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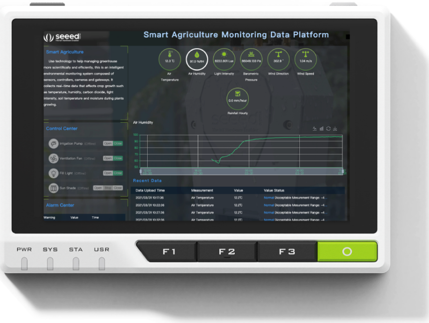
reTerminal

Microsoft
Azure Certified Device


seeed
Smart Agriculture Monitoring Data Platform
Smart Agriculture
12.3 ℃
Air Temperature
97.0 %RH
Air Humidity
8222.601 Lux
Light Intensity
86049.133 Pa
Barometric Pressure
302.9 °
Wind Direction
1.04 m/s
Wind Speed
0.0 mm/hour
Rainfall Hourly
Air Humidity
Control Center
Irrigation Pump (Offline) Open Close
Ventilation Fan (Offline) Open Close
Fill Light (Offline) Open Close
Sun Shade (Offline) Open Stop Close
Alarm Center
Warning
Value
Time
Recent Data
PWR
SYS
STA
USR
F1
F2
F3

Use technology to help managing greenhouse more scientifically and efficiently, this is an intelligent environmental monitoring system composed of sensors, controllers, cameras and gateways. It collects real-time data that affects crop growth such as temperature, humidity, carbon dioxide, light intensity, soil temperature and moisture during plants growing.

Data Upload Time	Measurement	Value	Value Status
2021/03/31 10:17:36	Air Temperature	12.2℃	Normal (Acceptable Mesurement Range: -4...
2021/03/31 10:22:36	Air Temperature	12.2℃	Normal (Acceptable Mesurement Range: -4...
2021/03/31 10:27:36	Air Temperature	12.2℃	Normal (Acceptable Mesurement Range: -4...

The Next Generation of Human-Machine-Interface with You.

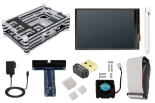
Introducing reTerminal, a new member of our reThings family. reTerminal is powered by a Raspberry Pi Compute Module 4 (CM4) and a 5-inch IPS multi-touch screen. This future-ready Human-Machine Interface (HMI) device can easily and efficiently work with IoT and cloud systems to unlock endless scenarios at the edge.

Raspberry Pi OS
Buildroot
Yocto
Ubuntu

TensorFlow
PyTorch
Keras
Edge Impluse

Qt
Flutter
Electron

*Supported by an active community

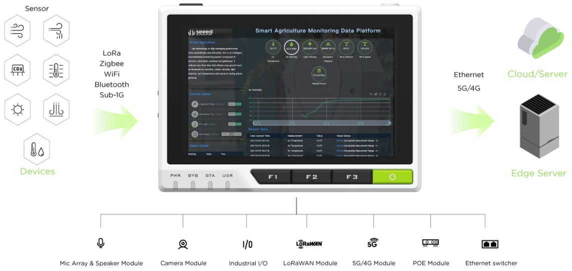


Integrated Design to Ensure High Stability

Hardware-Based Security

Powerful Expansibility for Various Applications

- **Raspberry Pi Compute Module 4 Quad-Core Cortex-A72 @ 1.5GHz**
- **Dual-Band 2.4/5GHz Wi-Fi and Bluetooth 5.0, BLE**
- **5-Inch LCD with Capacitive Multi-Touch 1280x720**
- **High-Speed Expansion Interface**
- **Up to 8GB RAM Up to 32GB eMMC**
- **Gigabit Ethernet Dual USB 2.0 Type-A**
- **Crypto-Auth Chip**
- **Real-Time Clock**


Sensor
Devices
LoRa
Zigbee
WiFi
Bluetooth
Sub-1G
seeed
Smart Agriculture Monitoring Data Platform
PWR
SYS
STA
USR
F1
F2
F3
Ethernet
5G/4G
Cloud/Server
Edge Server
Mic Array & Speaker Module
Camera Module
Industrial I/O
LoRaWAN Module
5G/4G Module
POE Module
Ethernet switcher

CM4104032 Included

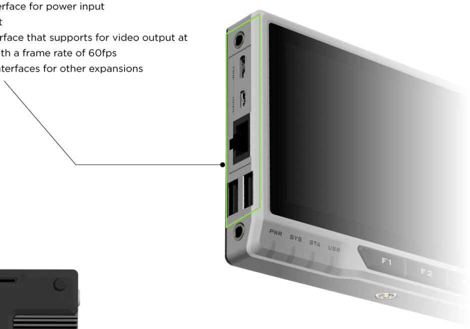
Modular design for Industrial Use
Embedded Linux with CM4

Easy to use and expand with a wide range of accessories

seeed
F1
F2
F3
seeed

Rich Interfaces on the Side to Keep It Neat and Expansible

- USB Type-C interface for power input
- Gigabit Ethernet
- Micro HDMI interface that supports for video output at 4K resolution with a frame rate of 60fps
- 2 USB Type-A interfaces for other expansions


PWR
SYS
STA
USR
F1
F2

Extensibility for Further Development, Industrial Connectors to Ensure High Stability

- 1 PCIe 1-lane Host, Gen 2 (5Gbps)
- 1 USB 2.0 port
- 26 x GPIOs
- PoE

F1
PWR
SYS
STA
USR

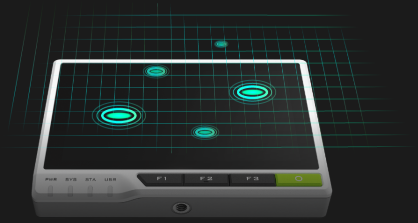
293
PPI
1280 × 720
Resolution

5-Inch IPS LCD with a 293 PPI

The display resolution is 1.6 times higher than the most common resolution of 800x480 for 5-inch displays.

