AXON

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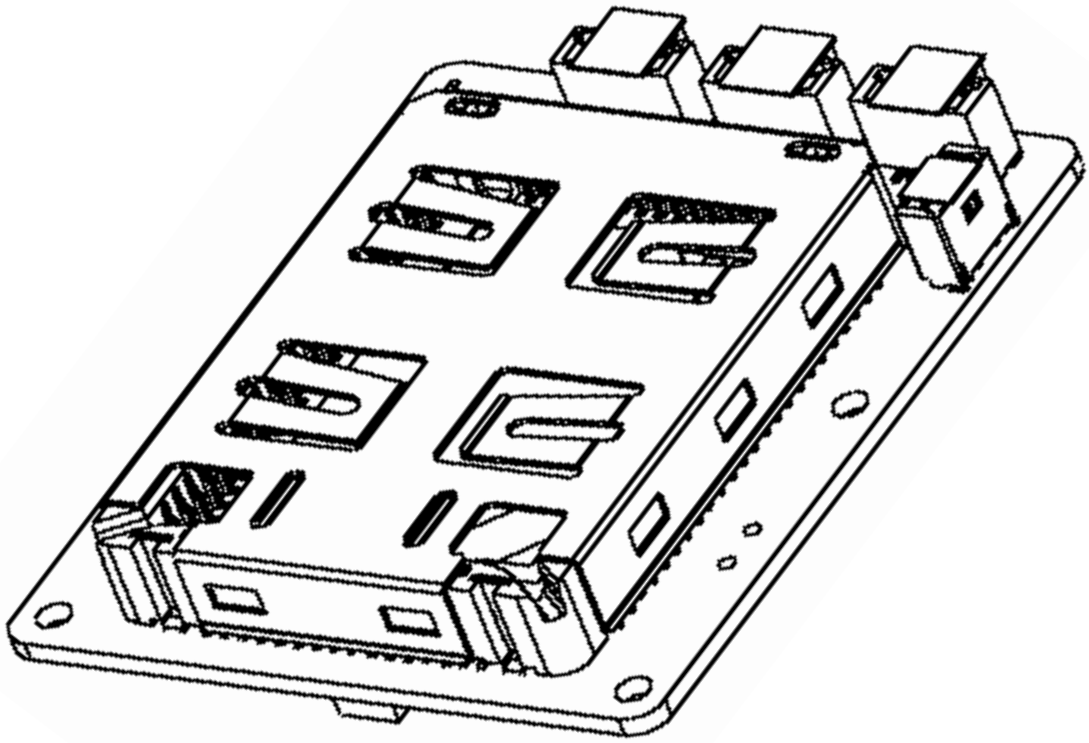
Specification sheet



IndiFlo

Overview & Specifications

The **AXON** Digital Data Link is a compact, high-performance, long-range wireless communication system engineered for demanding unmanned applications. Designed with a lightweight and rugged architecture, it delivers reliable broadband connectivity for UAS, USV, and autonomous platforms operating in challenging environments. Built around a high-efficiency RF architecture, the telemetry system features advanced modulation and error-correction techniques to ensure stable, low-latency communication with exceptional link reliability. The integrated high-power transceiver and optimized antenna diversity enable robust long-range performance even in interference-prone conditions. Its high-throughput duplex communication capability allows simultaneous transmission of telemetry, command-and-control data, and high-quality video streams, making it ideal for mission-critical operations requiring real-time situational awareness and precise vehicle control. The miniature form factor, low power consumption, and durable design make the system a dependable communication backbone for next-generation aerial, ground, and marine autonomous systems.

APPLICATIONS

- Unmanned BVLoS missions
- Emergency communication deployment
- Ethernet Wireless Extension
- Wireless Telemetry
- Wireless Video
- Wireless Control Systems

Key Features

Frequency: pMDDL2450: 2.402 - 2.482 GHz

TX Power: 20 dBm - 30 dBm Total (Adjustable)

Channel Bandwidth: 4, 8 MHz (Selectable)

Error Detection/Control: CRC, ARQ

Data Encryption: 128-bit AES (256-bit*) (* Will require additional charges)

Serial Port: 300bps to 230kbps - TTL Level RS232

Ethernet: Dual 10/100 BaseT, Auto - MDI/X, IEEE 802.3

USB: 2.0

Network Protocols: TCP, UDP, TCP/IP, ARP, ICMP, DHCP, HTTP, HTTPS*, SSH*, SNMP, FTP, DNS, Serial over IP (*May require an export permit)

