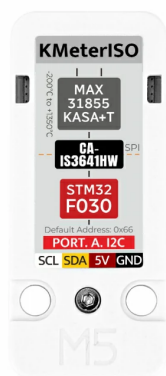


Unit KMeter-ISO

SKU:U133-V11



Description

Unit KMeter-ISO is an integrated K-type thermocouple sensor unit that combines "acquisition + isolation + communication" functions. It uses the STM32F030 + MAX31855KASA 14-bit thermocouple digital conversion chip solution to achieve high-precision temperature acquisition and conversion. The MCU uses STM32F030 for data acquisition and I2C communication interface, and **CA-IS3641HW** is used as the signal isolator. This unit supports the connection of thermocouple probes with a measurement range of -200°C to 1350°C, and uses a

universal standard K-type flat interface, making it easy to replace probes with different measurement ranges to meet various needs. This module is used in industrial automation, instrumentation, power electronics, heat treatment, and other fields for temperature acquisition, control, and monitoring applications.

Features

- STM32F030, high-performance ARM Cortex-M0 core, supports I2C firmware updates
- MAX31855KASA+T: (14-bit ADC, 0.25°C resolution, accuracy $\pm 2\%$)
- Supported probe type: K-type
- Supported probe measurement range: -200°C to 1350°C
- I2C communication interface address: 0x66
- Signal isolator CA-IS3641HW isolates input and output signals, improving stability, safety, and reliability.
- Supported programming platforms: Arduino, UIFlow

Includes

- 1 x Unit KMeter-ISO
- 1 x K-type thermocouple probe (measurement range -50°C to 250°C, 1m cable length)
- 1 x HY2.0-4P Grove cable (20cm)

Applications

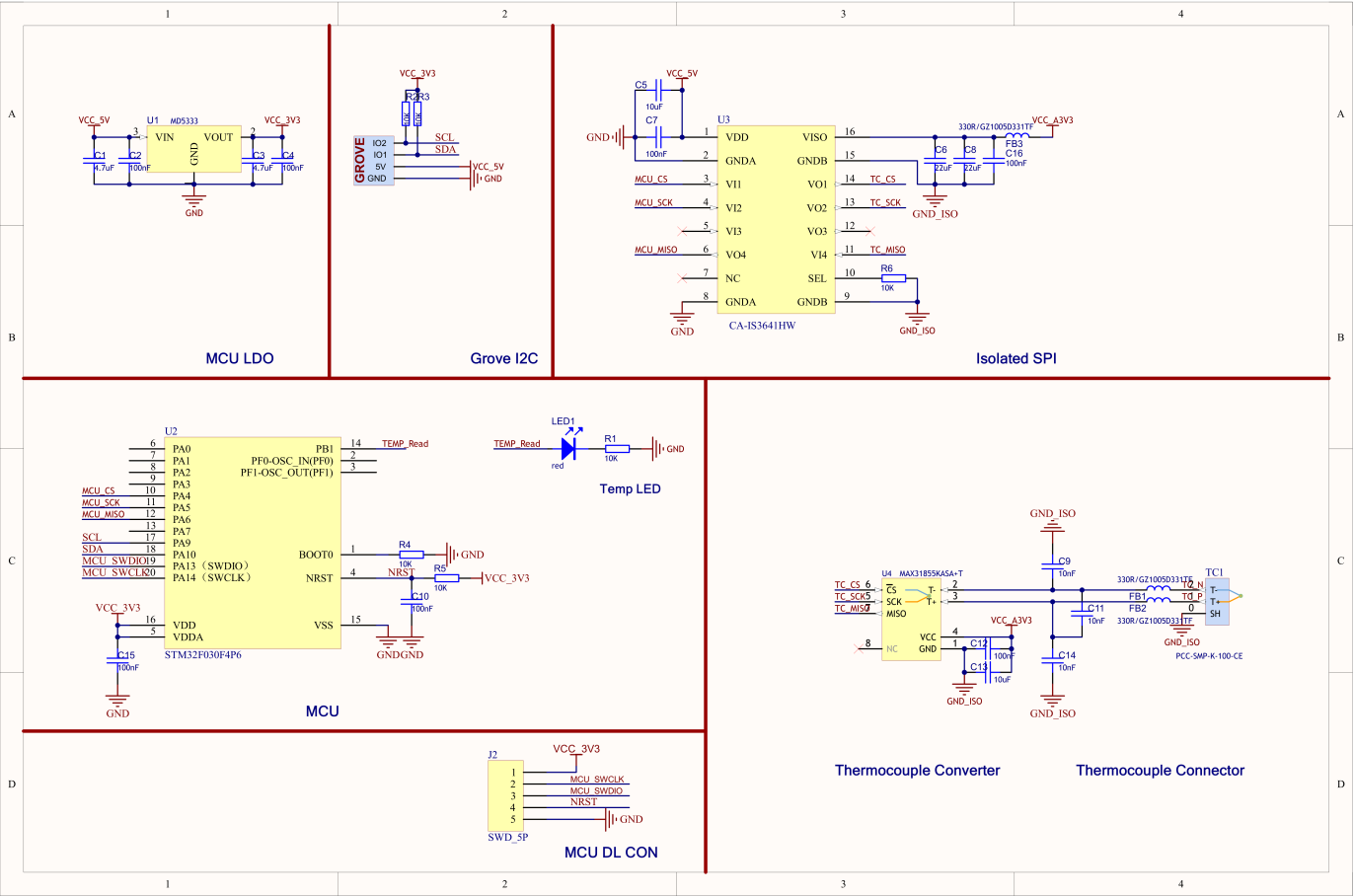
- Industrial automation
- Instrumentation
- Power electronics
- Heat treatment

