to toggle with the accuracy of the attached oscillator in case GPS lock is lost.

Equipment

For 19" modular system references and distribution cassettes please see the Systems Solutions brochure.

RS-CGGO10-T:



is a reference source based on the RS-GGO10-T with integrated GPS receiver, a full level RS232 to control and read data from the integrated GPS receiver and 50Ω output impedance for the 10MHz output signal. The 1PPS output of the GPS is provided too which is suppressed once GPS reception is lost. Supply voltage is 8-12VDC and can come from an unregulated source. It contains circuitry to

supply an external active GPS antenna.

RS-CGGO10-O-xxx-yyy:



is the same form factor as the above model but is based on the RS-GGO10-O. Except for the significantly improved stability but longer lock time it is feature identical to the above module with the exception of the 1PPS output which continues to toggle with the OCXO accuracy in case GPS lock is lost. Available with 2 different GPS receivers or fibre-optic 1PPS receiver and either BNC or Versatile Link

fibre-optic RF-outputs

RS-GSPSPS1:



Entry level GPS timing receiver with integrated 1PPS distribution amplifier. This unit is sufficient for most timing applications but only the rising edge of the pulse is GPS controlled. Internal back-up battery and RS232 control of the GPS receiver as well as supply for an active GPS antenna. Four rear and one front 1PPS output. 5VDC supply voltage.

RS-GPSPPS2:

High performance GPS timing receiver with integrated 1PPS distribution. This GPS receiver can be used for all applications where a 1PPS signal is required. The integrated European made GPS receiver can be controlled via USB or RS232. Internal battery backup makes for a fast lock in case of a power failure. The inclusion of supervisory circuits for the

antenna supply make it the ideal receiver with an outdoor mounted active GPS antenna and a short antenna cable to the indoor mounted GPS receiver. The 1PPS signal is easy to distribute and doesn't require costly coaxial cables. Four rear and one front 1PPS outputs are provided. 5VDC supply voltage

RS-GPSPPS3:

Same electrical characteristics as RS-GPSPPS2 but with a DB9 female connector for RS232 control, power supply and one rear 1PPS output.

RS-GPSPPS4:

same electrical characteristics as the RS-GPSPPS2 but with one fibre-optic 1PPS output. SMA GPS antenna and SMB 1PPS front output. 5VDC supply voltage and various fibre-optic connectors. The ideal GPS receiver for applications where EMI and lightning protection are critical.

1PPS Distribution

RS-PPSOT:

a converter for electrical 1PPS signals into an optical signal. Available with several optical connectors for plastic/PMMA fibres as well as glass fibres. The small enclosure can be directly connected to the 1PPS output of an existing reference.

RS-PPSFR:

single channel optical 1PPS receiver to convert the optical 1PPS signal back into an electrical one. Available with the same optical connectors as the RS-GPSPPS4 GPS receiver and the RS-PPSOT transmitter and RJ9 or SMB output for the 1PPS signal.

RS-PPSD:

electrical or optical input versions with splitter buffer to eight electrical 1PPS outputs with either RJ9 or SMB connectors. This unit can either be used to split electrically transmitted 1PPS pulses to several recipients or to receive an optical 1PPS signal and then distribute electrically to other instruments.

MHz Distribution

A vertical red bar on the left side of the page, containing a series of white Swiss crosses stacked vertically.

RS-CDGF10:

a distribution unit for coaxial cables. Splits the input signal into four buffered, ground free, transformer isolated, BNC outputs with +7dBm output power which can be directly connected to reference inputs on instruments.

RS-FOT50:

Single channel fibre-optic transmitter. The ideal solution to transform an existing frequency standard into a fibre-optic one.

RS-FOD50:

an optical transmitter to convert the reference source signal into optical outputs. Available with 8 ST connectors for up to 2km distribution (RS-FOD100-8ST) or 8 Versatile Link connectors for distances of 40m/400m (RS-FOD100-8VL).

RS-FOC25:

receiver/converter for optical input signals. It converts the input signal directly back into an electrical signal thus the noise floor is limited to the optical transmission system. This unit can be directly connected to the reference inputs of most instruments which only use the external signal for long term stability. Available as RS-FOC25-ST and RS-FOC25-VL.

RS-FOC10-10-xx:

Fibre-optic single channel receiver with integrated clean-up crystal oscillator. As optical links are always noisy this solution is intended for equipment which is noise sensitive. Available with ST and VL type optical receivers.

Accessories

RS-GPSANT60:



a commercial grade waterproof GPS antenna designed by INWAVE AG and manufactured in Germany. Available in high and low gain version and window, desktop and magnet mount configurations.

RS-GPSANT70:



a commercial grade waterproof outdoor antenna with mounting stud, available in high and low gain versions. Designed by INWAVE AG and manufactured in Germany.



All RF-SUISSE product complies with RoHS requirements current at the date of delivery.

As we continuously improve our product we reserve the right to change published specifications without further notice.

All product manufactured and sold by INWAVE AG under the RF-SUISSE brand is intended for laboratory use or are components (modules) not suitable for consumer use. Thus they are not required to and do not carry CE certification.

For detailed information, data sheets and further product please visit our website at <http://www.rf-suisse.ch> or <http://www.rf-suisse.li>.

Inquiries, quote requests and questions: please contact your INWAVE AG / RF-SUISSE representative or email to info@rf-suisse.ch.

