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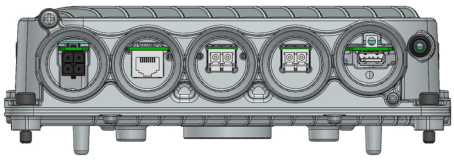
NEC

iPASOLINK EX
Advanced

SPECIFICATION



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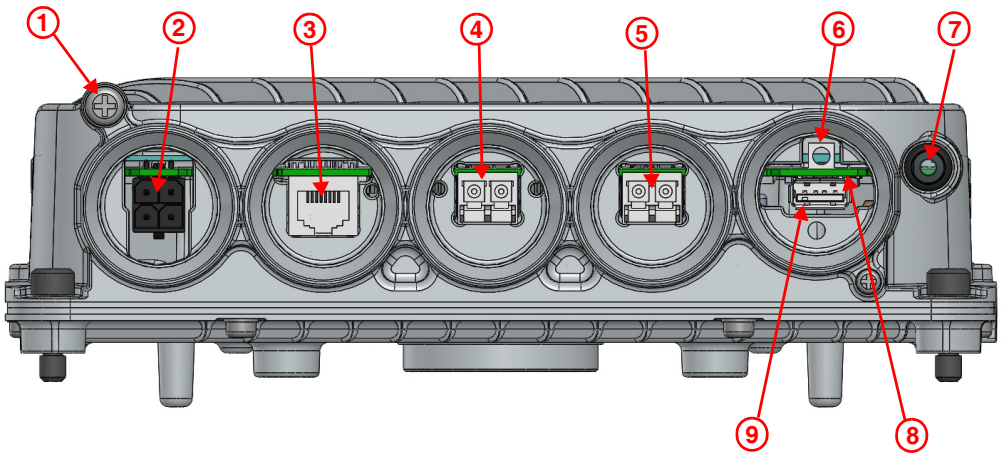
1. INTERFACES

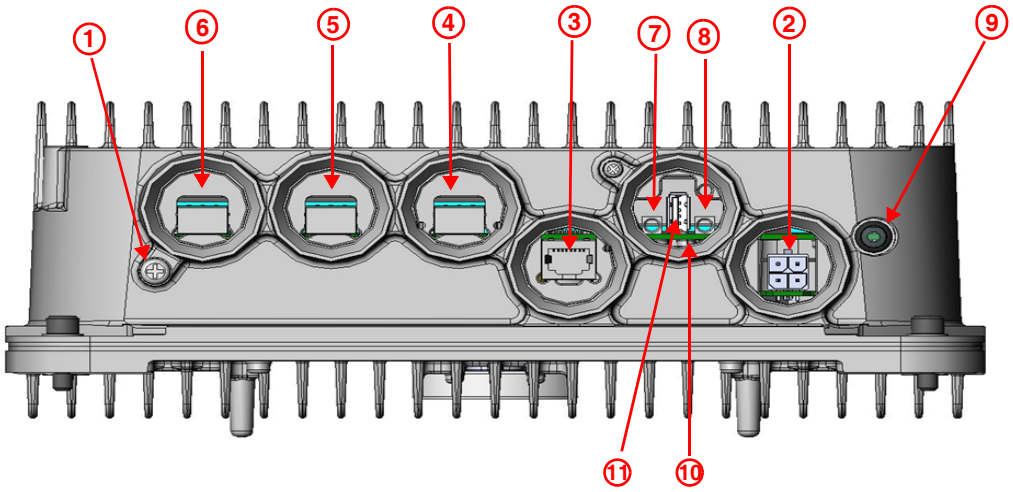
1.1 Locations of Terminals and LEDs

1.1.1 EX/A



No.	INDICATION	PURPOSE			
①	⏚	Grounding Terminal (dia. 5 mm)			
②	⚠ **DC –48V**	Power Supply (SELV). Port.			
③	⚠ **DCN (PoE)**	GbE; Power Supply by PoE (RJ-45); WebLCT or NMS Connecting Port			
④	**P2**	SFP(GbE)/SFP+(10GbE) Port			
⑤	**P3**	SFP(GbE)/SFP+(10GbE) Port			
⑥	**RSL**	Monitoring Port for the Received Signal Levels			
⑦	**SYSTEM**	**LED**	LED to indicate the system status using the colors of green or red		
			——	**Off**	Equipment is powered off
			Green	**Blinking**	Equipment is in the starting-up process
				On	Equipment is in the normal state
			Red	**On**	Equipment is in the alarmed state
⑧	**ACCESS**	**LED**	LED to indicate the Accessing Status		
			Green	**Blinking**	Data downloading/uploading is in progress
⑨	**MEM**	USB Memory Port			