Specifications

Specification	Parameter
MCU	STM32F030F4P6
Temperature sensor chip	MAX31855KASA+T
Signal isolation chip	CA-IS3641HW
Resolution	14-bit
Thermocouple operating range	-200°C to 1350°C
Thermocouple type	K-type
Maximum sampling rate	10 Hz
SPI interface clock range	Up to 5 MHz
Internal temperature sensor accuracy	±2°C
Thermocouple measurement accuracy	±2°C
Fault detection	Open circuit, short circuit, and thermocouple low voltage
STM32F030	ARM Cortex-M0, 48MHz, 64K flash, 8K SRAM
Communication Interface	I2C @0x66
Product Size	56.0 x 24.0 x 8.0mm
Product Weight	10.0g
Package Size	138.0 x 93.0 x 9.0mm
Gross Weight	22.0g

Schematics

- [Unit KMeter-ISO Schematics PDF](#)

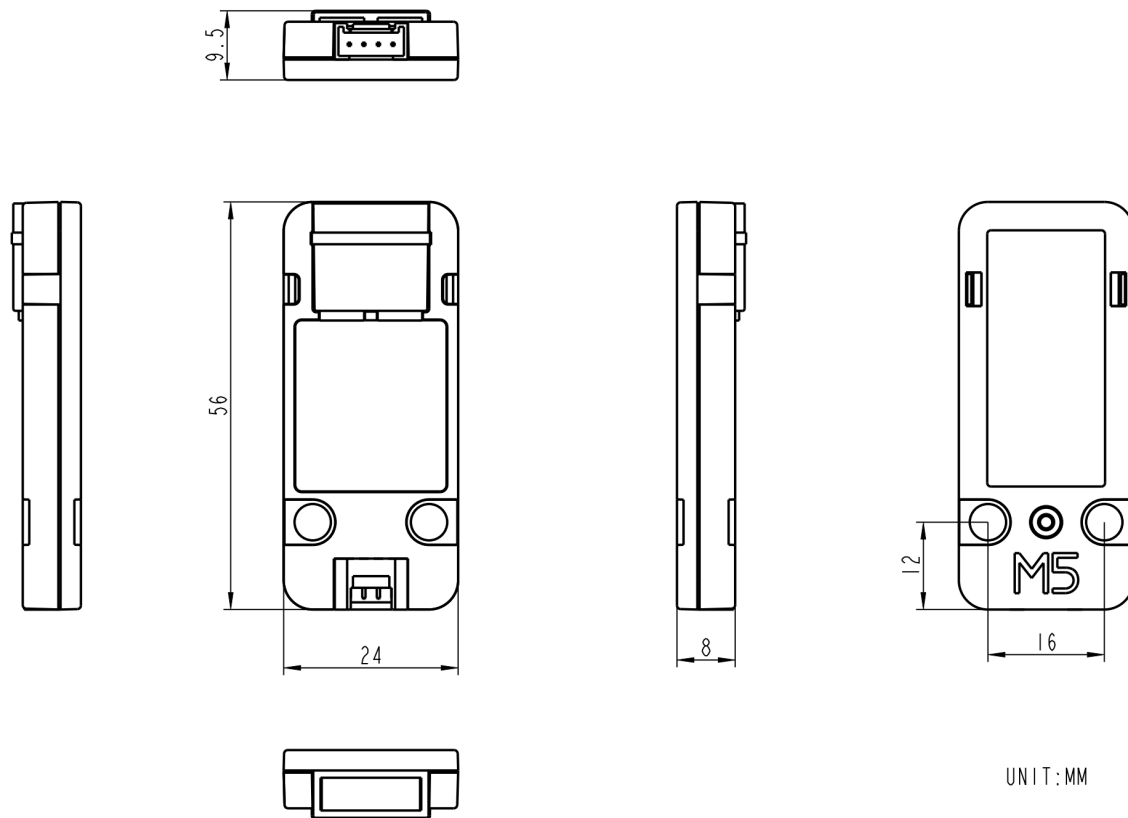


PinMap

Unit KMeter-ISO

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	SDA	SCL

Model Size



Structure

- [Unit KMeter-ISO Structure Files](#)

Datasheets

- [STM32F030F4P6 Datasheet](#)
- [MAX31855KASA+](#)
- [CA-IS3641HW](#)

