



# High-power L-band TRANSCEIVER TYPE MNO-IFF

## Description:

The transceiver (T/R) module is a key component in synthetic aperture radar systems where electronically scanned phased-array antennas are required. Single antenna element or a sector of an antenna having number of elements is fed by a single T/R module that delivers only a fraction of the total power of the radar. Therefore there is no need for a very high power splitting and transmitting circuitry. There is an easy possibility of controlling the phase of the signals at each of the radiating elements electronically by inserting low power phase shifter in each individual transceiver. This allows to build a radar with electronically scanned beam. Also solid state transmitters are less troublesome for the customer while the large number of transistors within the device guarantee partial operational capabilities even though some elements are damaged.

The MNO-IFF transceiver is dedicated for the IFF system with active scanned array antennas. It performs two basic functions. The first is to amplify the source signal from the interrogator to demand level to feed antenna system; and the second is to amplify the reply signal from the transponder. It can be used in either  $\Sigma$  and  $\Delta$  channels or separate  $\Omega$  channel with omni-directional antenna.

## Specification:

|                         |       |                     |
|-------------------------|-------|---------------------|
| Frequency (T/R)         | [GHz] | 1.03/1.09           |
| Peak transmit power (*) | [W]   | 1400 min.           |
| Transmit gain           | [dB]  | 40                  |
| Pulse                   | Mode  | 1, 2, 3A, C, A/C, S |
| Duty factor             | [%]   | 6.4% max.           |
| Receiver noise figure   | [dB]  | 2.2 max.            |
| Receiver gain           | [dB]  | 20                  |
| Harmonics level         | [dBc] | -60 max             |

## Controlling, monitoring and protecting functions:

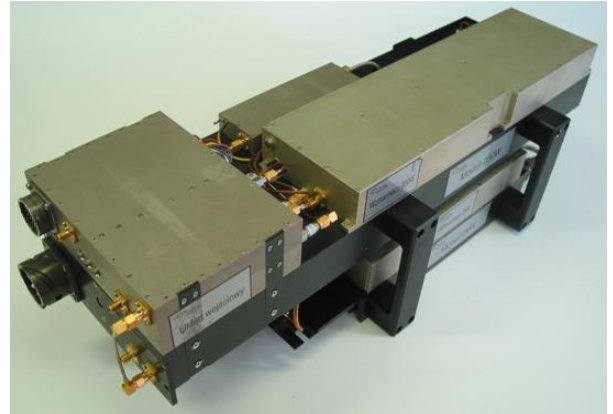
|                           |                           |
|---------------------------|---------------------------|
| Phase control             | 6 bits phase shifter      |
| Pulse power level control | 6 bits digital attenuator |
| Output/Input VSWR         | monitored                 |
| Temperature               | monitored                 |
| Exceeding temperature     | protected                 |
| Exceeding output VSWR     | protected                 |

## Environmental:

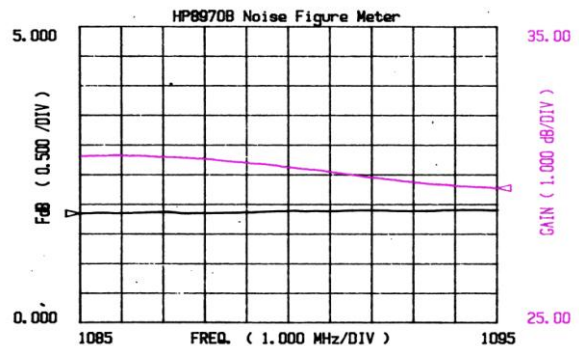
|                             |                             |
|-----------------------------|-----------------------------|
| Temperature operating range | -20°C ÷ +55°C               |
| Humidity                    | 98% / +25°C                 |
| Vibration                   | 20 m/s <sup>2</sup> / 30 Hz |
| Shock                       | 150 m/s <sup>2</sup>        |

## General:

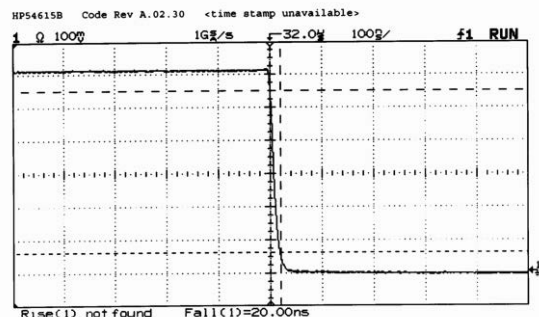
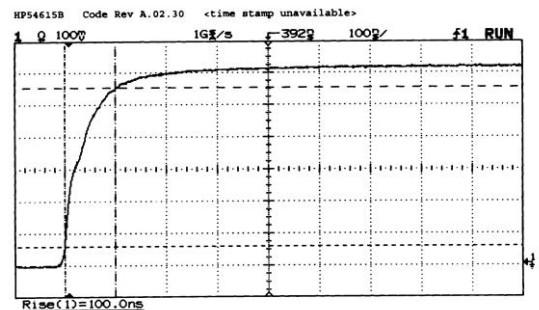
|                   |  |
|-------------------|--|
| Class             | C  |
| Power consumption | +15 Vdc / 7 A max.<br>+48 Vdc / 8 A avg. |
| Weight            | 15 kg max.                               |
| Cooling           | air - fan                                |



