

TRACKING RADARS

The MFTR and MSTS product family



Weibel's Doppler 3D tracking radars are designed for precise measurements of free-flying objects such as projectiles, artillery rounds, and rockets. The systems are highly effective for detailed debris tracking, range safety tests, missile tests, and space launches.

CAPABILITIES

Weibel's tracking radars are X-band CW, MFCW and FMCW radar systems consisting of state of the art monopulse Doppler radar antennas, high performance pedestals, real-time multi-object tracking processors and state of the art waveform generators, all controlled from the operator console.

RUGGEDIZED DESIGN

With the combination of ruggedized mechanical structures and robust electronic design, the system is highly reliable and resistant to blasts and vibrations.

SIMPLE OPERATION

All calibrations, planning and execution activities can be handled by a single operator from a local or remote console.

MAN-PORTABLE, MOBILE OR FIXED

Depending on the specific radar model, Weibel offers from small two-man portable systems to large trailer-, ship- or land-based systems.

ADVANCED INTEGRATION

All system communication takes place using modern Ethernet network configurations. The systems also supports a multitude of physical connections and data protocols for target designation.

AVAILABLE DATA

The tracking radar systems measure velocity, range, azimuth angle, elevation angles, debris, spin acceleration, and micro motion to multiple targets in real time; supplying the operator with real-time TSPI data of any free-flying objects.

PROVEN CAPABILITIES

The system offers a unique proven capability of accurately tracking moving targets and ammunition, not only for testing purposes, but also for range safety applications.

Typical targets includes:

- Small and medium caliber size projectiles.
- Large-scale artillery rounds.
- Rocket and missiles.
- Airplanes, helicopters and fighter jets.
- Debris.

In 2017, Weibel won the first round of the Range Radar Replacement Program (RRRP). As a subcontractor, Weibel will deliver three tracking radars to the US Army in 2019. Since 1988, Weibel has delivered several hundred tracking radar systems throughout the world.

INTELLIGENT SOFTWARE

The intelligent user interface allows either manual or automated control of the system's antenna opening angles, waveforms, power output, servo modes and data-processing algorithms. It works either as a simple configuration for an inexperienced operator or as an advanced mission scenario created by a system specialist.



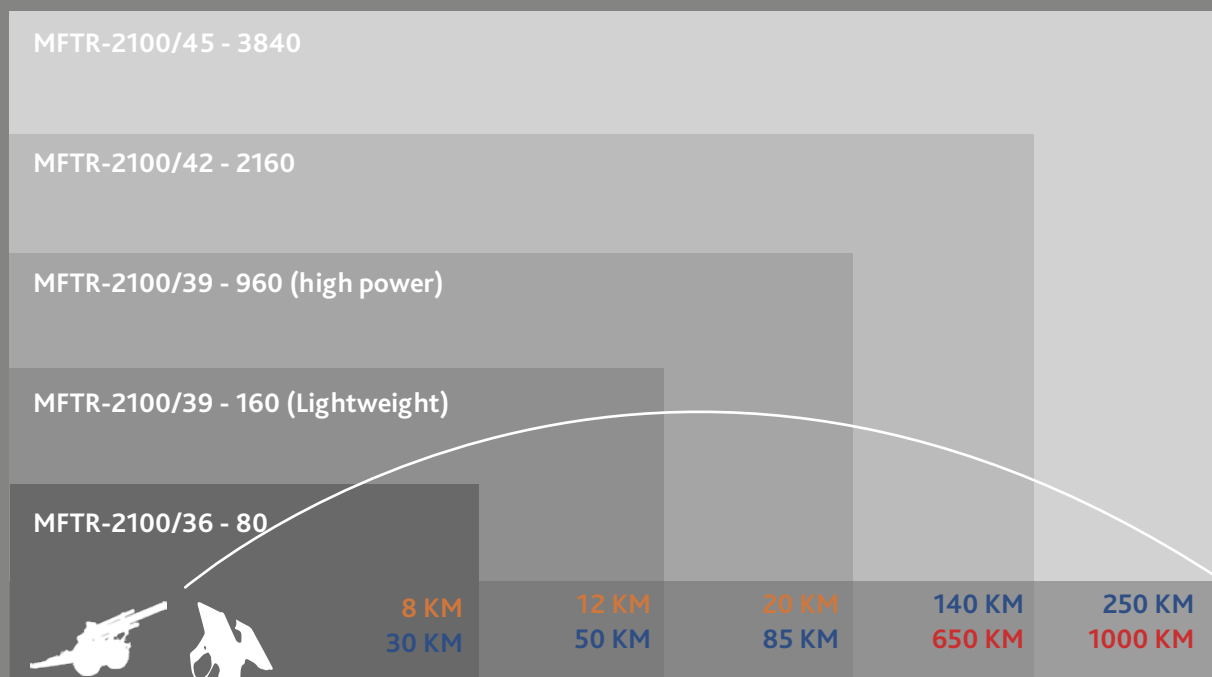
TRACKING RADAR SERIES

MFTR-2100 SERIES

- Antenna gain: 36 dB, 39 dB, 42 dB and 45 dB
- Transmit power: 80W, 160W (lightweight), 960W (high power), 2160W, 3840W
- Target velocity: +/- 10,000 m/s
- Pedestal type: AP-2100/39, AP-2100/42 or AP-2100/45
- Range: Direct ranging (MFCW and FMCW)

MSTS-2100 SERIES

- Antenna gain: 42dB and 45dB
- Transmit power: 960W and 3840W
- Target velocity: +/- 10,000 m/s
- Pedestal type: MSP-2100/45
- Range: Direct ranging (MFCW and FMCW)



Range for a -47dBm^2 target, corresponding to a 5.56mm projectile.

