RIGOL
User Guide

DS SYNC64 Synchronization Module

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RIGOL TECHNOLOGIES CO., LTD.

Guaranty and Declaration

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RIGOL guarantees that this product conforms to the national and industrial standards in China as well as the ISO9001:2015 standard and the ISO14001:2015 standard. Other international standard conformance certifications are in progress.

Contact Us
If you have any problem or requirement when using our products or this manual, please contact **RIGOL**.
E-mail: service@rigol.com
Website: www.rigol.com

Safety Requirement

General Safety Summary

Please review the following safety precautions carefully before putting the instrument into operation so as to avoid any personal injury or damage to the instrument and any product connected to it. To prevent potential hazards, please follow the instructions specified in this manual to use the instrument properly.

Use Proper Power Cord.
Only the exclusive power cord designed for the instrument and authorized for use within the local country could be used.

Observe All Terminal Ratings.
To avoid fire or shock hazard, observe all ratings and markers on the instrument and check your manual for more information about ratings before connecting the instrument.

Use Proper Overvoltage Protection.
Ensure that no overvoltage (such as that caused by a bolt of lightning) can reach the product. Otherwise, the operator might be exposed to the danger of an electric shock.

Do Not Operate Without Covers.
Do not operate the instrument with covers or panels removed.

Avoid Circuit or Wire Exposure.
Do not touch exposed junctions and components when the unit is powered on.

Do Not Operate With Suspected Failures.
If you suspect that any damage may occur to the instrument, have it inspected by **RIGOL** authorized personnel before further operations. Any maintenance, adjustment or replacement especially to circuits or accessories must be performed by **RIGOL** authorized personnel.

Provide Adequate Ventilation.
Inadequate ventilation may cause an increase of temperature in the instrument, which would cause damage to the instrument. So please keep the instrument well ventilated and inspect the air outlet and the fan regularly.

Do Not Operate in Wet Conditions.
To avoid short circuit inside the instrument or electric shock, never operate the instrument in a humid environment.

Do Not Operate in an Explosive Atmosphere.
To avoid personal injuries or damage to the instrument, never operate the instrument in an explosive atmosphere.

Keep Product Surfaces Clean and Dry.
To avoid dust or moisture from affecting the performance of the instrument, keep the surfaces of the instrument clean and dry.

Prevent Electrostatic Impact.
Operate the instrument in an electrostatic discharge protective environment to avoid damage induced by static discharges. Always ground both the internal and external conductors of cables to release static before making connections.

Handle with Caution.
Please handle with care during transportation to avoid damage to keys, knobs, interfaces, and other parts on the panels.

Safety Notices and Symbols

Safety Notices in this Manual:

WARNING
Indicates a potentially hazardous situation or practice which, if not avoided, will result in serious injury or death.

CAUTION
Indicates a potentially hazardous situation or practice which, if not avoided, could result in damage to the product or loss of important data.

Safety Terms on the Product:

DANGER   It calls attention to an operation, if not correctly performed, could result in injury or hazard immediately.

WARNING   It calls attention to an operation, if not correctly performed, could result in potential injury or hazard.

CAUTION   It calls attention to an operation, if not correctly performed, could result in damage to the product or other devices connected to the product.

Safety Symbols on the Product:

Hazardous Voltage	Safety Warning	Protective Earth Terminal	Chassis Ground	Test Ground

Care and Cleaning

Care
Do not store or leave the instrument where it may be exposed to direct sunlight for long periods of time.

Cleaning
Clean the instrument regularly according to its operating conditions. WARNING
1. Disconnect the instrument from all power sources.
2. Clean the external surfaces of the instrument with a soft cloth dampened with mild detergent or water.

CAUTION
To avoid damage to the instrument, do not expose it to caustic liquids.

WARNING
To avoid short-circuit resulting from moisture or personal injuries, ensure that the instrument is completely dry before connecting it to the power supply.

Environmental Considerations
The following symbol indicates that this product complies with the WEEE Directive 2002/96/EC.

Product End-of-Life Handling
The equipment may contain substances that could be harmful to the environment or human health. To avoid the release of such substances into the environment and avoid harm to human health, we recommend you to recycle this product appropriately to ensure that most materials are reused or recycled properly. Please contact your local authorities for disposal or recycling information.

You can click on the following link https://int.rigol.com/services/declaration.html to download the latest version of the RoHS&WEEE certification file.

Content

Overview of DS SYNC64

In many scenarios, oscilloscopes with four channels or above are required. However, for most oscilloscopes in the current market, most oscilloscopes can provide at most 4 channels and no synchronous clock interface for the external input is available for most of them.

For those users who demand for multi-channel synchronous data acquisition, DS SYNC64 synchronization module can be used as the trigger source of the oscilloscope to connect the output interface to the EXT trigger input terminal of the oscilloscope to realize synchronous trigger for multiple oscilloscopes. It can be used for channel calibration. Connect the coaxial cable to the input terminal of the analog channel of the oscilloscope to calibrate each analog channel. In this way, multiple oscilloscopes in cascaded connection can achieve synchronous data acquisition to improve the reliability of the measurement results.

DS SYNC64 has 64 analog channels, and each DS SYNC64 supports up to 64 sets of oscilloscopes in cascaded connection.

