# 2-Master Buffered RS-232 DIN-Rail Hub

Model: FCC-1210-R1R2M

Two distribution ports + one hub port

Up to 10K bytes of cache · Dual mode switching

DC 9–70 V · Isolated at 3 kV per channel



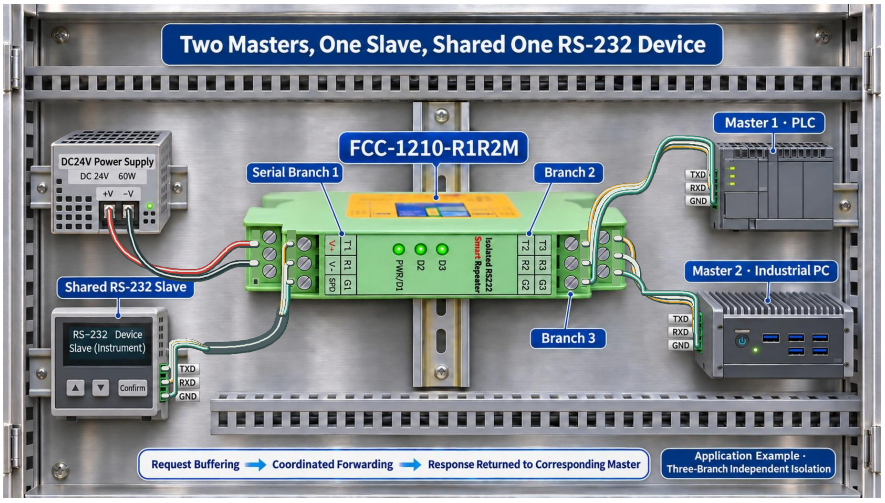

## Product Overview

- Two RS-232 masters, such as PLCs or industrial PCs, share one slave. Connect masters to distribution ports 2/3 and the slave to hub port 1.
- Up to 10K bytes of buffering and intelligent frame recognition coordinate requests/responses for faster communications and error handling. Switchable to one-master/two-slave mode.
- Each serial port has a separate G terminal. The three serial grounds and power ground have mutual 3 kV isolation, reducing ground-potential interference and fault propagation.

## Key Features

- **Buffering** Two masters share slave data, caching requests and responses.
- **Dual Mode** Two masters and one slave/one master and two slaves, via supporting software switching.
- **Port Setup** The rates and communication parameters for the three ports can be set separately.
- **Port Protection** Each serial port and power supply have 6 kV surge protection.
- **Isolation** 3 kV optocoupler and isolated power supply per port, G1/G2/G3 independent.

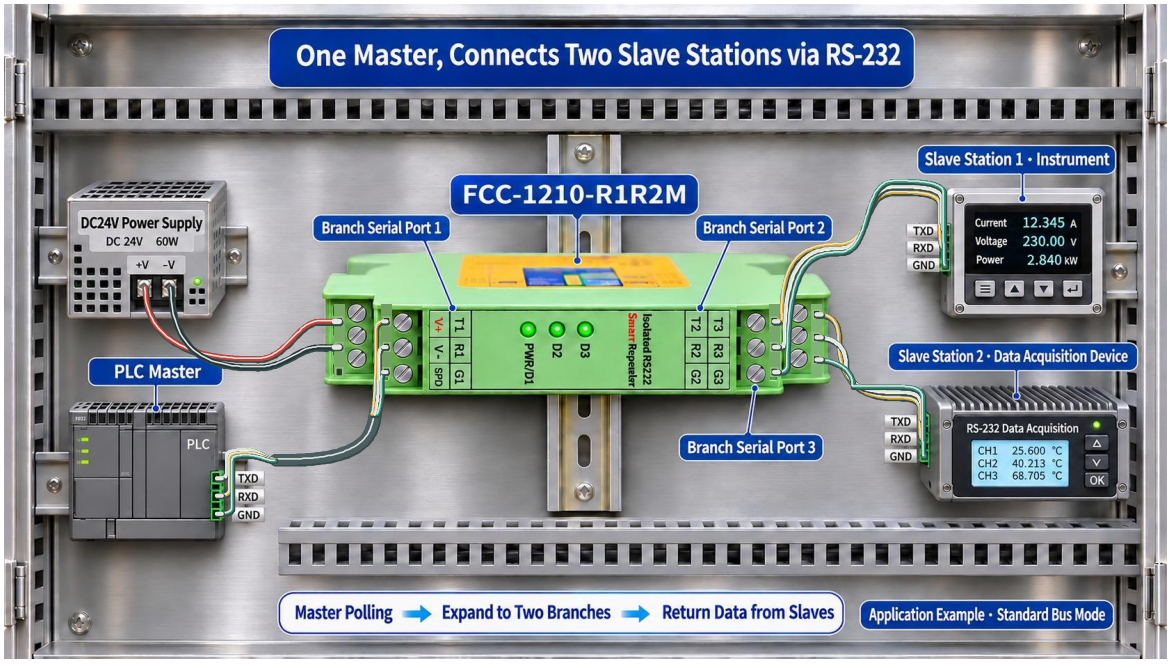
## Typical application: two masters and one slave cache coordination.