1.1.2 EX/A Dual



No.	INDICATION	PURPOSE			
①	⏚	Grounding Terminal (dia. 5 mm)			
②	⚠ **–48V DC**	Power Supply (SELV). Port.			
③	**DCN/P1**	GbE; WebLCT or NMS Connecting Port			
④	**P2**	SFP(GbE)/SFP+(10GbE) Port			
⑤	**P3**	SFP(GbE)/SFP+(10GbE) Port			
⑥	**P4**	SFP(GbE)/SFP+(10GbE)/SFP28(25GbE) Port			
⑦	**RSL (H)**	Monitoring Port for the Received Signal Levels (Horizontal Polarization)			
⑧	**RSL (V)**	Monitoring Port for the Received Signal Levels (Vertical Polarization)			
⑨	**SYSTEM**	**LED**	LED to indicate the system status using the colors of green or red		
			——	**Off**	Equipment is powered off
			Green	**Blinking**	Equipment is in the starting-up process
				On	Equipment is in the normal state
			Red	**On**	Equipment is in the alarmed state
⑩	**ACCESS**	**LED**	LED to indicate the Accessing Status		
			Green	**Blinking**	Data downloading/uploading is in progress
⑪	**MEM**	USB Memory Port			

2. SPECIFICATION

2.1 Interface Capacity

iPASOLINK EX Advanced (hereinafter iPASOLINK EX/A) supports following interfaces conforming to the IEEE Standards:

2.1.1 Ethernet Interfaces

Interface	Specification	Connector	Description
EX/A and EX/A Dual in Switching mode			
10GBASE-SR/LR **1000BASE-SX/LX**	10 Gbit/s 1000 Mbit/s	LC (SFP+ Module) LC (SFP Module)	Traffic Interface 2 ports [EX/A] 3 ports [EX/A Dual]
1000BASE-T **100BASE-TX** **10BASE-T**	1000 Mbit/s 100 Mbit/s 10 Mbit/s	RJ-45	1 port for use of: • User Traffic or • WebLCT/NMS Connection
EX/A Dual in Transparent mode			
25GBASE-SR/LR **10GBASE-SR/LR**	25 Gbit/s 10 Gbit/s	LC (SFP28 Module) LC (SFP+ Module)	Traffic Interface 1 port
10GBASE-SR/LR **1000BASE-SX/LX**	10 Gbit/s 1000 Mbit/s	LC (SFP+ Module) LC (SFP Module)	MTA Slave Interface 1 port
100BASE-TX **10BASE-T**	100 Mbit/s 10 Mbit/s	RJ-45	1 port for use of: • WebLCT/NMS Connection

2.1.2 Other Interfaces

Interface	Connector	Description
RSL Interface	4mm Banana Plug Socket	Monitoring Received Signal Levels 1 port [EX/A] 2 ports for V and H [EX/A Dual]
USB Interface	USB Type-A	1 port of memory storage

2.2 Supported Functions

iPASOLINK EX/A supports the following functions:

2.2.1 Radio Functions

Functions		Supported Items	
TX Power (Maximum)		+18.0 dBm ±3 dB; 71-76 GHz, 81-86 GHz band [EX/A] +20.0 dBm ±3 dB; 71-76 GHz, 81-86 GHz band [EX/A Dual]	
Configuration		1+0	Up to 1 system [EX/A] Up to 2 systems [EX/A Dual]
		1+0 XPIC Group	Up to 1 configuration [EX/A Dual]
Channel Spacing		62.5 MHz, 125 MHz, 250 MHz, 500 MHz, 750 MHz, 1000 MHz,1500 MHz, 2000 MHz	
Modulation	**AMBR**	**CS: 62.5 to 125 MHz**	QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
		CS: 250 to 1000 MHz	QPSK (1/4 BW), QPSK (1/2 BW), QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
		CS: 1500 to 2000 MHz	QPSK (1/4 BW), QPSK (1/2 BW), QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM
	Reference Modulation	**CS: 62.5 to 250 MHz**	QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
		CS: 500 to 750 MHz	QPSK, 8PSK, 16QAM, 32QAM, 64QAM
		CS: 1000 to 2000 MHz	QPSK, 8PSK, 16QAM, 32QAM

2.2.2 Management Plane

Functions	Supported Items	
Inband Management VLAN	**Inband Interface**	Up to 4 per Equipment
Software Bridge	**Software Bridge ID**	Up to 6 per Equipment
User Account	**User Account**	Up to 100 per Equipment
ARP	**ARP Cache**	Up to 1024 per Equipment
	Static ARP	Up to 256 per Equipment
Routing	**Static Route**	Up to 128 per Equipment
NTP	**NTP Server**	Up to 4 per Equipment
DHCP	**DHCP Server**	Up to 3 per Equipment
	DHCP Relay	Up to 4 per Equipment
SNMP	**SNMP Community**	Up to 10 Equipment
	SNMP Trap Destination	Up to 3 per Equipment
RADIUS	**RADIUS Server**	Up to 3 per Equipment
Access Control List	**Input Filter**	Up to 50 per Equipment
	Forwarding Filter	Up to 50 per Equipment