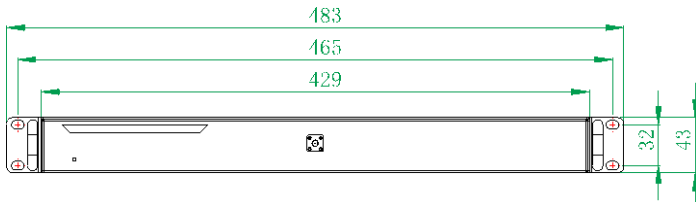## Appearance and Dimensions

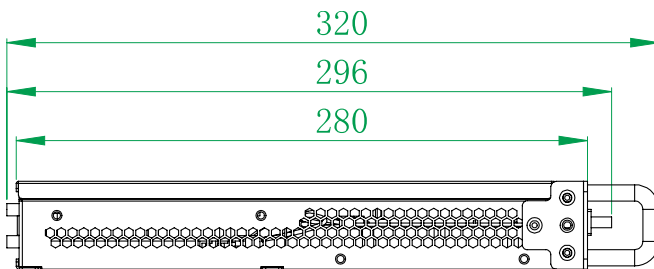
Figure 1 Front View   Unit: mm

Figure 2 Side View   Unit:mm
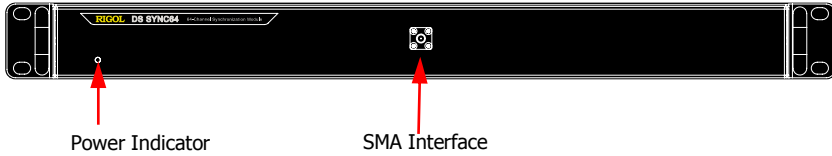
Front Panel Overview

Figure 3 Front Panel

- **Power Indicator**
  When the synchronization module is connected to power, the power indicator lights on and the synchronization module is launched normally.

- **SMA Interface**
  Indicates the input interface of the sync signal.
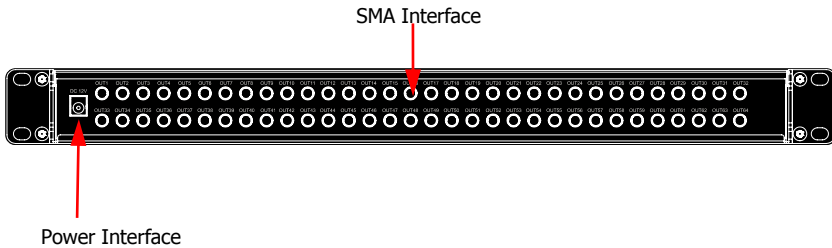
Rear Panel Overview

Figure 4 Rear Panel

- **SMA Interface (OUT1~OUT64)**
  Output interface of the sync signal: the signal input from the front-panel SMA interface is shaped and output through 64 channels.

- **Power Interface**
  Provides DC 12 V , 4 A power supply for the synchronization module.

To Use DS SYNC64 Synchronization Module

General Inspection

1. **Inspect the packaging**
If the packaging has been damaged, do not dispose the damaged packaging or cushioning materials until the shipment has been checked for completeness and has passed both electrical and mechanical tests.

The consigner or carrier shall be liable for the damage to the instrument resulting from shipment. **RIGOL** would not be responsible for free maintenance/rework or replacement of the instrument.

2. **Inspect the instrument**
In case of any mechanical damage, missing parts, or failure in passing the electrical and mechanical tests, contact your **RIGOL** sales representative.

3. **Check the accessories**
Please check the accessories according to the packing lists. If the accessories are damaged or incomplete, please contact your **RIGOL** sales representative.

Procedures for Using the Synchronization Module

1. Connect the synchronization module to the standard power adapter and then connect it to the AC power.
   The AC power specification for DS SYNC64 is 100-240 V, 45-440 Hz. Please use the specified power adapter to provide power to the synchronization module.

2. After being connected to power, the power indicator lights on. This indicates that the synchronization module is launched normally.

3. Connect the single-route trigger signal to the front-panel SMA input interface.

4. Connect one end of the phase match cable set to the SMA output interface, and the other end to the EXT input interface of the oscilloscopes that need to be triggered synchronously. Select EXT as the trigger source of the oscilloscopes. Then, the multiple oscilloscopes can be triggered synchronously.

Specifications

All the technical specifications are guaranteed when the instrument has been working for more than 30 minutes under the specified operating temperature (23℃±5℃).

Specifications

Trigger Input	
Input Voltage	20 Vpp
Minimum Input Voltage	500 mV
Polarity	Positive/Negative
Input Impedance	50 Ω
Maximum Input Power	1 W
Minimum Pulse Width	1 ns
Connector	SMA
Trigger Output	
No. of Channels	64
Output Voltage	1.2 Vpp (nom.) to 50 Ω
Impedance	50 Ω
Connector	SMA
Rise Time	<1 ns

General Specification

Environment	Operating Environment	Non-operating Environment
Temperature	0℃ to 50℃	-50℃ to +70℃
Humidity	Below 30℃: ≤90%RH (without condensation) 30℃ to 40℃: ≤75%RH (without condensation) 40℃ to 50℃: ≤45%RH (without condensation)	Below 65℃: ≤90%RH (without condensation)
Altitude	3,000 m	15,000 m
Weight	<4 kg	

Appendix

Appendix A Order Information

Model	Order No.
DS SYNC64 Synchronization Module	DS SYNC64
Standard Accessories	**Order No.**
Power cord conforming to the standard of the destination country	-
Power adapter conforming to the safety standard of the destination country	-

Appendix B: Warranty

RIGOL TECHNOLOGIES CO., LTD. (hereinafter referred to as **RIGOL**) warrants that the product will be free from defects in materials and workmanship within the warranty period. If a product proves defective within the warranty period, **RIGOL** guarantees free replacement or repair for the defective product.

To get repair service, please contact with your nearest **RIGOL** sales or service office.

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