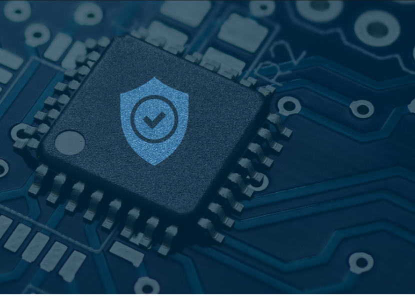
- With the 293 PPI (pixels per inch), reTerminal brings the exquisite vision experience of high definition and rich color.
- Comparing to TN displays, the IPS display of reTerminal offers a better angle of vision.

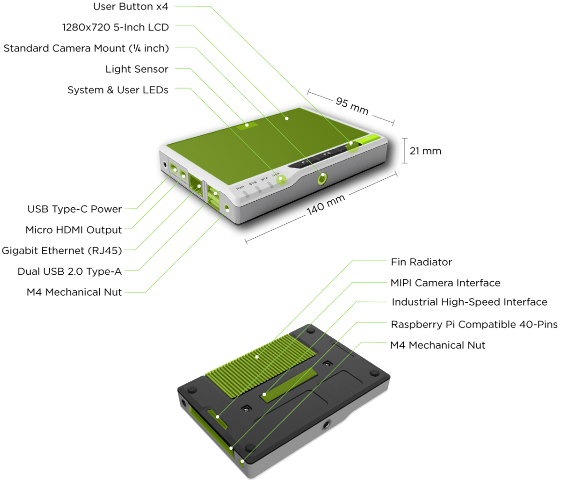
reTerminal with Capacitive Multi-Touch Screen


PWR
SYS
STA
USR
F1
F2
F3

Hardware-Based Security for IoT

- Cryptographic co-processor with secure hardware-based key storage
- Protected storage for up to 16 Keys, certificates or data
- Hardware support for symmetric sign, verify, key agreement - ECDSA
- Hardware support for symmetric algorithms
- Support for networking key management
- Secure boot support




User Button x4
1280x720 5-Inch LCD
Standard Camera Mount (¼ inch)
Light Sensor
System & User LEDs
95 mm
21 mm
140 mm
USB Type-C Power
Micro HDMI Output
Gigabit Ethernet (RJ45)
Dual USB 2.0 Type-A
M4 Mechanical Nut
Fin Radiator
MIPI Camera Interface
Industrial High-Speed Interface
Raspberry Pi Compatible 40-Pins
M4 Mechanical Nut

Specifications

Platform	Processor	Broadcom BCM2711 Quad-Core Cortex-A72 (ARM v8)
	Frequency	64-bit SoC @ 1.5GHz
Memory	Capacity	4GB (Optional 1GB, 2GB, 8GB)
	Technology	LPDDR4 (depending on model) with on-die ECC
eMMC	Capacity	32GB (Optional 8GB, 16GB)
	Bandwidth	100 MBps
Wireless	Wi-Fi	2.4GHz and 5.0GHz IEEE 802.11b/g/n/ac
	Bluetooth	Bluetooth 5.0, BLE
Display	LCD	5-inch 1280x720 LCD
	Touch Panel	Capacitive touch panel (supports 5-point multi-touch)
Video	HDMI	1 x Micro HDMI output (up to 4Kp60 supported)
	CSI	1 x 2-lane MIPI CSI camera interface
	Multimedia	H.265 (4Kp60 decode); H.264 (1080p60 decode, 1080p30 encode); OpenGL ES 3.0 graphics
Built-In Modules	Real-Time Clock	NXP Semiconductors PCF8563T
		Low backup current; typical 0.25μA at VDD = 3.0 V and Temperature = 25 ℃
	Accelerometer	STMicroelectronics LIS3DHTR
		16-bit, ±2g/±4g/±8g/±16g dynamically selectable full scale
	Encryption	Microchip ATECC608A
		Secure Hardware-Based Key Storage, Asymmetric Sign, Verify, Key Agreement
	Light Sensor	Levelek LTR-303ALS-01
		Digital light sensor
	Internal IO Expansion	Microchip MCP23008-E
External I/O	GPIOs	Up to 5 × UART; Up to 5 × I2C; Up to 5 × SPI; 1 × SDIO interface; 1 × DPI (Parallel RGB Display);
		1 × PCM; Up to 2× PWM channels; Up to 3× GPCLK outputs
	Vertical Expansion Interface	1 × PCIe 1-lane Host, Gen 2 (5Gbps); 1 × USB 2.0 port; 26 x GPIOs; PoE
	Others	Gigabit Ethernet port (RJ45)
		Dual USB 2.0 Type-A ports
Power	Input Power	5V@2A DC
Mechanical	Dimensions	140 x 95 x 21 mm