2.2.3 ETH Functions

Functions	Supported Items	
EX/A and EX/A Dual in Switching mode		
VLAN	**VLAN ID**	Up to 4096 per Port
		Up to 4096 per Equipment
	C-Bridge Instance	Up to 16 per Equipment
	Customer Bridge (in C-Bridge Instance)	Up to 15 per C-Bridge Instance
	VLAN Swap	Up to 256 per Equipment
FDB	**All Entries (Dynamic + Static)**	Up to 32K per Equipment
	Static Entries	Up to 256 per Equipment
Filter	**Ingress Filter**	Up to 64 per Equipment
	Egress Filter	Up to 32 per Equipment
	Filter Rules (L2/L3)	Up to 512 per Equipment
QoS (VLAN Based)	**VLAN Group**	Up to 4 per Equipment
	VLAN Group Member	Up to 4095 per VLAN Group
	Priority Shaper Profile	Up to 4 per Equipment
	Mapping Table	Up to 16 per Equipment
QoS (Port Based)	**Classification Profile**	Up to 32 per Equipment
	Mapping Table	Up to 16 per Equipment
Policer	**Policer Instance**	Up to 512 per Equipment
	Policer Rate Profiler	Up to 64 per Equipment
ETH OAM	**MEG Instances**	Up to 128 per Equipment
	MEP Instances	Up to 128 per Equipment
	Peer MEP	Up to 512 per Equipment
	MIP	Up to 32 per Equipment
Ethernet Ring	**Ring Index**	Up to 16 Instances
RSTP/MSTP	**MSTI**	Up to 4 Instances
Link Aggregation	**LAG Member**	Up to 8 per LAG
	LAG Instance	Up to 3 per Equipment

Functions	Supported Items	
Multi LAG (Multi Traffic Aggregation) [EX/A Dual]	**LAG Member**	Up to 3 per Equipment
	MODEM Member Port	Up to 2 per Equipment
	XGbE Member Port	Up to 1 per Equipment
	GbE Member Port	Up to 1 per Equipment
	LAG instance	Up to 1 per Equipment
EX/A Dual in Transparent mode		
Multi LAG (Multi Traffic Aggregation)	**LAG Member**	Up to 3 per Equipment
	MODEM Member Port	Up to 2 per Equipment
	XGbE Member Port	Up to 1 per Equipment
	GbE Member Port	Up to 1 per Equipment
	LAG instance	Up to 1 per Equipment

2.2.4 Synchronization

Functions	Supported Items	
Timing Source	**Timing Source Entry**	Up to 3 per Equipment
PTP	**PTP Logical Port Entry**	Up to 4 per Equipment [EX/A] Up to 6 per Equipment [EX/A Dual]

2.2.5 Performance Monitor and Logs

Functions	Supported Items	
EX/A and EX/A Dual in Switching mode		
Log	**History Log**	Command, Event, Alarm Up to 8,000 items in total per system
PM	**15-Min History**	192 Instances
	1-Day History	7 Instances
	VLAN Counter	Up to 256 per Equipment
EX/A Dual in Transparent mode		
Log	**History Log**	Command, Event, Alarm Up to 8,000 items in total per system
PM	**15-Min History**	192 Instances
	1-Day History	7 Instances

2.3 Traffic Interface Specifications and Standards

2.3.1 1000BASE-X

ITEM	SPECIFICATIONS	
Application	**IEEE802.3 Full Duplex**	
	1000BASE-SX	**1000BASE-LX**
Nominal Bit Rate	1250 Mbit/s	
Coding Method	8B/10B	
Transmitter at Reference Point S		
Operating Wavelength Range	770 to 860 nm	1270 to 1355 nm
SMSR	0.85 dB (RMS)	4 dB (RMS)
Maximum Mean Launched Power	0 dBm	–3 dBm
Minimum Mean Launched Power	–9.5 dBm	–11 dBm
Minimum Extinction Ratio (dB)	9 dB or more	9 dB or more
Receiver at Reference Point R		
Operating Wavelength Range	770 to 860 nm	1270 to 1355 nm
Maximum Mean Receive Power	0 dBm	–3 dBm
Minimum Mean Receive Power	–17 dBm	–19 dBm
Others		
Target Distance	550 m	5 km
Type of Fiber Cable	MMF: GI Cable (Core/Clad dia.: 50/125 µm)	SMF: SI Cable (Core/Clad dia.: 9/125 µm)
Connector	LC Connector using SFP	

