ACKCIO

TECHNICAL SPECIFICATIONS

ACKCIO GATEWAY
BEAM-GW



MODEL	
BEAM-GW	Beam Gateway with Snape 2, Ackcio's on-Gateway data and device management software

MECHANICAL	
DIMENSION	160mm x 100mm x 80mm
WEIGHT	1kg
MATERIAL	Die-cast aluminium

MAIN CPU / PERIPHERALS	
CPU	Raspberry Pi Compute Module 4 Broadcom BCM2711 quad-core Cortex-A72 (ARMv8) 64-bit @ 1.5GHz
FCC ID	2ABCB-CM4
MEMORY	8GB LPDDR4 SDRAM
STORAGE	32GB built-in eMMC (no SD card), approx. 20GB usable
ONBOARD SENSORS	Internal temperature sensor (accuracy ±2°C)
RTC	Internal RTC ±3.5ppm 0°C to +60°C External RTC ±2ppm 0°C to +40°C (Powered by CR3032)

SOFTWARE & FIRMWARE	
FIRMWARE	**Ackcio Mesh:** Ackcio's long-range low-power mesh networking firmware
SOFTWARE	**Ackcio Snape 2:** Ackcio's on-Gateway data and device management software
PROTOCOLS	FTP, API, Modbus TCP
REMOTE ACCESS	Ready out of the box

LOW-POWER MCU / PERIPHERALS		
MCU	Ultra-Low Power Arm® Cortex®-M3 48MHz 32Bit CPU	
MEMORY	128KB Flash, 20KB Ultra-low-leakage SRAM	
CLOCK	High Precision RTC self-compensated in temperature (10ppm from -40°C to +80°C)	
ON-BOARD SENSORS	Temperature sensor (range: -40°C to +80°C, resolution: 0.01°C, accuracy: ±1.8°C) Barometer sensor (range: 300 to 1100hPa, resolution: 0.18Pa, accuracy: ±1.7hPa)	
EXTERNAL FLASH	8MB	
INTERFACES		
DISPLAY / KEYBOARD	**LEDs**	SYS - System status indication NET - Cellular status indication RF - MESH status indication WF -WiFi status indication
	Buttons	WIFI - to toggle onboard WiFi SHUTDOWN - to do a complete shutdown of the Gateway
USB DEVICE PORT	USB 2.0 full speed (Micro B connector) 5V	
IDC10 CONNECTOR	Only for firmware programming	
NETWORK INTERFACES	Integrated 3G/4G Modem & Antenna (LTE, HSDPA, EDGE, GPRS) quad-band 1Gbps Ethernet (external LAN port) Wi-Fi interface on 2.4GHz with external hotspot antenna	
GPS	GNSS High Sensitivity GPS module (excluding antenna)	

RF & MESH SPECIFICATIONS	
RADIO BAND	ISM Band 863 - 870MHz, 902 - 928MHz
TRANSMIT POWER	Up to 1 W (30 dBm)
MODULATION	2-GFSK
CERTIFICATIONS	FCC: 2AT8M-GW-V3X0 IC: 27349-GWV3X0 CE/RED Anatel (Brazil) MoC (Israel) RCM(Australia & New Zealand)
ANTENNA	¼ λ stub antenna with SMA connector
LINK DATA SPEED	50 kbps bitrate
DATA SECURITY	AES128 encrypted end-to-end data
HOPS	Up to 12
NETWORK SIZE	Up to 50 Nodes
RANGE*	Line-of-sight: Up to 5km Urban: Up to 1km Below ground: Up to 500m

*Ranges are based on a transmission power of 30 dBm. Actual transmission distances may vary depending on deployment conditions.

LORAWAN (FOR BEAM-TM-L)	
LORAWAN MODULE	Integrated LoRaWAN concentrator (USB interface)
FREQUENCY BANDS	8XX variant: EU868 / IN865 / RU864 9XX variant: US915 / AU915 / KR920 / AS923

CELLULAR MODEM			
FCC ID	XMR201903EG25G		
TRANSMISSION POWER	23dBm ± 2dB		
CELLULAR BANDS	**Technologies**	**Band**	**Data rate**
	LTE	Band 1 (2100) Band 2 (1900 PCS) Band 3 (1800+) Band 4 (1700/2100 AWS-1) Band 5 (850) Band 7 (2600) Band 8 (900) Band 12 (700 ac) Band 13 (700 c) Band 18 (800 lower) Band 19 (800 upper) Band 20 (800 DD) Band 25 (1900+) Band 26 (850+) Band 28 (700 APT) Band 38 (TD 2600) Band 39 (TD 1900+) Band 40 (TD 2300) Band 41 (TD 2600+)	LTE FDD: - Max 150Mbps (DL) - Max 50Mbps (UL) LTE TDD: - Max 130Mbps (DL) - Max 35Mbps (UL)
	WCDMA	Band 1 (2100) Band 2 (1900 PCS) Band 4 (1700/2100 AWS-1) Band 5 (850) Band 6 (850 Japan) Band 8 (900) Band 19 (800 upper)	DC-HSDPA: - Max 42Mbps (DL) HSUPA: - Max 5.7Mbps (UL) WCDMA: - Max 384Kbps (DL) - Max 384Kbps (UL)
	GSM	B2 (1900 PCS) B3 (1800 dcs) B5 (850) B8 (900)	EDGE: - Max 296Kbps (DL) - Max 236.8Kbps (UL) GPRS: - Max 107Kbps (DL) - Max 85.6Kbps (UL)

WIFI MODULE	
MODEL	In-built Wi-Fi module on Raspberry Pi CM4, with external hotspot antenna
FCC ID	2ABCB-CM4
WIFI BANDS	2.4GHz IEEE 802.11b/g/n wireless LAN
TRANSMISSION FREQUENCY AND POWER	2.4GHz Max power: 30mW

PROTECTION	
CIRCUIT PROTECTION	Reverse supply protection

SYSTEM POWER REQUIREMENTS						
SUPPLY VOLTAGE	12VDC @ 3A Nominal Max: 24VDC Min: 12VDC					
INTERNAL NON-RECHARGEABLE BATTERIES	1 x D-Cell Li-SOCl2 3.6V nominal voltage as backup power Recommended capacity 19Ah					
TYPICAL CURRENT DRAIN	250mA typical operating current					
MAX CURRENT DRAIN	3A					
	Solar Panel Output Voltage	**Solar Panel Peak Output Current**	**Rated Power Generation** (6hrs peak sun)	**Battery Type**	**Battery Capacity** (approx. 36hrs standby at 250mA, 50% depth of discharge)	**Maximum Charging Current**
EXTERNAL SOLAR PANEL	12V /24V	3A @12V / 1.5A@24V	80W minimum	12V / 24V lead-acid battery	18Ah minimum	2A or check battery specs on recomm. value

ENVIRONMENTAL CONDITIONS	
OPERATING TEMPERATURE	-40°C to +80°C
PROTECTION	IP67

MOUNTING BRACKETS / PLATES	
BEAM-BK-GW	Vertical/pole mounting bracket with mounting screws

Ackcio BEAM-GW

External view



Ackcio BEAM-GW

with our **BEAM-BK-GW** vertical/pole mounting bracket for vertical or pole mounting



Ackcio BEAM-GW

Inner view



DISCLAIMER: Specifications are subject to change without notice. In no event will Ackcio be liable for indirect, incidental or consequential damages arising from the use of this document.

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