OrionM2M

LORAWAN MODULE FOR FAN COILS AND AIR CONDITIONERS

MUSE

LoRaWAN EU868 / IN865 / KZ865 / RU864 · Class C · 5 … 24 V DC supply · UART / RS-485



01 FEATURES

- Software-selectable 3.3 / 5 V logic levels and line direction
- MUSE-U: powered from the port, no power supply or wiring
- Reports mode, setpoint, temperature and faults
- Accepts commands: on/off, mode, setpoint, fan speed
- LoRaWAN Class C: server commands received at any time
- BMS integration without RS-485 bus wiring

APPLICATIONS

- Building-wide fan coil and AC monitoring
- Centralized mode and setpoint control
- Retrofits without new cabling
- Equipment fault monitoring

02 GENERAL

MUSE-U interface	**UART, 4 lines**	TX · RX · IO1 · IO2
Direction, per line	**input / output**	by software
Line logic level	**3.3 / 5**	V, by software
TX / RX swap, inversion	**by software**	
Baud rate	**2400 … 115200**	baud
MUSE-R interface	**RS-485**	point-to-point
Termination, switchable	**120**	Ω
Supply voltage, nominal	**5 / 12 / 24**	V DC
Supply voltage range	**4.5 … 26.4**	V DC
Operating temperature	**–10 … +60**	°C
Housing	**ABS, white**	UL94 HB
Housing dimensions	**75 × 35 × 12**	mm
Length incl. cable gland	**90**	mm
Service mode entry	**by magnet**	
MUSE-U cable length	**0.7**	m
Mounting	**inside fan coil or air conditioner**	

03 LORAWAN

Specification version	**1.0.3**	
Class · activation	**C · OTAA**	
Frequency plans	**EU868 · IN865 · KZ865 · RU864**	
Tx power · sensitivity, SF12	**up to 14 · –136**	dBm
ADR · encryption	**yes · AES-128**	
Antenna	**internal, PCB**	
Radio platform	**STM32WLE5**	

04 DATA AND CONTROL

Data	**mode · setpoint · temperature · faults**
Commands	**on/off · mode · setpoint · fan speed**

05 INDICATORS

PWR, red	**power**
JOINED, green	**joined LoRaWAN**
ACT, blue	**activity**
LINK, green	**unit communication**

06 ORDER INFO

SKU	DESCRIPTION
MUSE-U/[F] **MUSE-R/[F]** U — UART · R — RS-485 F — frequency plan	**LoRaWAN module for fan coils and air conditioners: UART or RS-485**

VARIANT

- MUSE-U — UART to the unit's Wi-Fi module port, port-powered
- MUSE-R — RS-485, external power, 120 Ω termination

