Connect and configure an ETC gateway

Identify the unit, choose the required data path, then prove one meter before expanding the network.



ETC II
Pass-through gateway and embedded Data Server functions.



ETC One Plus
Pass-through gateway. Photo shows an antenna-equipped example.

Compare the nameplate, not just the enclosure

These official manufacturer photographs help identify the product family. They do not establish the installed supply rating, communications option, firmware or terminal assignment. Photograph the nameplate, complete front panel and fitted connectors. Use the manual matching that unit.

Before wiring work: qualified personnel must isolate incoming sources and follow the applicable manual. Do not move live conductors to perform a communications test. Confirm the fitted supply from its actual label.

Choose the commissioning path

Required result	Use this guide
The BMS reads original meter registers through the ETC.	ETC II pass-through: page 2. ETC One Plus: page 4.
ETC II polls meters and the BMS reads stored exchange data.	ETC II Data Server / concentrator: page 3.

Evidence: ETC II IOM BG0594 Rev. A5, pp. 6, 9, 14-18; ETC One Plus IOM BG0596 Rev. A2, pp. 3, 5, 9, 14. Printed page numbers match PDF viewer pages in these copies.

Scope: documented Modbus commissioning. Legacy ETC2002, M-Bus-specific configurations and cellular setup are outside this guide. The two ETC II functions can coexist; they are not necessarily separate hardware versions or exclusive switch positions.

ETC II: pass-through gateway

What proves this path? One approved Modbus client reads a known valid register from the intended downstream meter through the ETC II. Accessing the ETC itself, a ping or flashing LEDs does not prove the meter path.

Read and record before changing

1. Record the exact model, firmware, fitted ports and existing topology. In PAS, use **Tools > Configuration > Sites** and the **ETC II** model. Match the actual ETC device address. **Upload Setups** reads the device into the site database; **Send** or **Download Setups** writes to the device. Preserve a separate backup.

2. Prove a small, documented read from one meter using an approved local connection and that meter's protocol guide. Keep its address, register, function, data format and expected value for the through-gateway test. Avoid competing serial masters.

Check the route and serial port

3. In **Meter Setup > Communications Setup > Serial Ports Setup**, inspect the correct downstream port. COM4 must be in master mode for downstream gateway service; fitted COM5 is master. Match the meter protocol, baud rate and data format. Check actual wiring against the model-specific drawing on page 5.

4. In **Meter Setup > ETC II Setup**, check the ETC's own reserved address, allowed slave range and routing settings. For explicit routes, use **Device Routing Table** and enable the Routing Table in Gateway Options. Ethernet slaves require a route. A route selects a port or IP for the addressed device; do not assume it translates the slave ID.

Prove the complete forwarding path

5. Inspect **Network Setup** for the assigned unique IP, subnet mask and gateway. For the documented Modbus/TCP service use port **502**. Confirm firmware and route support; explicit routing is documented from **V21.5.4**. Network changes can interrupt the session.

6. From one upstream client, request the same known-valid meter register using the **downstream meter address**. Check the value, scaling and repeatable responses. Add remaining meters individually, then the intended BMS or cloud client.

Evidence: BG0594 Rev. A5: pp. 14-17 (roles/routes), 30-33 (PAS/backup), 37-39 (serial/network), 43-44 (gateway/routes); BG0595 Rev. A2 p. 23 (route fields). Printed page numbers match PDF viewer pages in these copies.

Use actual readback: implicit routing depends on fitted ports and their roles. Do not assume every slave address reaches COM4. Do not reset the unit, power-cycle into PROG or change the address range as a default diagnostic.

ETC II: data concentrator

What changes? The ETC II Data Server polls source meter registers into stored exchanges. The upstream client reads the ETC's exchange address using the ETC's own device address. The source meter register and the ETC exchange address are different maps.

Establish the source, then the exchange

1. Complete the identification, backup, serial, route and one-meter local-read checks on page 2. Obtain the exact meter register map and document the readable function, source start register, contiguous count, data type, word order and scaling.

