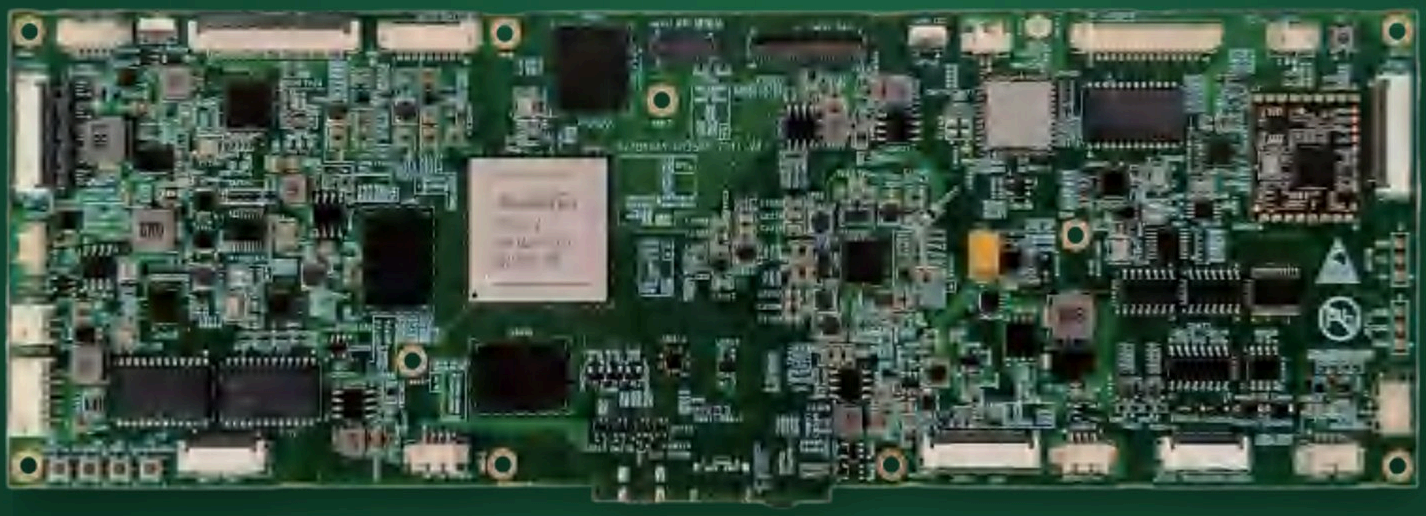
EQIO

WJ-MT

PRODUCT MANUAL

RK3588M Control-Terminal Main Board

Rockchip RK3588M 8-core processor



Measurement and control, made easy.

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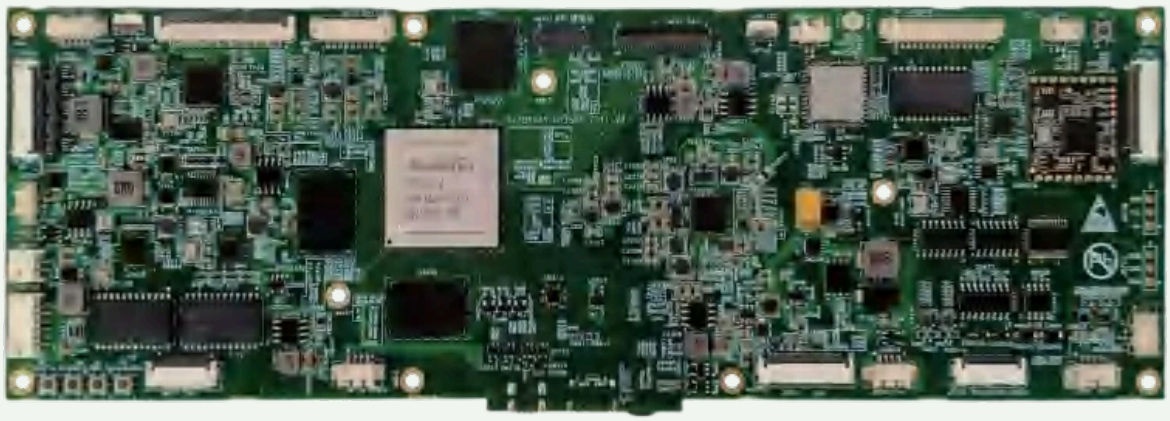
Easy · Quick · Input · Output

01 OVERVIEW

RK3588M Control-Terminal Main Board

Control and payload main board · HMI · Embedded display-control · Intelligent terminal · Rockchip

WJ-MT uses RK3588M 8-core processor, standard 8GB memory and 128GB storage, runs UnionTech Desktop OS, provides touch display, ambient-light sensing, RTC and multi type peripheral connection capability, suited to embedded HMI terminal development.
POGOPIN I/O can centralized connect data, network and power signal, Type-C supports USB OTG. Main board display HMI and industrial peripheral connection combination, facilitates development portable control terminal, field display panel and equipment HMI.