2.3.2 10GBASE-R

ITEM	SPECIFICATIONS	
Application	**IEEE802.3 Full Duplex**	
	10GBASE-SR	**10GBASE-LR**
Nominal Bit Rate	10.3125 Gbit/s	
Coding Method	64B/66B	
Transmitter at Reference Point S		
Operating Wavelength Range	840 to 860 nm	1260 to 1355 nm
SMSR	——	30 dB
Maximum Mean Launched Power	–2.8 dBm	0.5 dBm
Minimum Mean Launched Power	–4.3 dBm	–8.2 dBm
Minimum Extinction Ratio (dB)	3 dB	3.5 dB or more
Receiver at Reference Point R		
Operating Wavelength Range	840 to 860 nm	1260 to 1355 nm
Maximum Mean Receive Power	–1 dBm	–14.4 dBm
Minimum Mean Receive Power	–9.9 dBm	0.5 dBm
Others		
Target Distance	300 m	10 km
Type of Fiber Cable	MMF: Core/Clad (dia. 50/125 µm)	SMF: Core/Clad (dia. 9/125 µm)
Connector	LC Connector using SFP+	

2.3.3 25GBASE-R

ITEM	SPECIFICATIONS	
Application	**IEEE802.3 Full Duplex**	
	25GBASE-SR	**25GBASE-LR**
Nominal Bit Rate	25.78125 Gbit/s	
Coding Method	64B/66B	
Transmitter at Reference Point S		
Operating Wavelength Range	840 to 860 nm	1295 to 1325 nm
SMSR	——	30 dB
Maximum Mean Launched Power	2.4 dBm	2 dBm
Minimum Mean Launched Power	–8.4 dBm	–7 dBm
Minimum Extinction Ratio (dB)	2 dB	3 dB
Receiver at Reference Point R		
Operating Wavelength Range	840 to 860 nm	1295 to 1325 nm
Maximum Mean Receive Power	2.4 dBm	2 dBm
Minimum Mean Receive Power	–10.3 dBm	–13.3 dBm
Others		
Target Distance	70 m (OM3) 100 m (OM4)	10 km
Type of Fiber Cable	MMF	SMF
Connector	LC Connector using SFP28	

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3. SYSTEM PERFORMANCES

3.1 Power Consumption and Size

3.1.1 EX/A

Item		DESCRIPTION
Power Consumption		70 W (max)
Weight	**iPASOLINK EX/A only**	Approximately 3.5 kg
	Antenna (dia. 0.3 m) + Mounting Bracket	7 kg (approximately)
	Antenna (dia. 0.6 m) + Mounting Bracket	10 kg (approximately)
Dimensions	**(Width × Height × Depth)**	230 mm × 230 mm × 65 mm (Antenna and Mounting Bracket are not included)

3.1.2 EX/A Dual

Item		DESCRIPTION
Power Consumption		190 W (max)
Weight	**iPASOLINK EX/A Dual only**	Approximately 8.5 kg
	Antenna (dia. 0.3 m) + Mounting Bracket	7 kg (approximately)
	Antenna (dia. 0.6 m) + Mounting Bracket	10 kg (approximately)
Dimensions	**(Width × Height × Depth)**	290 mm × 290 mm × 110 mm (Antenna and Mounting Bracket are not included)

3.2 Environmental Conditions

3.2.1 Temperature

Condition	Requirements
Operating	–33 to +50°C @1m/s wind speed Reference: –33 to+40°C by ETSI EN 300 019-1-4 Class 4.1
Transportation	–40 to +70°C (ETSI EN 300 019-1-2 Class 2.3)
Storage	–25 to +55°C (ETSI EN 300 019-1-1 Class 1.2)

3.2.2 Humidity

Condition	Requirements
Operating	Up to 100% all-weather (IP66)
Transportation	Up to 100%
Storage	Up to 100%

3.3 Power Line Requirements

3.3.1 DC IN

Condition	Requirements
Input Voltage Range	–48.0 V DC (–40.5 to –57.0 V DC) ETSI EN 300 132-2
Connector	molex® Mega-Fit Connector [172064-0004]

3.3.2 PoE

Condition	Requirements
Input Voltage Range	41.0 to 57.0 V DC LTPoE++(90W) Compliant [EX/A]
Connector	RJ-45 Connector

NOTE: *EX/A Dual does not support PoE.*

3.4 Others

Category	Standards
EMC	Conforms to ETSI EN 301 489-1, ETSI EN 301 489-4
Safety	Conforms to EN 62368-1
Health	Conforms to EN 62311
RF Performance	Conforms to ETSI EN 302 217-2, FCC CFR47 Part 101

For details, please visit our DoC:

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