

MODBUS RTU SETUP FOR HITACHI SJ700/SJ700N DRIVES

Parameters from Manual (Section 4-115)

1. C071: Communication speed selection (**Baudrate**)
 - Default: Not stated.
 - Required Value: 3 (2400 bps), 4 (4800 bps), **5 (9600 bps)**, or 6 (19200 bps). (e.g., 5 for 9600 bps).
2. C072: Node allocation (**DEVICE ID**)
 - Default: Not stated.
 - **Required Value: Set to the desired slave address (1 to 32). (e.g., 1. for address 1).**
3. C073: Communication data length selection
 - Default: Not stated.
 - **Required Value: 8 (8 bits). Modbus RTU requires 8 data bits.**
4. C074: Communication parity selection
 - Default: Not stated.
 - Required Value: **00 (No parity)**, 01 (Even parity), or 02 (Odd parity). (e.g., 00 for 8N1).
5. C075: Communication stop bit selection
 - Default: Not stated.
 - Required Value: **1 (1 stop bit)** or 2 (2 stop bits). (e.g., 1 for 8N1).
6. C079: Communication mode selection
 - Default: Not stated.
 - **Required Value: 01 (Modbus-RTU mode). This is critical.**
7. A002: Run command source setting
 - Default: Not stated.
 - Required Value: Must be set to 03 to enable control via Modbus communication coils (0001h, 0002h).
8. A001: Frequency source setting
 - Default: Not stated.
 - Required Value: Must be set to 03 to enable frequency reference via Modbus register F001 (1101h/1102h).

HIGHLIGHTED CONFIGS ARE FOR VFD CONTROLS

Menu Path (Using Digital Operator):

The manual does not provide an exact key sequence. The standard method is to navigate the parameter groups (A, b, C, etc.) using the MODE/SET key. Navigate to group C parameters and set C071, C072, C073, C074, C075, and C079 as above. Then navigate to group A parameters and set A002 and A001 to 03.

Verification:

- Master Settings: Address=1, Baud=9600, Data=8, Parity=None, Stop=1.
- Test Command: Read the Output Frequency holding registers (41001-41002 / 0x1001-0x1002). A successful response confirms communication is configured correctly.

RS-485 Wiring & Termination

Terminal Information (From Manual Section 4-114)

- Terminal Block: TM2 on the control circuit terminal block board.
- Terminals:
 - SP: Positive signal terminal for transmission (RS-485 B/+)
 - SN: Negative signal terminal for transmission (RS-485 A/-)
 - RP: Terminal to enable the terminating resistor (Jumper to SN)
 - SN: Terminal to enable the terminating resistor (Jumper to RP)

Wiring Instructions:

- Cable: Recommended wire: Solid-core 0.14mm²-1.5mm². Use shielded, twisted-pair cable.
- Connection: Connect all inverters in parallel to the master. Connect Master B/+ to all inverter SP terminals. Connect Master A/- to all inverter SN terminals.
- Termination: The inverter has a built-in 120Ω termination resistor. To enable it, install a jumper between the RP and SN terminals on the TM2 block. This must be done only on the inverter(s) at the physical ends of the RS-485 network. If only one inverter is connected, it must be terminated.
- Shielding: The manual specifies wire types but does not explicitly state shield connection practices. Best practice is to connect the cable shield to earth ground at one point only, typically at the master end, to avoid ground loops. Do not ground the shield at both ends.

Wiring Diagrams:

- Single Node: Master B/+ -> Inverter SP; Master A/- -> Inverter SN; Jumper RP to SN on the inverter.
- Multi-Node (2 shown): Master B/+ -> Inverter1 SP -> Inverter2 SP; Master A/- -> Inverter1 SN -> Inverter2 SN; Jumper RP to SN only on Inverter2 (the end node).
- Fail-Safe Biasing: The manual does not mention fail-safe biasing resistors. They are not typically needed for short runs or in electrically quiet environments. For long cables or noisy environments, a 1kΩ pull-up resistor to +5V on B/+ and a 1kΩ pull-down resistor to GND on A/- at the master can be added to ensure a known idle state.

ACTUAL PORTS

HITACHI SJ-700

PORTS: [SP,SN,RP]

