

RF UNIT K100

With CPI S-band klystron **VKS-8262R** or **VKS-8262G**



TURN KEY RF UNIT 7.5 MW/7.5 KW, S-BAND

ScandiNova's K100 is a turn-key Radio Frequency (RF) Unit. By combining ScandiNova's solid-state pulsed power technology with CPI's high quality klystrons, a very compact, high performance RF Unit has been created, providing up to 7.5 MW RF peak power. The RF Unit is optimized for two different CPI S-band klystrons: VKS-8262R operating at RF frequency 2856 MHz, and VKS-8262G operating at 2998.5 MHz.

The K100 is fully equipped with Klystron, Solenoid, klystron accessories and supporting systems, such as Solenoid Power Supply, Ion Pump Power Supply, RF Amplifier, internal cooling system and radiation shielding. All interlocks and essential diagnostics are fully integrated, and the ScandiCAT™ control system offers a safe and easy-to-use means of controlling the RF Unit.

There are several alternatives and options available for the RF Unit, e.g. extended/premium performance, different interfaces and RF components as well as different levels of service and support programmes.

COMPACT

FULLY EQUIPPED

UP TO 7.5 MW RF PEAK POWER

FOR USE IN VARIOUS RF APPLICATIONS

INTEGRATED WITH CPI KLYSTRON

THE K-SERIES

ScandiNova's K-series contains a range of klystron based RF units with high reliability and performance, a compact design and low energy consumption.

The RF units utilize ScandiNova's unique solid-state pulsed power technology, integrated with different types of klystrons, usually operating in the RF peak power range 3-100 MW.

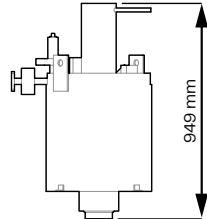
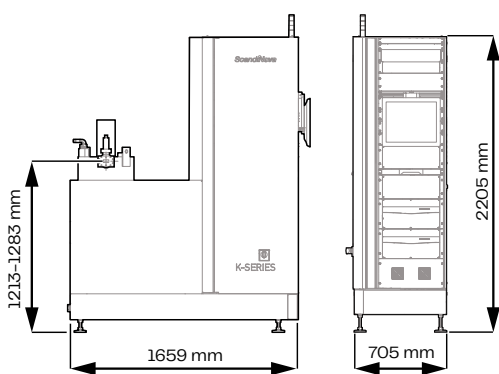
The RF units have extended diagnostics and features, and are easy to install and operate. They contain few consumables and require minimal maintenance.

| SYSTEM SPECIFICATIONS | UNIT | TYPE OF KLYSTRON | | | | NOTES |
|----------------------------------|-------|------------------|-----------|----------|---------|---|
| | | VKS-8262R | VKS-8262G | EXTENDED | PREMIUM | |
| Klystron RF peak power | MW | 0-7.5 | 0-7.5 | | | Adjustable |
| Klystron RF average power | kW | 0-7.5 | 0-7.5 | | | Adjustable |
| RF frequency | MHz | 2856±5 | 2998±5 | | | Set by RF source |
| RF pulse length, top | µs | 0-4.5 | 0-4.5 | | | Adjustable |
| Pulse repetition rate | Hz | 0-222 | 0-222 | 0-500 | 0-1000 | Subject to max avg. and peak power |
| Voltage pulse to pulse stability | ppm | < 100 | < 100 | < 50 | < 30 | RMS 1000 consecutive pulses at < 200 Hz |
| RF pulse flatness | % | < ±1.5 | < ±1.5 | < ±1.0 | < ±0.75 | Measured at max peak power |
| Radiation at 1 m distance | µSv/h | < 10 | < 10 | < 5 | < 2 | Waveguide output value excluded |

| INTERFACE | CONNECTOR | DEFAULT | OPTION | NOTES |
|---------------------------|-------------------------|-----------------------------------|--------------------------------|--------------------------------------|
| Mains power, three-phase | Terminal block (4-wire) | 360-430 VAC, 50/60 Hz, 47 kVA | 200-220, 420-500 VAC, 50/60 Hz | |
| Mains power, single-phase | Terminal block | 200-240 VAC, 50/60 Hz, 2.2 kVA | 100-120, 50/60 Hz | |
| Control interface | RJ45 | ModBus TCP | | 100 Hz update rate |
| Water cooling interface | Hose 1" | 70 dm ³ /min, 20-30 °C | 31-40 °C inlet water | Low conductivity water |
| Trig input | BNC | 5-15 V into 50 Ω | HFBR: Optical/PW control | Pulse width can be set by trig pulse |
| Diagnostics | BNC | Pulse voltage & current signals | | Calibration according to test cert. |
| Waveguide output | WR-284 (CPR-284F) | SF6 | Vacuum | |
| RF amplifier input | SMA female | Nominal input power 0 dBm | | Max +15 dBm |

| SIZE, WEIGHT AND VOLUME | UNIT | VALUE |
|------------------------------------|-----------------|------------|
| Total system weight | kg | 1190 |
| - Modulator | kg | 810 |
| - Klystron, Solenoid and oil | kg | 380 |
| Total oil volume | dm ³ | 208 |
| Minimum lifting height of Klystron | mm | Appr. 2400 |

For more information, visit www.scandinovsystems.com/K100



Klystron and Solenoid

Information contained in this document is subject to change without notice.

The Standard RF Unit Includes

- Power Distribution Unit
- Capacitive Charging Power Supply
- Solid-state Switch Unit
- Pulse transformer and tank
- Water cooling manifold and flow meters diagnostics
- Filament power supply
- Local control panel (19" touch screen)
- Graphical user interface
- ScandiCAT™ control system
- Digitizer for modulator diagnostics
- RF Digitizer (FWD/RFL power/VSWR)
- Directional coupler (SF6)
- Remote control via Modbus TCP
- CPI Klystron 7.5 MW
- CPI Solenoid
- Solenoid Power Supply
- Ion Pump Power Supply
- RF Amplifier
- Factory acceptance test certificate
- Manuals

In collaboration with



Options

- Internal controllable RF source
- Internal controllable phase shifter
- Neutron resistant Switch Unit
- Signal delay generator
- Additional radiation shielding
- Front turned 90 ° left
- Klystron conditioning tool
- Reduced filament heating mode
- Seismic reinforcement kit

Accessories

- Circulator & RF loads (SF6)
- Waveguides
- Waveguide window
- SF6 filling kit
- Spare part kit

Services

- Training in handling, operation and maintenance
- Factory acceptance test participation
- Site acceptance test
- Shipping
- Installation and start-up
- Service contract

COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001 • ISO 14001

HEADQUARTERS

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ScandiNova
Excellence in pulsed power