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Distributors and Representatives	
Australia	ASD Technology Pty Ltd, PO Box 800, Artarmon NSW 2064, Sydney, Australia; Tel: +61 2 9884 7486, Fax: +61 2 8080 8366, E-mail: info@asdtech.com.au
Austria	TSS GmbH, St.-Barbara-Str. 28, D-89264 Weissenhorn Tel: +49 7309 - 96 75-0, Fax: +49 7309 - 96 75-20, E-mail: info@tssd.com
Belgium	NAELCOM, Centre d'activités Tremblay Charles de Gaulle, 2, rue Jean Mermoz 93290 Tremblay en France, Tel: +33 (0)1.48.61.95.28 , Fax: +33 (0)1.48.61.94.03, Email: contact@naelcom.com
Bulgaria, Bosnia and Herzegovina, Croatia	IC elektronika d.o.o., Vodovodna cesta 100, Si- 1000 Ljubljana, SLOVENIA; Tel +386 (0)1 568 01 18, FAX +386 (0)1 568 91 07, E-mail: info@ic-elect.si
China	WAI TAT ELECTRONICS LTD, please see website for Chinese offices and contact information, E-mail: sales@wtel.com.hk
Finland	TQ ELECTRONIC OY, Laurinkatu 40, 08100 Lohja, Finland, Tel +358 19-326451, FAX +358 19-326452, E-mail: ulla@tqelectronic.fi
France	NAELCOM, Centre d'activités Tremblay Charles de Gaulle, 2, rue Jean Mermoz 93290 Tremblay en France, Tel: +33 (0)1.48.61.95.28 , Fax: +33 (0)1.48.61.94.03, Email: contact@naelcom.com
Germany	TSS GmbH, St.-Barbara-Str. 28, D-89264 Weissenhorn Tel: +49 7309 - 96 75-0, Fax: +49 7309 - 96 75-20, E-mail: info@tssd.com
Hongkong	WAI TAT ELECTRONICS LTD, Room 905, 9/F., Enterprise Square Two, 3 Sheung Yuet Road, Kowloon Bay, Kowloon, Hong Kong, Tel: (852) 2799-7393, Fax: (852) 2755-1420, E-mail: sales@wtel.com.hk
India	MEDs technologies, 5012, Ang Mo Kio Avenue 5, #04-01 Techplace II, Singapore 569876, Tel: +84 8 3811 1027, Fax: +84 8 3845 2544, E-mail: indiasales_comp@meds-tech.com
Indonesia	MEDs technologies, 5012, Ang Mo Kio Avenue 5, #04-01 Techplace II, Singapore 569876, Tel: +84 8 3811 1027, Fax: +84 8 3845 2544, E-mail: indonesiasales@meds-tech.com
Korea	ENS Engineering, #1509, Suseo Tower, 725, Suseo-Dong, Kangnam-Gu Seoul, Korea 135-157, Tel: 82-2-562-9819, Fax: 82-2-567-9786, E-mail: sales@enseng.co.kr
Macedonia, Montenegro	IC elektronika d.o.o., Vodovodna cesta 100, Si- 1000 Ljubljana, SLOVENIA; Tel +386 (0)1 568 01 18, FAX +386 (0)1 568 91 07, E-mail: info@ic-elect.si
The Netherlands	NAELCOM, Centre d'activités Tremblay Charles de Gaulle, 2, rue Jean Mermoz 93290 Tremblay en France, Tel: +33 (0)1.48.61.95.28 , Fax: +33 (0)1.48.61.94.03, Email: contact@naelcom.com
Malaysia	MEDs technologies, A1-20-5, Halaman Kristal Lengkok Free School 11600 Penang, Malaysia, Tel/Fax:604-282 6299, E-mail: sales@meds-tech.com
New Zealand	ASD Technology Pty Ltd, PO Box 800, Artarmon NSW 2064, Sydney, Australia; Tel: +61 2 9884 7486, Fax: +61 2 8080 8366, E-mail: info@asdtech.com.au
Romania	IC elektronika d.o.o., Vodovodna cesta 100, Si- 1000 Ljubljana, SLOVENIA; Tel +386 (0)1 568 01 18, FAX +386 (0)1 568 91 07, E-mail: info@ic-elect.si
Singapore	MEDs technologies, 5012, Ang Mo Kio Avenue 5, #04-01 Techplace II, Singapore 569876, Tel: +65 6453 8313 Fax: +65 6453 7738, E-mail: sales@meds-tech.com
Serbia Slovenia	IC elektronika d.o.o., Vodovodna cesta 100, Si- 1000 Ljubljana, SLOVENIA; Tel +386 (0)1 568 01 18, FAX +386 (0)1 568 91 07, E-mail: info@ic-elect.si
Spain	NAELCOM, Centre d'activités Tremblay Charles de Gaulle, 2, rue Jean Mermoz 93290 Tremblay en France, Tel: +33 (0)1.48.61.95.28 , Fax: +33 (0)1.48.61.94.03, Email: contact@naelcom.com
Switzerland	please contact us direct! info@rf-suisse.ch
Thailand	MEDs technologies, 5012, Ang Mo Kio Avenue 5, #04-01 Techplace II, Singapore 569876, Tel: 668-9411 6338, Email: kornhathai@meds-tech.com
Vietnam	MEDs technologies, Ho Chi Ming City, Vietnam, Email: michael@meds-tech.com
<p>For all countries not listed here please contact us directly: INWAVE AG RF-SUISSE division Dorf 23 CH-9411 Reute, AR Switzerland http://www.rf-suisse.ch info@rf-suisse.ch</p>	