F — FREQUENCY PLAN

- EU — EU868
- IN — IN865
- KZ — KZ865
- RU — RU864

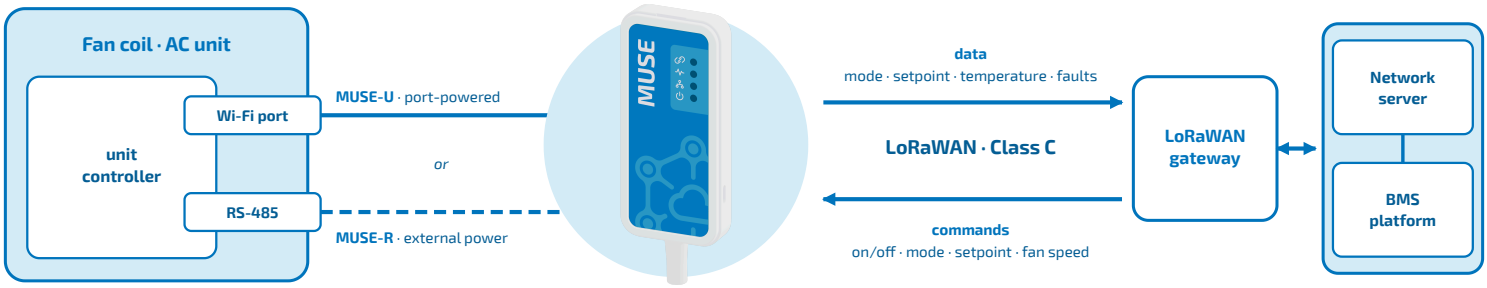
PACKAGE CONTENTS

- module
- connection cable

MUSE

APPLICATION AND COMPATIBILITY

07 TYPICAL APPLICATION



08 SUPPORTED EQUIPMENT

BRAND · OEM BRANDS	MODELS · STOCK MODULE	CONTROLLER PORT	VAR.	POWER
Stock Wi-Fi module port				
AUX and OEM: Rovex, Royal Clima, Energolux, Ballu, Zanussi, IGC	split systems	JST SM, 5-pin · USB-A (not USB)	MUSE-U	12 V
Shuft SFR V2, cassette fan coils	SFR-300 V2 · SFR-400 V2 · SFR-500 V2 · SFR-600R V2 · SFR-850R V2 · SFR-950R V2 · SFR-1200R V2 · SFR-1500R V2; SX-QRD-R5F100 controller	WIFI, 6-pin, 2.54 mm	MUSE-U	12 V
Shuft SFH V2	fan coils; SX-QRD-R5F100 controller	WIFI	MUSE-U	12 V
Midea and OEM: Carrier, Comfee, Electrolux, Qlima, Artel, Inventor, Dimstal	split systems; OSK102, OSK103, SK10x modules	USB-A (not USB) · JST XH, 4-pin	MUSE-U	5 V
Gree and OEM: Sinclair, Tosot, Cooper&Hunter, Argo, EWT, Daitsu, Kolin	split systems; GRJW04-J1, GRJW06-J modules	JST XA, 4-pin	MUSE-U	5 V
Haier	smartAir2 (older models); KZW-W002 module	USB-A (not USB)	MUSE-U	5 V
Haier	hOn / EVO	JST GH, 4-pin, 1.25 mm	MUSE-U	5 V
Hitachi	H-LINK; SPX-WFGxx module	CN7 · CN7A · CN7B	MUSE-U	12 V
Fujitsu General	UTY-TFSXW1, UTY-TFSXZ1, UTY-TFSXF3 modules	JST PAP-04V-S	MUSE-U	12 V
Mitsubishi Electric	split and ducted systems; MAC-567IF, MAC-577IF modules	CN105	MUSE-U	12 V
Daikin	split systems; BRP069, BRP072 modules	S21	MUSE-U	12 V
Panasonic	split systems; DNSK-P11, CZ-TACG1 modules	CN-CNT · CN-WLAN	MUSE-U	5 V
Panasonic	Aquarea heat pumps	CN-CNT	MUSE-U	—
Toshiba, Carrier	Wi-Fi module port	JST PA-SK, 5-pin	MUSE-U	5 V
Toshiba	Seiya series	CN22	MUSE-U	—
TCL, ACiQ	Tuya WBR1 module	CN-16	MUSE-U	5 V
JHS	—	WiFi pin header on board	MUSE-U	5 V
Innova	OSMO, M7 fan coils; INNOVA-WIFI-V0_3 module	Wi-Fi module pin header	MUSE-U	12 V
RS-485 bus				
Hisense, Tornado, Aircon International	split systems; AEH-W41H1 module	JST SM, 4-pin	MUSE-R	external
Samsung	MIM-H03, MIM-H04 modules (NASA, non-NASA)	F1 / F2 terminals	MUSE-R	external
Midea, MDV	light commercial ACs (XYE bus); MKG-300-C fan coils	X / Y / E terminals	MUSE-R	external
Shuft SFR V2	cassette fan coils; SX-QRD-R5F100 controller	RS-485	MUSE-R	external
Fan coils with Modbus RTU	Aertesi BMS-SP3 · Olimpia Splendid Bi2 · Sabiana Whisper · Innova AirLeaf, Filoterra	A / B terminals	MUSE-R	external

MUSE-U connects to the stock Wi-Fi module port with a cable matching the port connector; MUSE-R connects to the unit's RS-485 bus. One module serves one unit. Each brand's protocol is set by a firmware profile; check profile availability for a specific model when ordering. Other controllers with a 3.3 / 5 V UART, as well as Modbus RTU devices, are supported on request.