Product appearance reference; shipped units may differ.

Key features

- RK3588M 8-core compute platform
- 8GB memory and 128GB storage
- Touch connect, ambient-light sensing and RTC
- Gigabit Ethernet, RS-232 and RS-422
- POGOPIN and USB OTG connect

02 FUNCTIONS

Functions and engineering value

Terminal controller and touch display

RK3588M 8-core controller configured with 8 GB memory and 128GB storage, runs UnionTech Desktop OS, supports touch and at least 1920 × 1080 display. Can for developing equipment operator UI, display selection, touch driver and installation structure must be coordinated with terminal design completed together.

Dock data and power integrates

POGOPIN I/O centralized includes USB2.0, 100 Mb Ethernet, 15V power, 2-ch IO and 3.3V TTL serial signal, can together with custom dock organize connect. This I/O provides stated data and power resources, actual contact can reliability, plug procedure and connect protection should be product verification.

Industrial connect and brightness adjust

Gigabit Ethernet, RS-232, RS-422, USB and Micro HDMI supports peripherals and display connection, Type-C includes USB OTG, separately provided Type-C form debug interface. Environment optical perception and RTC can supply terminal application used, facilitates build with optical line change adjust brightness display-control equipment.

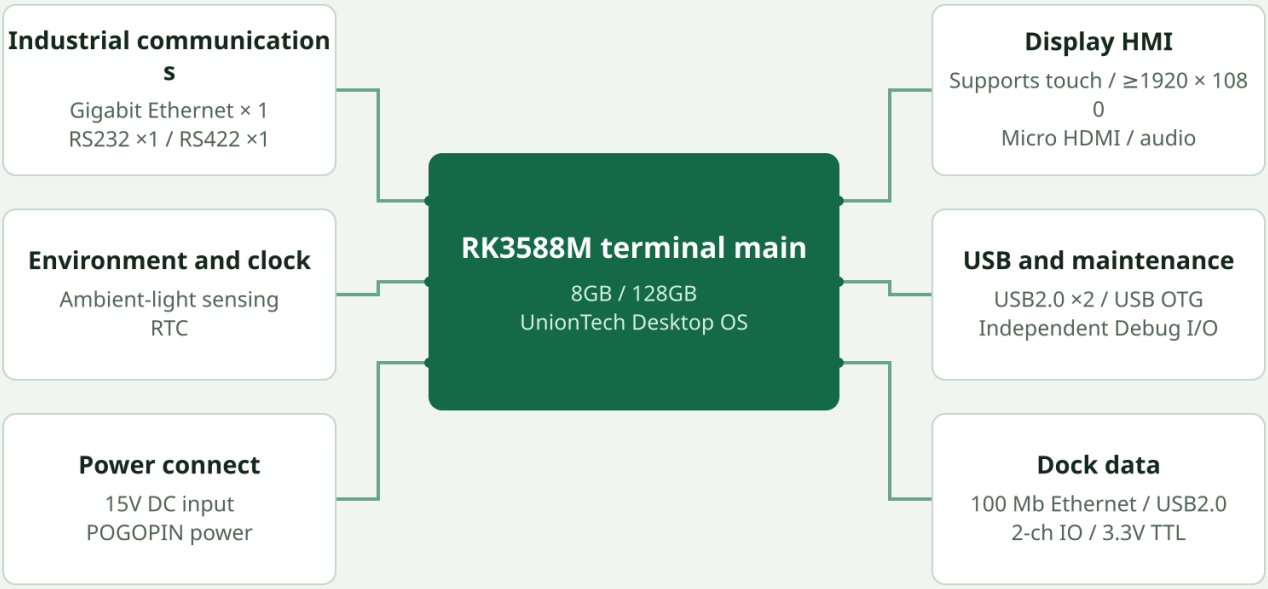
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Product functional architecture

FUNCTIONAL BLOCK DIAGRAM

WJ-MT



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

From published specification illustrative functional grouping, does not show internal circuits, on-board bus or signal routing; I/O direction actual protocol shall prevail.

