

NEW TFT RIVER RADARS

TM 7216/7/9 Series



This radar offers a high resolution colour FTP display.

Radar signal is processed and displayed with an extremely good quality.

It is designed to improve safety of river vessels of any kind, navigating in rivers, channels, narrow waters, entering or leaving harbours.

Easy to be installed and maintained.

This radar meets the standards of the Rhine River Radar specifications and ETSI EN 302 194-1.

- ◆ Compact 19" TFT display
- ◆ Continuous bright multi colour picture
- ◆ Menu controlled set-up and operation
- ◆ Secondary VRM/EBL and a cursor
- ◆ Range scales in km, nm or sm
- ◆ Rate-of-turn and rudder indicator
- ◆ AIS information
- ◆ Navigation data interfaces
- ◆ Dual navigation lines
- ◆ Ship's profile outline
- ◆ 5kW nominal peak power
- ◆ Multilevel video, target trails
- ◆ 6ft, 7ft or 9ft antenna with two speeds
- ◆ Universal custom design installation



TECHNICAL SPECIFICATIONS

ANTENNA and REDUCER with TRANSCEIVER

ANTENNA with REDUCER

ANTENNA

Type	waveguide-slotted
Polarization	horizontal
Length	6ft / 7ft / 9ft
Operating frequency	9410±30MHz
Beamwidth at minus 3dB:	
- horizontal	1.1°±0.1° / 1°±0.1° / 0.8°±0.1°
- vertical	20°± 5°
Sidelobes level in horizontal plane:	
- within ±10°	≤ minus 26dB
- outside ±10°	≤ minus 32dB
Gain	> 29dB / > 30dB / > 32dB
VSWR	≤ 1.2
Wind speed (operational)	30m/s
Wind speed (survival)	50m/s
REDUCER	
Rotation speed	(30±3)rpm; (45±3)rpm
Antenna shaft encoder	2 phases with 1024 ppr each, dephased at 90°; 1 phase with 1 ppr, TTL levels

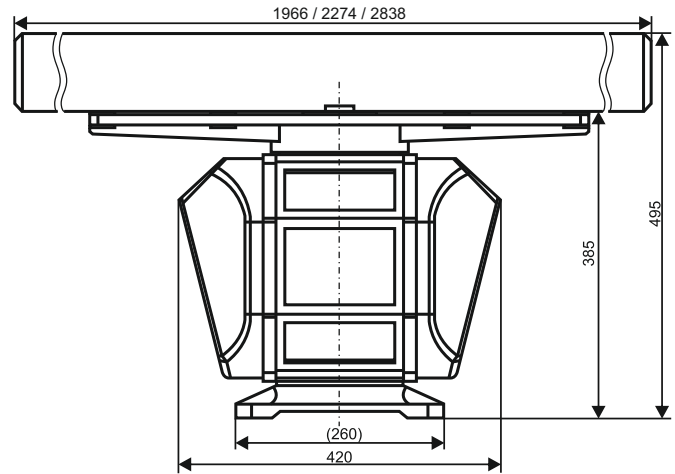
TRANSCEIVER

TRANSMITTER

Peak Power	5kW		
Frequency	9410MHz ± 30MHz		
Pulse Width	Scale	Frequency	Mode
0.05µs	0.15÷2km	4000Hz	Short Pulse
0.1µs	2; 4km	3000Hz	Middle Pulse
0.25µs	2÷16km	2000Hz	Long Pulse
0.25µs	32; 64km	1000Hz	Long Pulse

RECEIVER

Type	linear
IF	60MHz
Bandwidth	25MHz (0.05µs and 0.01µs PW) 5MHz (0.25µs PW)
Noise Figure	better than 6dB
Tuning	manual control with fine tuning indication

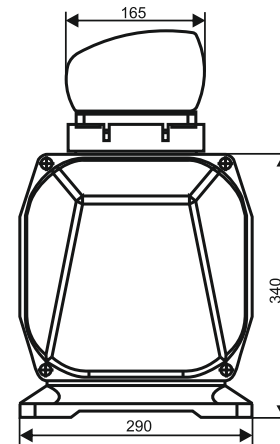


Antenna 6ft
Weight: 9kg

Antenna 7ft
Weight: 10kg

Antenna 9ft
Weight: 13kg

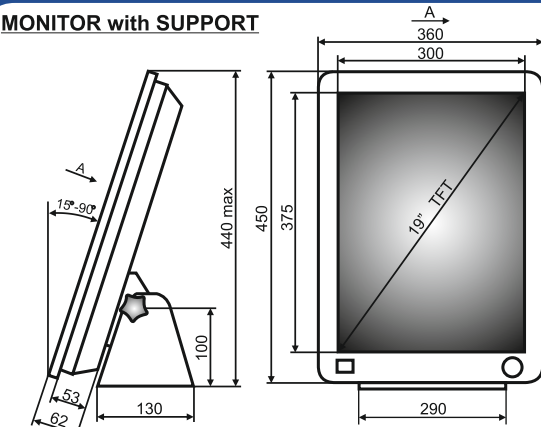
Reducer
(incl. Transceiver)
Weight: < 32kg