Top view of the MNO-IFF transceiver



Receiver - noise figure and gain

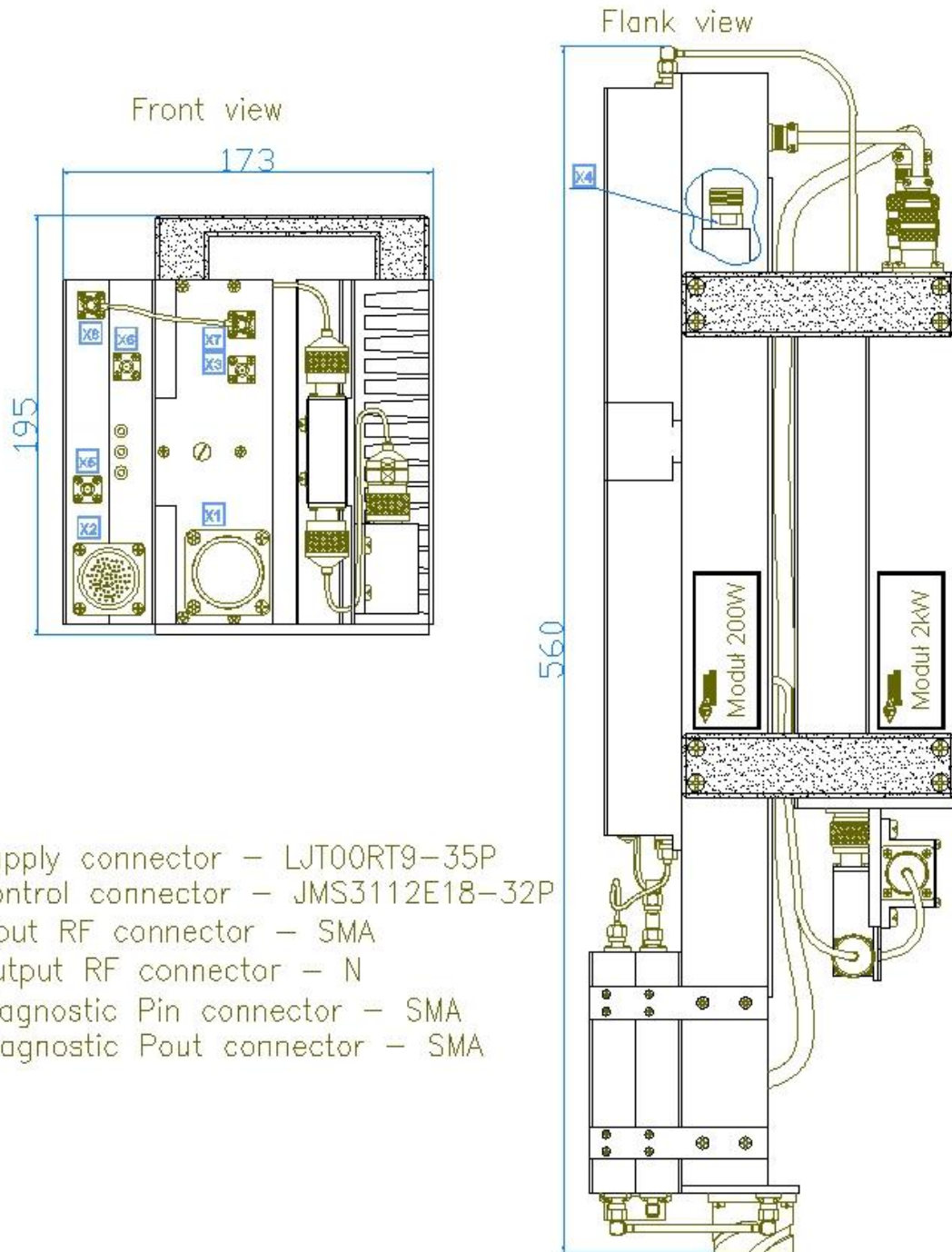


Transmitter - typical time domain characteristic

(\*) other peak transmit power from 200W on request

## PIT - RADWAR S.A. WROCLAW DIVISION

50-425 Wrocław, ul. Krakowska 64, Poland; tel. (+48) 71-342-65-54; fax (+48) 71-342-58-59; e-mail: sales@dolam.pl  
53-439 Wrocław, ul. Grabiszyńska 97 tel. (+48) 71-361-18-19 ; fax. (+48) 71-361-73-19; e-mail: office@pitow.wroc.pl



- X1 Supply connector – LJT00RT9–35P
- X2 Control connector – JMS3112E18–32P
- X3 Input RF connector – SMA
- X4 Output RF connector – N
- X5 Diagnostic Pin connector – SMA
- X6 Diagnostic Pout connector – SMA

The mechanical dimensions are for reference only and can be modified. Current detailed outline drawings are available on request. All dimensions are in mm

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