Platform and I/O

Uses RK3588M 8-core processor, clock at least 2.0GHz, configured with 8 GB memory and 128GB storage, runs UnionTech Desktop OS. Device profile provides A76/A55 8-core structure and NPU rated capability; this product terminal main board, product display, power and protection conditions from integrates solution determines.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Core system

Processor	Rockchip RK3588M, 8 core, clock≥2.0GHz
Capacity	8GB + 128GB (standard)
Display	Supports touch; resolution≥1920 × 1080
Operating system	UnionTech Desktop OS

Mechanical specifications and system requirements

Environmental ratings	Operating temperature: -40°C~55°C, storage temperature: -45°C~60°C, relative humidity (RH): 20%–80%
Power	DC15V power, power adapter standard voltage 230V, standard frequency 50Hz, C type plug

I/O and expansion

I/O specification	Gigabit Ethernet port*1, RS-232*1, RS-422*1, USB2.0*2, Micro HDMI I/O*1, standard 3.5mm audio I/O*1 Type-C I/O*1 (includes 1-ch USB OTG function), Debug I/O*1 (I/O form type C)
POGOPIN I/O	1 (USB2.0*1, 100M network*1, 1 group input 15V power (charging), 2 IO signal and 3.3V TTL serial signal)
Ambient-light sensing	Supports ambient-light sensing function, can enough according to optical line brightness adjust display brightness
Clock	Supports RTC

05 COMPONENTS

Processor and device specifications

Device figures come from vendor publications and describe the chip or module. The implemented product follows the specification tables. Optional devices are supplied with the selected configuration.

Rockchip RK3588M

Process	8 nm
CPU structure	4 × Cortex-A76 + 4 × Cortex-A55, 8-core
NPU rated	6 TOPS
SoC display engine capability	8K display/video, native seven display display capability
SoC native Type-C controller	2-ch
SoC imaging processing resources	Dual 16M ISP, at least 12-ch camera supports

Sources: Rockchip, Rockchip release RK3588M intelligent vehicle-mounted surround view solution.

06 APPLICATIONS

From product capability to applications

Portable control terminal development

Can around main board design touch display, keys and enclosure, network and serial brought out target equipment I/O, UnionTech system hosts operation application. Main board provides is compute and connect resources, product protection, power runtime and control structure must be final terminal design determine.

Equipment embedded display-control panel

Main board installation equipment panel rear method, touch display used for parameters settings and status view, RS-232/RS-422 and equipment control system switch data. Environment optical perception can auxiliary brightness adjust, UI response, driver compatible and electromagnetic environment should combined with product test.

With dock intelligent terminal

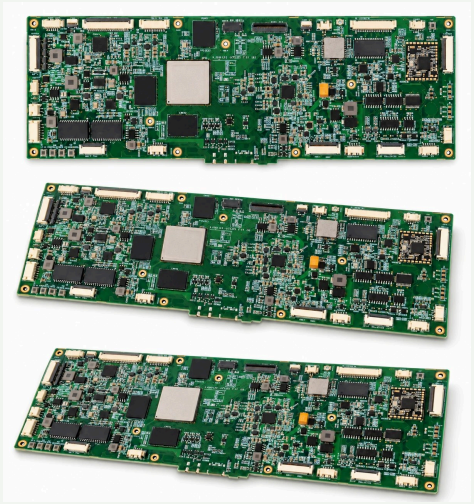
POGOPIN provides data, network and power combination, can used for planning terminal and workstation dock connect method. Mobile end completes view and operation, connect dock rear per software design performs data HMI; hot-swap, charging management and fault connect required stated implements conditions.

Integration checks

Display adapts	Confirm touch display model, display connection method and UnionTech system driver.
Dock design	Check POGOPIN pinout, 15V input, 3.3V TTL and IO direction.
Maintenance I/O	Distinguish USB OTG Type-C and Debug Type-C connect purpose.
Product constraint	Confirm board dimensions, installation cooling and power solution; not need apply terminal enclosure protection etc.grade.

07 CONFIGURATION

Appearance, configuration and selection



Multi-angle reference (generated from product photos); shipped units may differ.

Configuration

Uses 15V DC power and UnionTech Desktop OS, settings Type-C form debug interface.

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

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