New switch and control center

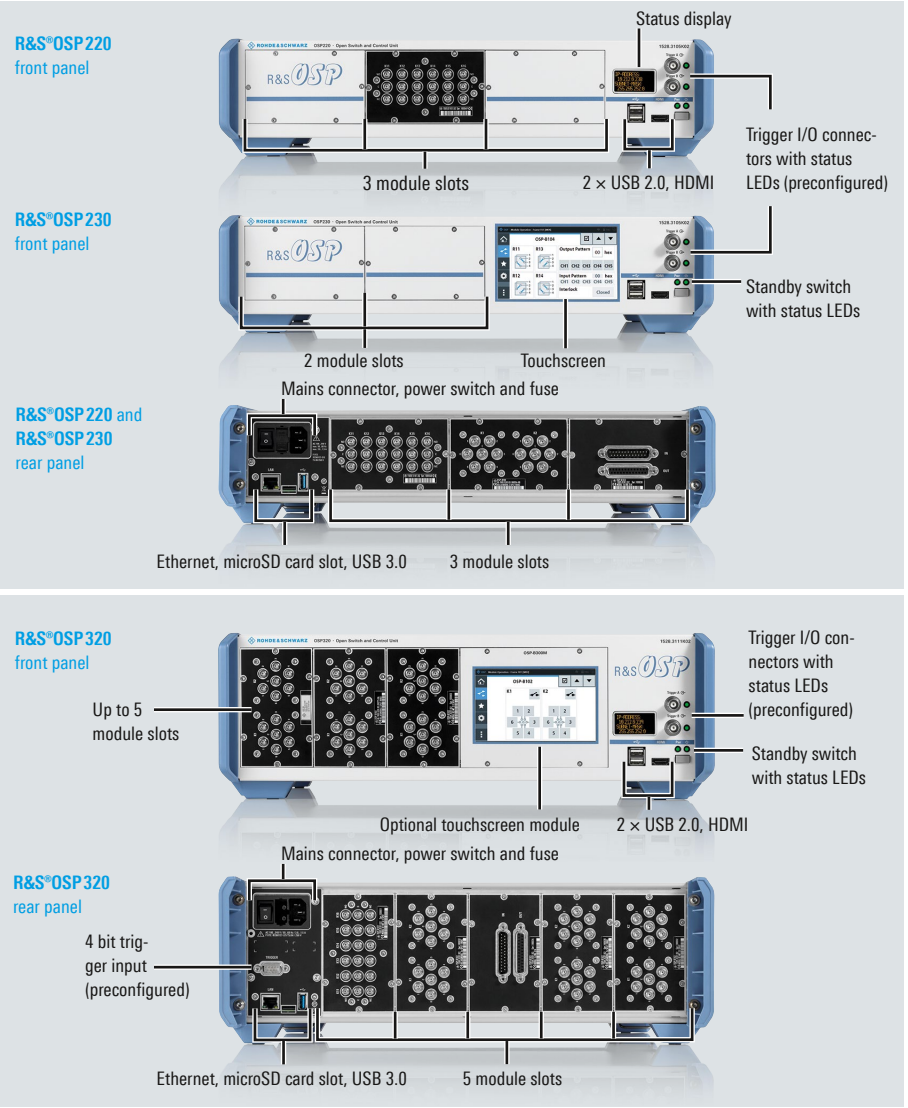
Based on ten years of experience with the R&S®OSP switch and control platform, the next generation of this product family has now been developed. The result is a state-of-the-art yet backward compatible platform, allowing legacy switch and control modules to be used with the new units.

New technologies such as 5G and advanced radar technology can be challenging for switch and control equipment as they require wider frequency ranges and shorter switching times. With these requirements in mind, the R&S®OSP switch and control platform was entirely redesigned both in terms of hardware and software and provided with a state-of-the-art operating concept. With three models (R&S®OSP220 / 230 / 320, Figs. 1 and 2) and a detached satellite box (R&S®OSP-B200S2), the new platform supports universal applications, ranging from benchtop configurations for laboratory measurements all the way through integration into complex, rack-mounted test systems.

