



## MRX.pal-ap

Video processing and AccessPoint

Sales-ID: 2101-1501 /2.4GHz /DC

- x High Speed Video Encoder
- x AccessPoint
- x Direct connection to MRX.tablet possible
- x High data rate (up to 400 Mbit/s)
- x Encrypted/masked radio based on IEEE 802.11ac (WiFi5)
- x PAL interface for analogue camera
- x Camera zoom control via RS-232
- x Plastic housing made of UL-certified polycarbonate



The MRX.CraneRadio system transmits analogue camera images from different positions on cranes to a touchscreen monitor in the crane operator's cab. Data is transmitted via a robust, encrypted and meshed radio network.

MRX.pal-ap is a converter unit that digitises analogue camera images and then sends them to a mobile device. One MRX.pal-ap is required per camera.

### Introduction

MRX.pal-ap is part of the MRX.CraneRadio system.

MRX.pal-ap receives analogue video data and encodes it. The digitised video streams are sent via a WiFi interface to a mobile device (MRX.tablet), where they are decoded and displayed.

MRX.pal-ap is equipped with a powerful video encoder (video frame grabber) to keep processing time to a minimum and enable the lowest possible 'glass-to-glass' latency (camera to screen).

MRX.pal-ap is powered via a DC interface. This can be either a continuous power source or a rechargeable battery (MRX.battery).

MRX.pal can be used as a repeater/amplifier in the radio network. This increases the range and, above all, overcomes potential 'radio obstacles'.

MRX.pal-ap is optimised for use on construction

machinery and for operation with and without a rechargeable battery. The input voltage range is 10-32VDC. The specified temperature range is -20°C to +70°C. The device does not require a fan.

The built-in radio interface operates in accordance with the IEEE 802.11ac standard with 2x2 MIMO antenna technology. The MRX.pal-ap antenna is built into the housing to provide maximum protection against mechanical stress.

It is mounted using RAM Mount technology or directly on the flat surface of the machine.

## X Technical specifications

### Overview

- Wireless accessPoint + Video Processing
- Fully encrypted wireless meshed network
- 1x AP

### WiFi Radio

- 2x2 MIMO
- 2.4GHz:
  - ↪ BW: 20/40MHz
  - ↪ Std: 2.412 ~ 2.472GHz
  - ↪ max. 20dBm
- 5GHz:
  - ↪ BW: 20/40MHz
  - ↪ Std: 5.180 ~ 5.825GHz
  - ↪ max. 23dBm
  - ↪ DFS supported
- Data rate: up to 400 Mbit/s
- Modulation techniques
  - ↪ OFDM: BPSK, QPSK, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM
- Antenna inside

### WiFi Features

- IEEE 802.11ac
- Fully encrypted
  - ↪ SAE key exchange
  - ↪ AES-SIV (RFC5297)
- HWMP routing
  - ↪ self forming & self healing
- Up to 4 units per AP

### Video Features

- supported analogue video formats
  - ↪ PAL, NTSC
- supported digitale video formats
  - ↪ MPEG4
- Video Frame Grabber
  - ↪ HW encoding for low latency
  - ↪ Latency: ~250ms (over all)

### Video interface

- PAL, NTSC
- Plug: 7-pol.

### Security

- Encryption of the entire radio transmission
- Secured login to device

### System management

- Web-GUI
- SNMPv2c, SNMPv3

### Hardware

- CPU: 880MHz
- RAM: 256MB
- Flash: 128MB

### Physics

- Fan less
- Weight: 750g
- Dim: 231x125x60mm (BxHxT)

### Housing: Plastics

- Material: PC UL 94 V0
  - ↪ flame retardant, self-extinguishing
  - ↪ UV-stable (f1-listing acc. UL 746C)
  - ↪ R22 acc. DIN EN 45545-2
- Protection: IP67
- Mounting:
  - ↪ Wall mounting
  - ↪ Pole mounting

### Power

- Power supply:
  - ↪ DC: 10-32V
  - ↪ Connector: 8-pol. plug
- Power demand
  - ↪ 5.5W (w/o camera)

### Environment

- Operation: -20 .. +70°C, ambient w/air
- Storage: -20 .. +70°C
- Rel. humidity: 5-95%, non cond.

### Certifications

- CE, eMark regulations
- RoHS