Application diagram: Master stations 1 and 2 connect to distribution ports 2 and 3, sharing RS-232 slave stations connected to hub port 1; DC 24 V is used as power supply example.

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## Typical application: one master and two slaves branch access.




The software switches to the normal hub mode: the PLC master station connects to port 1, and ports 2 and 3 are connected to the RS-232 slave stations respectively.

Supports multiple slave stations sending data to the master station; polling and responses are arranged according to the upper-layer communication protocol on-site. See the next page for terminal definitions.

## Communication Mode and Configuration

| Item | Technical specifications and operating instructions |
|---|---|
| Interface and Standards | Three RS-232 lines: one hub port + two isolated distribution ports; EIA/TIA-232, RS-232 (ITU-T V.28); TXD, RXD, GND three lines. |
| Caching and response | Up to 10K bytes of cache, coordinating multiple communications; intelligent data frame recognition, accelerating communication responses and error responses. |
| Two masters and one slave | Default mode. Two master stations connect to ports 2 and 3 respectively, and slave stations connect to port 1; coordinated caching allows access to the same slave station. |
| One master, two slaves | The configuration software can be used to switch to ordinary hub mode. The master station is connected to port 1, and the two slave stations are connected to ports 2 and 3 for expanding RS-232 branches. |
| Rate and Frame Format | Each port configurable at 1200–115200 bps; default: 9600 bps, no checksum, 8 data bits, 1 stop bit. |
| Configuration Method | Software configured for matching can set communication modes and parameters for each RS-232 port; each port is configured separately. |
| Status Indicators | PWR/D1, D2, D3 indicators are located on the front for easy observation of power supply and port communication status; see the marked diagram on the device. |

## Port roles for both modes

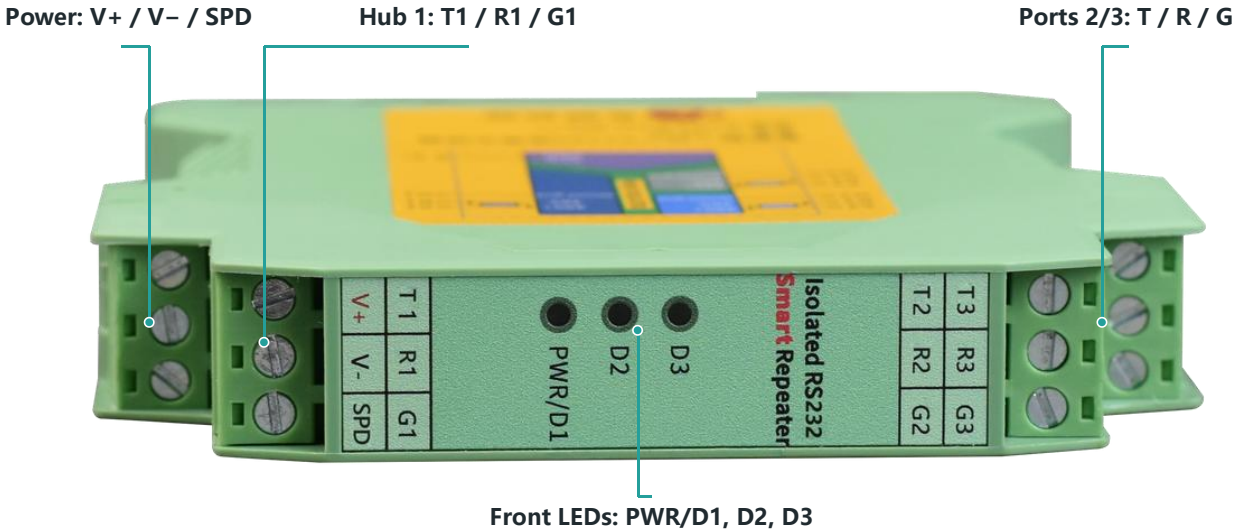
| Mode | Hub port 1 | Port 2/3 |
|---|---|---|
| Two masters and one slave | Connect to shared RS-232 slave station | Connected to Master Station 1 and Master Station 2 respectively. |
| One master, two slaves | Connect to RS-232 master station | Connected to Slave Station 1 and Slave Station 2 respectively. |