NOTE: Antenna and Reducer with Transceiver can be transported and installed separately

ANTENNA
and
REDUCER with TRANSCEIVER
Outline Drawing

MONITOR with SUPPORT

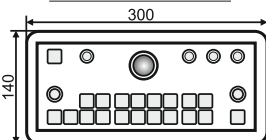


WEIGHT: Monitor - 7,5kg
Support - 1,5kg

MOUNTING DESKTOP, CONSOLE,
VERSIONS: WALL and CEILING

DISPLAY
Outline Drawing

CONTROL PANEL



WEIGHT: 2kg

RADAR DATA PROCESSOR



WEIGHT: 6kg

DISPLAY UNIT (Monitor, Control Panel, Radar Data Processor)

Display Screen	19" TFT colour screen. High contrast, 1280x1024 pixels, continuous 50% look ahead extension with full 136mm radius with afterglow. Off-centering: 72mm, 83mm or 95mm.
Range Scales	in km - 0.15; 0.3; 0.5; 0.8; 1.2; 1.6; 2; 4; 8; 16; 32; 64 in nm - 0.08; 0.125; 0.25; 0.5; 0.75; 1.5; 3; 6; 12; 24; 48 in sm - 0.08; 0.125; 0.25; 0.5; 0.75; 1.5; 3; 6; 12; 24; 48
Range Rings	50m, 100m, 100m, 200m, 200m, 400m, 400m, 1km, 2km, 4km, 8km, 16km
Range Discrimination	better than 10m
VRM / EBL	Two independent pairs of VRM/EBL
Nav. lines	2 independent lines
Cursor	Trackball, Range/Bearing or geographic Latitude/Longitude mode. Menus Management
Own Ship's Outline	Adjustable and saved
Menus	INTEN, VIDEO SET, SETUP. Used to control radar operation and installation setup. When selected they are indicated on the place of the SEA÷GAIN indication.
Day/Night	4 adjustable and 2 preset combinations of colors on screen
Video Processing	Noise processing, 16 level of radar data processing and display
ROT and RUDDER Indicator	Scales on top of screen with possible analogue input
NMEA Interfaces	3pcs. to receive messages from GPS, compass, log, sounder, RUDDER, RTU and AIS, for wind speed and direction

SUPPLY VOLTAGE	- 24V DC
POWER CONSUMPTION	- ≤ 120W under normal speed - ≤ 150W under high speed

AMBIENT CONDITIONS	Antenna and Reducer with Transceiver	Display
Temperature	minus 25°C to +70°C	minus 15°C to +55°C
Humidity	93%, +40°C	20% to 70%, +35°C
Vibrations	According to ETSI EN 302 194-1 v.1.1.2	

Traffic Technologies Centre

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WSV.de

Wasser- und
Schiffahrtsverwaltung
des Bundes

Admission Certificate

No. e-01-023

According to the

**European Standard laying down Technical Requirements for
Inland Navigation vessels (ES-TRIN)
including the requirements of EN 302 194 -1**

the river radar equipment

TM 7216/7/9

manufactured by

**Tcherno More Co.
256, Vladislav Varnentchik Blvd.
9009 Varna
Bulgaria**

consisting of

**Antenna 6 ft (502.092.577), 7 ft (502.092.570) or 9 ft (502.092.571)
Gearbox and Transceiver (502.068.585)
Display Unit including Control Panel (502.048.538)**

will be admitted as navigational radar for the use on inland waterways.

The admission will be granted to

**Tcherno More Co.
256, Vladislav Varnentchik Blvd.
9009 Varna
Bulgaria**

The essential features of the radar equipment are described in the conformity check report 01-2009 dated with 23-09-2009 which is part of this admission. The owner of this admission has to announce any modification of the equipment to the signer.

Federal Waterways Administration
Traffic Technologies Centre

Koblenz, 01-02-2019

by Order

(Walterfang)