Operating Modes: Master, Slave, Repeater, MESH

Management: Local Serial Console, Telnet, WebUI, SNMP, FTP & Wireless Upgrade

Diagnostics: Status LED's, RSSI, remote diagnostics, SNR

Input Voltage:
Carrier input voltage : 7 – 28 V

MODEM SPECIFICATION

- Duplex transmitter and receiver (2xMIMO)
- Dual MIMO antenna ports
- Operating range up to 8 km [5 mi] line-of-sight (The range depends on an ambient condition, electromagnetic situation, radio interference within the area. In case automatic tracking mast is not used, the range is guaranteed only within the HFOV of antenna)
- Frequency range: 2.402 - 2.478 GHz
- Encryption: 128-bit AES (Optional)
- Software selectable output power from 7 dBm to 30 dBm
- Up to 25 Mbps IPerf Throughput @ 8 MHz channel (-78 dBm)
- Up to 2 Mbps IPerf Throughput @ 4 MHz channel (-102 dBm)
- Software selectable MIMO on/off

Current

Tx Power (dBm)	MIMO ON Vcc @ 3.3V	MIMO ON VRF @ 5V	MIMO OFF Vcc @ 3.3V	MIMO OFF VRF @ 5V
20	400 - 460	640	400 - 460	340
22	400 - 460	720	400 - 460	390
24	400 - 460	780	400 - 460	450
26	400 - 460	860	400 - 460	520
28	400 - 460	1000	400 - 460	620
30	400 - 460	1200	400 - 460	790

Instantaneous Current Draw

MIMO ON Vcc @ 3.3V	MIMO ON VRF @ 5V	MIMO OFF Vcc @ 3.3V	MIMO OFF VRF @ 5V
500	1500	500	1000

Typical Receive Current Draw (mA)

MIMO ON Vcc @ 3.3V	MIMO OFF Vcc @ 3.3V
400 - 460	400 - 460

Path loss

Distance (km)	Master Height (m)	Remote Height (m)	Path Loss (dB)
5	15	2.5	116.5
5	30	2.5	110.9
8	15	2.5	124.1
8	15	5	117.7
8	15	10	105
16	15	2.5	135.3
16	15	5	128.9
16	15	10	116.2
16	30	10	109.6
16	30	5	122.4
16	30	2.5	128.8

Performance Specifications

MIMO (2X2) ON

8 MHz Channel Bandwidth

Modulation	iPerf Throughput (Mbps)	Throughput @ Sensitivity (dBm)	Maximum Total Tx Power (dBm) +/-1dB
BPSK_1/2	3	-99.5	30dBm
QPSK_1/2	5.9	-98	30dBm
QPSK_3/4	8.8	-96	30dBm
16QAM_1/2	11.6	-92	30dBm
16QAM_3/4	17.1	-90	30dBm
64QAM_2/3	22.8	-85	30dBm
64QAM_3/4	25.5	-83.5	30dBm
64QAM_5/6	27.8	-81	30dBm

4 MHz Channel Bandwidth

Modulation	iPerf Throughput (Mbps)	Throughput @ Sensitivity (dBm)	Maximum Total Tx Power (dBm) +/-1dB
BPSK_1/2	1.51	-102.5	30dBm
QPSK_1/2	2.98	-101	30dBm
QPSK_3/4	4.4	-99	30dBm
16QAM_1/2	5.8	-95.5	30dBm
16QAM_3/4	8.6	-93	30dBm
64QAM_2/3	11.4	-88	30dBm
64QAM_3/4	12.8	-86	30dBm
64QAM_5/6	14	-83.5	30dBm

Performance Specifications

MIMO OFF

8 MHz Channel Bandwidth

Modulation	iPerf Throughput (Mbps)	Throughput @ Sensitivity (dBm)	Maximum Tx Power (dBm) +/-1dB
BPSK_1/2	3	-96.5	30dBm
QPSK_1/2	5.8	-95	30dBm
QPSK_3/4	8.6	-93	30dBm
16QAM_1/2	11.5	-89	30dBm
16QAM_3/4	16.9	-87	30dBm
64QAM_2/3	22.2	-82	28dBm
64QAM_3/4	24.7	-80.5	28dBm
64QAM_5/6	27.4	-78	27dBm

4 MHz Channel Bandwidth

Modulation	iPerf Throughput (Mbps)	Throughput @ Sensitivity (dBm)	Maximum Tx Power (dBm) +/-1dB
BPSK_1/2	1.5	-99.5	30dBm
QPSK_1/2	2.9	-98	30dBm
QPSK_3/4	4.3	-96	30dBm
16QAM_1/2	5.7	-92.5	30dBm
16QAM_3/4	8.4	-90	30dBm
64QAM_2/3	11.3	-85	28dBm
64QAM_3/4	12.5	-83	28dBm
64QAM_5/6	14	-80.5	27dBm