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## RS-232 three-wire connection

| This device' s terminals | Counter-party signal | Connection instructions |
|---|---|---|
| Tn(TXD) | RXD | This device allows transmission from the sender to the receiver. |
| Rn(RXD) | TXD | This device receives transmission from the sender. |
| Gn(GND) | GND | Connect signal ground to corresponding port ground; n is 1, 2, or 3, and grounds of different ports are not connected together. |

## Interfaces and Installation

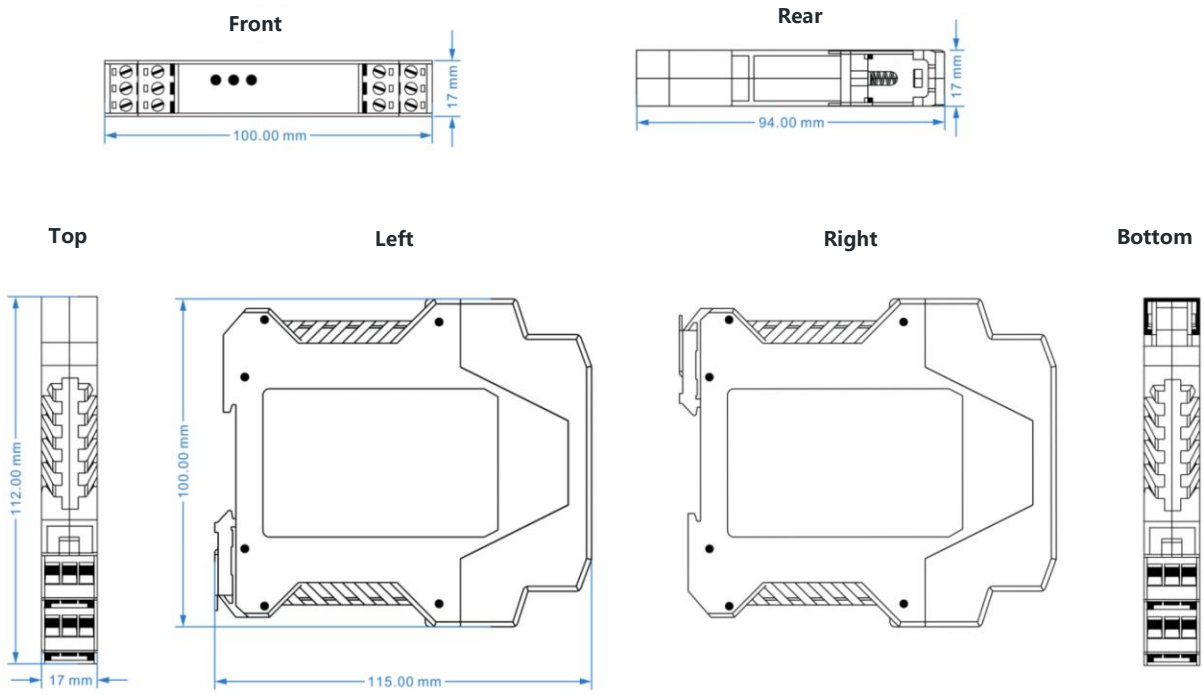



The actual panel remains unchanged. Tn refers to TXD, Rn refers to RXD, and Gn refers to the independent signal ground of this port; the transmitting and receiving signals are cross-connected with the opposite end.

| Terminal group | Definition and Connection |
|---|---|
| Hub port 1 | Left internal row T1/R1/G1; connect to common slave or PLC master according to operating mode. |
| Port 2, 3 | T2/R2/G2 for the right inner row, T3/R3/G3 for the right outer row. G1, G2, and G3 are isolated from each other and do not share the power negative terminal. |
| Power Supply and Auxiliaries | Left external row V+/V− for DC 9–70 V, connect according to polarity; SPD auxiliary terminals use the matching wiring instructions. |

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## Complete physical and mounting dimensions




Unit: mm. Six views and all local dimensions are retained as in the original drawing; side view: 115 × 100 mm, front thickness: 17 mm.

