Multi Master Modbus Converter

Two Modbus RTU masters share a single downstream slave — transparent passthrough with <50 ms response.

The Wiman WT20C is a high-performance Modbus RTU protocol converter that lets two independent masters read from and write to the same downstream slave device — simultaneously and without collision. It arbitrates the shared serial bus in firmware, corrects checksum errors on the fly and preserves the master's original polling cadence. Ideal for automation and utility deployments where a PLC, SCADA, MDC or IoT gateway needs to share a meter, drive or controller without re-cabling or protocol changes.

KEY FEATURES

- **2 Masters : 1 Slave**
  Seamlessly connects two Modbus RTU master devices with a single downstream slave.
- **Ultra-fast response (<50 ms)**
  Bus arbitration completes in under 50 ms — masters see no perceptible slowdown.
- **Inbuilt checksum correction**
  Detects and automatically corrects CRC-based frame errors on the shared bus.
- **Configurable options**
  Per-port baud rate, priority master selection and inter-frame timing — all field-settable.
- **Three isolated RS-485 ports**
  1× downstream slave + 2× upstream masters. All half-duplex, 2400 - 115200 bps.
- **Industrial supply range**
  Wide 12 - 24 V DC input · reverse-polarity protected · works from any panel PSU.

WIRING

- Pin 1 (+12V) & Pin 2 (GND) ← enclosure PSU, 12 - 24 V DC.
- Pin 3 (D+/Rx) & Pin 4 (D-/Tx) → downstream SLAVE device (meter / drive / PLC).
- Pin 5 (D+/Rx) & Pin 6 (D-/Tx) ← upstream MASTER 1 (e.g. utility MDC / PLC).
- Pin 7 (D+/Rx) & Pin 8 (D-/Tx) ← upstream MASTER 2 (e.g. SCADA / IoT gateway).
- Terminate the SLAVE bus with 120 Ω across D+ and D- at the far end.

LED INDICATORS

RX
Receive activity on any port

TX
Transmit activity on any port

CON
Bus state · blink=live, solid=fault

PWR
Power good · solid when powered

SPECIFICATIONS

Product code	**WT20C**
Protocol	**Modbus RTU (transparent passthrough)**
Topology	**2 Masters : 1 Slave (shared bus arbitration)**
Response time	**< 50 ms per master query**
Supply voltage	**12 - 24 V DC (reverse-polarity protected)**
Supply current	**< 120 mA typical @ 12 V**
Downstream (SLAVE)	**RS-485 half-duplex, 2400 - 115200 bps**
Upstream (MASTER 1)	**RS-485 half-duplex, 2400 - 115200 bps**
Upstream (MASTER 2)	**RS-485 half-duplex, 2400 - 115200 bps**
Checksum correction	**Inbuilt CRC-16 error recovery**
Operating temperature	**-20 to +70 °C**
Enclosure	**ABS · desktop / DIN-rail · 8-pin pluggable terminal**

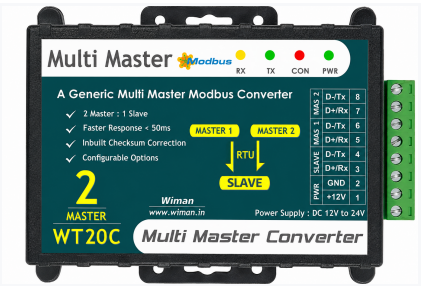
TYPICAL APPLICATIONS

- Industrial automation — shared PLC / drive access
- SCADA integration onto existing Modbus RTU trunks
- Building management (BMS) — twin front-end read
- Utility metering — MDC + customer gateway on one meter
- Remote device monitoring — local HMI + cloud in parallel

Configuration Commands

AT-style command set for setting device ID, port parameters, and timeouts.

The WT20C is configured via short AT-style commands. Each command begins with a prefix — +S… to set a value, +G… to read it back — and ends with a semicolon. Multiple parameters can be chained in one line using ';' as a separator. Commands are sent as ASCII text at the port's default rate (9600 8N1).



WT20C — physical device

SET COMMANDS (+S…)

COMMAND	PURPOSE	EXAMPLE
`+SDEV:ID=<n>;`	Set software device ID	`+SDEV:ID=50;`
`+SCOM:COM=<port>,<baud>,<bits>,<parity>,<stop>;`	Set serial port parameters	`+SCOM:COM=0,2,0,0,0;`
`+SCOM:MTIM=<recv_ms>,<inter_ms>;`	Set receive & inter-character timeouts	`+SCOM:MTIM=1000,20;`

READ / GET COMMANDS (+G…)

COMMAND	RETURNS
`+GDEV:`	Read device settings (ID, firmware, uptime, etc.)
`+GCOM:`	Read serial port + timeout settings

PARAMETER REFERENCE

COM = port , baud , bits , parity , stop

port — Port index
0 = SLAVE · 1 = MASTER 1 · 2 = MASTER 2

baud — Baud rate index (0-6)

0	1	2	3	4	5	6
2400	4800	9600	19200	38400	57600	115200

bits — Data bits
0 = 8 bits (default) · TBD for others

parity — Parity
0 = None · 1 = Odd · 2 = Even

stop — Stop bits
0 = 1 stop · 1 = 2 stops

MTIM = recv_ms , inter_ms

recv_ms — Receive timeout in milliseconds
1000 = 1 s

inter_ms — Inter-character timeout in milliseconds
20 = end-of-frame gap

EXAMPLES

Default setup — ID 50, SLAVE port 9600 8N1, standard timeouts

```
+SDEV:ID=50;
+SCOM:COM=0,2,0,0,0;MTIM=1000,20;
```

Read current device + COM settings

```
+GDEV:
+GCOM:
```

Reconfigure MASTER 2 to 19200 8N1 with tighter inter-char gap

```
+SCOM:COM=2,3,0,0,0;MTIM=1000,10;
```

NOTES

- Semicolons separate parameters; each full command line ends with a semicolon.
- Commands are case-sensitive — use uppercase prefixes (+S, +G) exactly.
- The device echoes each accepted command back as OK; errors return ERR.
- Settings persist in non-volatile memory — no need to re-send after power-cycle.