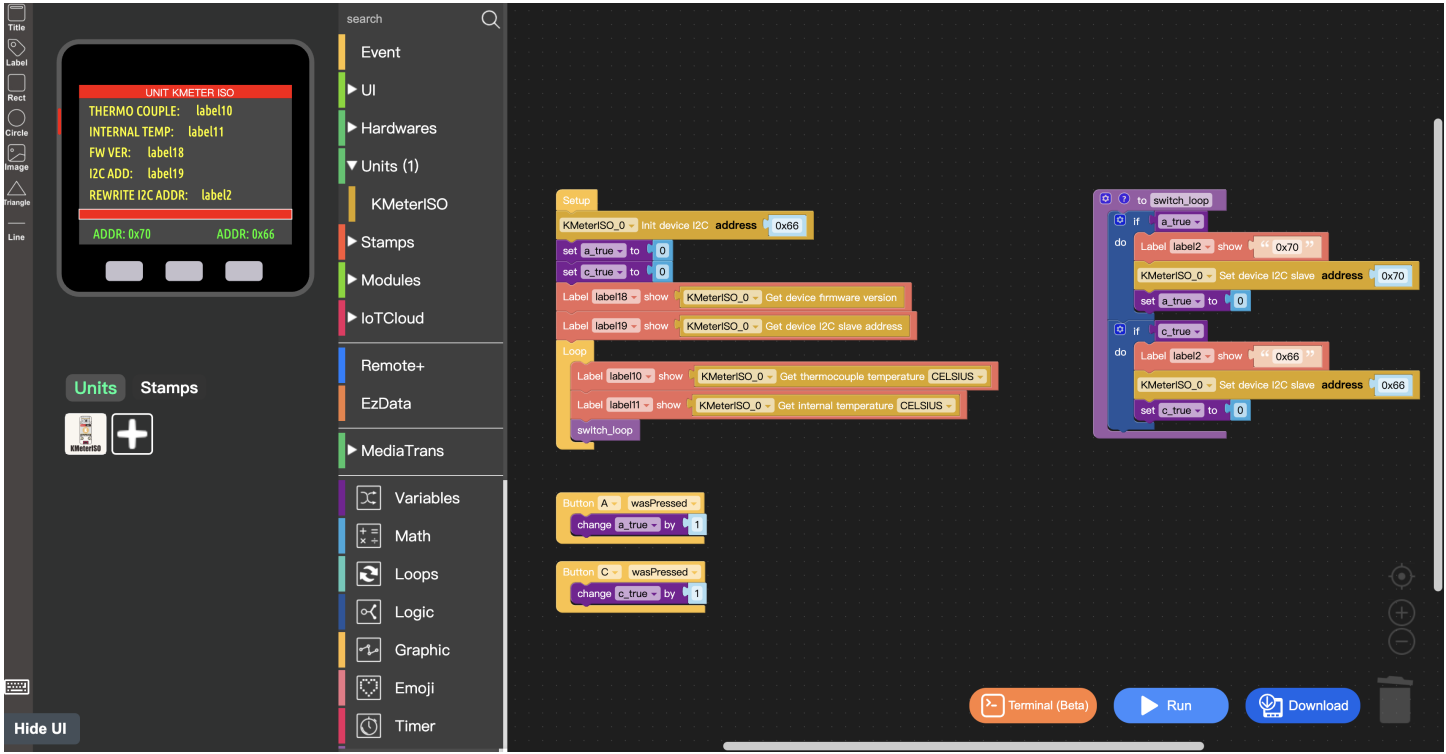
Softwares

Arduino

- [Unit KMeter-ISO Arduino Library](#)
- [Unit KMeter-ISO Arduino Tutorial](#)

UiFlow1

- [Unit KMeter-ISO UiFlow1 Docs](#)
- [Unit KMeter-ISO Test Example](#)



Home Assistant

- [Unit KMeter-ISO Home Assistant Integration](#)

Protocol

M5Stack Unit Kmeter I2C Protocol																	V1 (FW Version)	
																	2022/11/9	
REG MAP (Addr:0x66)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	note	
Temperature	0x00 R	K-Temp- Celsius- byte0	K-Temp- Celsius- byte1	K-Temp- Celsius- byte2	K-Temp- Celsius- byte3	K-Temp- Fahrenheit - byte0	K-Temp- Fahrenheit - byte1	K-Temp- Fahrenheit - byte2	K-Temp- Fahrenheit - byte3								Temperature: Setting value / 100 th	
Internal Temperature	0x10 R	Inter-Temp- Celsius- byte0	Inter-Temp- Celsius- byte1	Inter-Temp- Celsius- byte2	Inter-Temp- Celsius- byte3	Inter-Temp- Celsius- byte0	Inter-Temp- Celsius- byte1	Inter-Temp- Celsius- byte2	Inter-Temp- Celsius- byte3								Internal Temperature: Setting value / 100 th	
Ready	0x20 R	Ready															Ready: 0, Ready; other, not ready	
Celsius Temperature String	0x30 R	Sign-string	Thousands place-string	Hundreds place-string	Tens place- string	Ones place- string	‘.’	First decimal- string	Second decimal- string									
Fahrenheit Temperature String	0x40 R	Sign-string	Thousands place-string	Hundreds place-string	Tens place- string	Ones place- string	‘.’	First decimal- string	Second decimal- string									
Celsius Internal Temperature String	0x50 R	Sign-string	Thousands place-string	Hundreds place-string	Tens place- string	Ones place- string	‘.’	First decimal- string	Second decimal- string									
Fahrenheit Internal Temperature String	0x60 R	Sign-string	Thousands place-string	Hundreds place-string	Tens place- string	Ones place- string	‘.’	First decimal- string	Second decimal- string									
Firmware Version	0xF0 R															version		Version: firmware version number
I2C Address	0xF0 R															addr	Addr: I2C address: 0~127	

Video

- [Unit KMeter-ISO Product Introduction and Feature Demonstration](#)

[kmeter_video.mp4](#)

Version Change

Release Date	Product Changes
2023.4	Main controller changed from ESP32-C3 to STM32F030, added signal isolator CA-IS3641HW