The performance and functional range of the R&S®OSP models have been substantially increased:

- All models have module slots on the front and rear panels to provide maximum cabling flexibility.
- Each model can now manage and control up to 16 modules, including connected satellites. The output power of the power supply has been increased for switching electromechanical RF relays.
- For convenient configuration in a network, the R&S®OSP models come with a status display or a touchscreen showing the TCP/IP address and host name.
- Units equipped with a touchscreen can be configured and operated manually without external accessories.

Fig. 2: The R&S®OSP switch and control platform – models and interfaces.



Virtually unlimited expandability

All R&S®OSP models can be combined via Ethernet into a corporate or global network in a master/slave configuration. This substantially expands the potential applications of the R&S®OSP units, in combination with their trigger and path control functions. New requirements can be subsequently supported.

In addition to networking multiple R&S®OSP units, the compact R&S®OSP-B200S2 satellite box can be used to bring switch and control functions close to the DUT or the antennas (Fig. 3). This reduces the number of long RF cables required while improving the RF performance of the cabling and cutting costs.

Fig. 1: The module slots on the front and rear panels of the new R&S®OSP switch and control units can accept a wide variety of modules to implement versatile wiring configurations.

Intuitive web interface

The R&S®OSP models come with a built-in web interface for local operation via the touchscreen or a PC browser. No extra configuration software is required.

In the case of browser based control, the resolution of the displayed content is automatically adapted to the screen size of the touchscreen, smartphone, connected monitor or PC screen (Fig. 4).

Keeping what is proven

Tried and tested components were retained, including:

- Reliable **Linux operating system** with its substantially lower risk of virus attacks