Supports 35 mm DIN rail installation, with a weight of approximately 0.15 kg/unit; terminal wiring space is reserved during installation.

## Individual isolation and surge protection

| Item | Specifications/Conditions | Protection and application instructions |
|---|---|---|
| RS-232 surge protection | 6 kV per channel, three-level surge protection | Individual protection for each serial port, preventing lightning-induced high voltage and switching surge from entering through the communication lines. |
| Signal Isolation | High-speed optocoupler isolation per channel at 3 kV | The three-channel communication signals are isolated by high-speed optocouplers to reduce signal interference. |
| Power isolation | 3 kV isolation DC-DC power supply per channel | Each port uses isolated power supply; the power ground is isolated from grounds of ports 1, 2, and 3. |
| Independent signal ground | G1/G2/G3 are independent of each other, 3 kV between grounds | Each channel has a separate ground interface; the three ports are isolated from each other, reducing ground potential difference interference and limiting cross-channel failure propagation. |
| Power supply surge protection | 6 kV | Power interface provides surge protection and overcurrent protection, as well as reverse-polarity protection. |
| AC Misconnection Protection | AC 220 V/AC 380 V misconnection fault | When an RS-232 connection mistakenly uses the above AC voltage, isolation can protect other serial devices on the other side; this is a misconnection fault protection condition. |
| Serial port surge test criteria: GB/T 17626.5 (IEC 61000-4-5); 10/700 μs open-circuit voltage waveform; open-circuit peak voltage 6 kV; test source impedance 40 Ω. | | |

AC connection faults and surge test conditions are not considered normal operating input voltages, and do not indicate that the faulty port is undamaged or still communicable.

## Power, structure, and environment

| Item | Technical Specifications |
|---|---|
| Power Supply and Power Consumption | DC 9–70 V; Total power <1 W; 5.08 mm pitch power terminals with 3 pins; Supports overload and reverse-polarity protection. |

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| Item | Technical Specifications |
|---|---|
| Structure and Installation | Modular rail housing, 35 mm DIN rail mounting; fanless high-efficiency cooling, easy to install and maintain; approx. 0.15 kg/unit. |
| Temperature and humidity | Operating and storage temperatures: −40–+85 °C; operating humidity: 0–95% RH, no condensation. |
| Reliability and Compatibility | MTBF >200,000 hours; 100% burn-in tested; meets Industrial Level 4 EMC requirements. |

## Back side rail mounting structure



Physical appearance on back side. Fixed to 35 mm DIN rail via rail clips; ensure clips are locked during installation.

## Model Composition and Order Definition

| FCC- | 1210- | R1 | R2M |
|---|---|---|---|
| Product prefix. | Modular rail-based series | One RS-232 hub port | Two RS-232 allocation ports; M is a cache type. |

| NO | Name | Definition / Ordering instructions |
|---|---|---|
| 1 | FCC | Feichang product prefix; order by full official model. |
| 2 | 1210 | This modular DIN-rail isolated hub series code. |
| 3 | R1 | One RS-232 hub port, corresponding to the T1/R1/G1 terminal group. |
| 4 | R2M | Two RS-232 allocation ports, corresponding to T2/R2/G2 and T3/R3/G3 terminal groups. M indicates a cache type. |
| 5 | Communication Configuration | Caching two master one slave, supports software switch from one master to two slaves; please indicate the operating mode and communication parameters for each port when ordering. |
| 6 | Matching requirements | Power, RS-232 cable, and installation accessories must be specified in the order request. |

| Full Model Code | Configuration |
|---|---|
| FCC-1210-R1R2M | Isolated RS-232 for three channels, up to 10K bytes of cache; DC 9–70 V; two master-one slave / one master-two slaves mode; 35 mm rail mounting. |

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