Range for a -25dBm^2 target, corresponding to a 155mm projectile.

Range for a 0dBm^2 target, corresponding to a 1m^2 RCS object.

Range calculations based on ideal conditions with no path loss, single frequency and Tobs from 10 to 200 msec.

TRACKING RADAR PEDESTALS

AP-2100/39 – lightweight

- Pedestal movement:
 - Azimuth: +/- 185°
 - Elevation: -20 to +200°
- Angular velocity: Up to 50°/sec
- Antenna gain/Transmit power: 36dB/80W, 39dB/160W
- Additional sensors: Supports two camera systems
- Mounted: Tripod
- Two-man portable, less than one hour set-up time



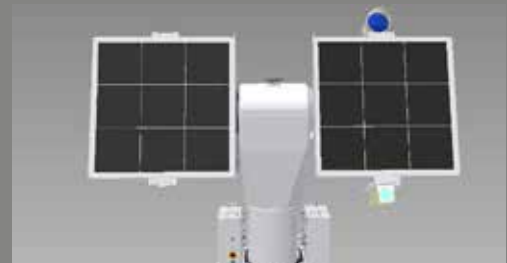
AP-2100/39 – high power

- Pedestal movement:
 - Azimuth: +/- 360°
 - Elevation: -20 to +200°
- Angular velocity: Up to 50°/sec
- Antenna gain/Transmit Power: 39dB/960W
- Additional sensors: Support two camera systems
- Mounted: Mobile or stationary



AP-2100/42

- Pedestal movement:
 - Azimuth: 360°
 - Elevation: -20 to +200°
- Angular velocity: Up to 50°/sec
- Antenna gain/Transmit power: 42dB/2160W
- Additional sensors: Supports four camera systems
- Mounted: Mobile or stationary



AP-2100/45

- Pedestal movement:
 - Azimuth: 360°
 - Elevation: -10 to +190°
- Angular velocity: Up to 30°/sec
- Antenna gain/Transmit power: 45dB/640W
- Additional sensors: Supports four camera systems
- Mounted: Mobile or stationary



MSP-2100/45

- Pedestal movement:
 - Azimuth 360°
 - Elevation: -10 to +190°
- Pedestal speeds: Up to 60°/sec
- Antenna gain: 42dB and 45dB
- Additional sensors: Supports six camera systems
- Mounted: Mobile or stationary



TAILORED TO YOUR NEEDS

The scalability of the tracking radar series enables our customers to select just the right solution for the job. From two-man portable to large trailer based systems; all are available as COTS items.

All Weibel's radar systems are guided by a building block production principle, which makes after-sales upgrades easy to handle. For instance, you can easily order a range upgrade for a smaller system, exchange low power antennas for a high power

version, upgrade your radar with a trailer, or change optical sensors. All of this falls within the day-to-day job of our after-sales support group.

Long-term support is a cornerstone in the Weibel mentality – we provide logistic and operational support for older as well as new systems. Obsolescence management and in-life support are Weibel virtues that ensure a system evolution tailored to your needs.

WHAT OUR CLIENTS SAY

"Thank you for your gracious offer to meet with me on short notice and show me your impressive facilities. Today, I saw what people have told me for years; Weibel is a finely tuned machine, focused on quality and innovative engineering. I would have to add that it is well-led and has an impressive work force."

Steve Williams, Regional President at Lockheed Martin

"It's been a pleasure working with the Weibel team. It's difficult to imagine a better after-sales service than that provided by Weibel."

Bengt Löfgren, SAAB Bofors Test Center

"We are pleased to inform Weibel Scientific that in accordance to our Quality Management System and having reviewed the company data, your results are as follows: Quality Index: 100%, Delivery Index: 100%."

Santos Roman Jimenez, Quality Manager at General Dynamics



OUR RADARS

"Too many times, we have seen how overcomplicated systems fail. From the very beginning, our focus was to make the construction of our tracking radars as simple and durable as possible to withstand many years of wear and tear.

We can proudly say that we have succeeded; we have come up with the most effective and easy-to-use radar in the world."

Peder R. Pedersen
President & CEO



ABOUT WEIBEL SCIENTIFIC

Danish Weibel Scientific is the global leader in the market for advanced Doppler radar systems. For more than 40 years, we have sold cutting-edge radars around the world for use in space, aerospace, defense and missile defense systems. We have delivered more than 4,000 radars to more than 40 countries, and our radars have secured safety for NASA astronauts since 2005.

In 2015, Weibel entered into a strategic partnership with Lockheed Martin, the world's largest supplier to the defense industry. The partnership is a seal of approval for Weibel's advanced and innovative radar technology to contribute to missile defense all over the world.

www.weibel.dk

WEIBEL
DOPPLER RADARS