Typical combinations of R&S®OSP units and R&S®OSP-B200S2 satellite boxes

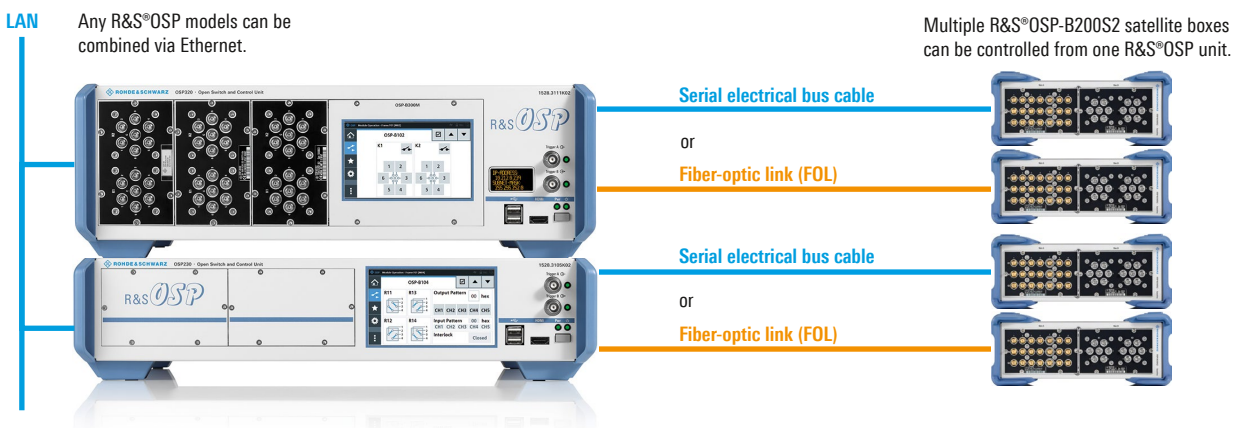
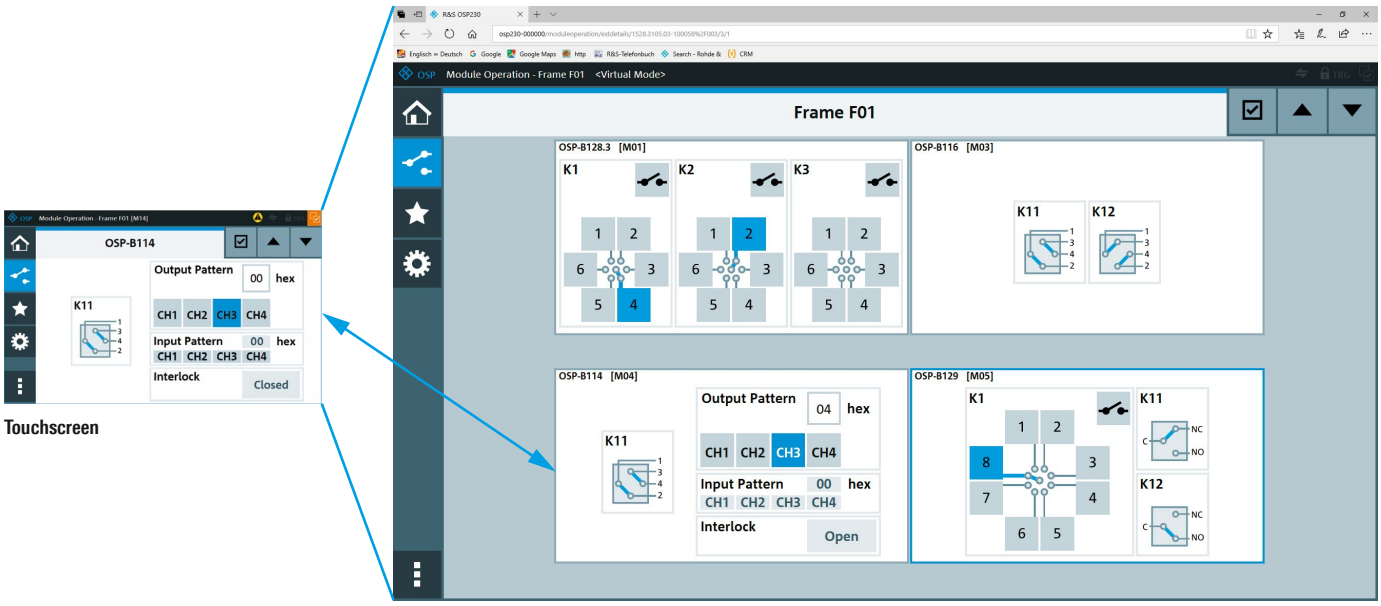


Fig. 3: The R&S®OSP-B200S2 satellite boxes bring switch and control functions close to the DUT.

Fig. 4: With web browser based control, the resolution of the displayed content is automatically adapted to the screen size of the display or monitor used.



- **USB and HDMI interfaces** for manual control using an external monitor and a keyboard and mouse
- **Path control** using combined relay switching states to simplify control and programming of complex wiring configurations
- **Virtual mode** allowing devices and paths to be preconfigured without having all of the units / modules available – a benefit when configuring complex systems
- **Flexible module buses and combinable module slots** for versatile configurations – useful especially with larger, application-specific modules
- **Compatibility of the module buses**, allowing all available R&S®OSP modules (new and legacy, Fig. 5) with their different relay types and variants to be used:
  - All basic types of RF relays (SPDT, SPnT, DPDT)
  - Electromechanical coaxial relays up to 67 GHz in different versions (failsafe, latching, terminated, non-terminated)
  - Solid-state relays (SSR)
  - Digital I/O modules and multiplexer module

Fast switching with trigger option

The integrated trigger unit is an important new feature that is activated with the R&S®OSP-K100 option, which will be available soon. It allows predefined paths to be switched via external trigger inputs. Hardware based switching significantly boosts switching speed compared with LAN-based control. This capability is required especially for fast switching between different antennas, radar modules, etc. using solid-state relays.

Depending on the trigger mode, the front-panel trigger connectors can be configured as inputs or outputs, e.g. for sequentially switching predefined paths or toggling between two different states. The R&S®OSP320 additionally has a digital address input on its rear for direct control of predefined paths.

Gert Heuer

Fig. 5: A small selection from the wide range of available R&S®OSP modules.