2. Inspect **Meter Setup > ETC II Setup > Data Server Options**. Data Server Operations must be enabled for acquisition. Review continuous or interval polling and the actual interval. Logging is a separate option, not proof that real-time polling is working.

3. Inspect **Real-Time Data Exchanges**: device address, source start register, contiguous block size and **Polling Enabled**. PAS displays the corresponding ETC exchange start address. Read existing setup first; only change it under the approved configuration plan.

Validate quality before accepting the value

ETC exchange offset	Record meaning
+0 and +1	UINT32 status: decode the response function or exception. Nonzero alone is not success.
+2 and +3	Timestamp: check it against the expected refresh.
+4 and +5	UINT32 sequence number: check that acquisition advances.
+6 onward	Meter payload: apply the source register type, word order and scaling.

4. Read the correct exchange at the **ETC's own address**. Decode status and check timestamp and sequence freshness across the configured polling period. Compare the payload with the known meter reading before mapping it into the BMS.

5. Confirm the BMS driver's zero-based versus 4xxxx register convention. Record the actual destination addresses. Add exchanges and upstream consumers in controlled steps, checking refreshed values at each step.

Existing-system caution: exchanges are packed. Changing an earlier block size can move later addresses and discard acquired data. Related real-time, write and status exchanges share a device ID. Review the upstream map before any change. Keep RTC sync, status auto-reset and write exchanges out of a read-only test.

Evidence: BG0594 Rev. A5 pp. 47-51; BG0595 Rev. A2 pp. 5, 7-9, 12. Header offsets are relative to the actual exchange start. Printed page numbers match PDF viewer pages in these copies.

ETC One Plus: forwarding

Scope: ETC ONE PLUS manual BG0596 Rev. A2. This manual establishes pass-through forwarding, not a generic autonomous poll/cache database. Confirm the exact hardware and fitted Ethernet option before using this path.

1. Identify the supply and fitted module from the installed nameplate. Record the downstream meter address and serial settings. Prove one meter locally with an approved client and a documented read. Remove a temporary serial master before returning the ETC to normal gateway operation.

2. Inspect wiring using the complete manufacturer Figure 2-6 on page 6 of this guide. The documented COM1 labels are **X+**, **X-** and **Sh.** Match the meter's documented polarity; another vendor's A/B labels are not sufficient evidence.

3. In PAS, select model **ETC ONE PLUS**. **Upload Setups** reads configuration into the database; **Send** writes it. Check COM1 protocol and serial format against the downstream meter. The manual lists Modbus RTU and warns against 7E for RTU; it does not establish a universal stop-bit setting.

4. For fitted Ethernet, inspect **Communication Setup > Serial Ports Setup > COM2** and Ethernet selection. Inspect **Network Setup** for the approved unique IP, subnet, gateway and service port. The documented inbound Modbus/TCP service is **TCP 502**.

5. Check **PROG is off** before the forwarding test. Programming/service mode disables the gateway. The manual gives conflicting exit procedures; use the confirmed model/firmware procedure rather than a guessed button or power-cycle sequence.

6. Use one upstream client to read the known meter register through the ETC IP using the intended **meter address**. Record the request and response. Test remaining meters individually before adding the full BMS or cloud service.

Address and wiring questions to resolve

The predefined forwarding table on manual p. 27 specifies downstream addresses **1-31**, while Figure 2-6 depicts meter #32. Confirm the installed firmware before using address 32 or publishing a device-count claim. Do not use the generic address-field range as proof of forwarding capability.

The wiring figure shows earth/shield connections and a termination range. Preserve those details and obtain installation-specific confirmation. The supply diagram and specification also disagree on the upper supply limit: use the actual rated variant and its confirmed instruction, not a value inferred from this illustration.

Evidence: BG0596 Rev. A2 pp. 9-10 (physical), 13-18 (mode/serial/network), 22-24 (PAS), 27 (forwarding). Printed page numbers match PDF viewer pages in these copies.

RX/TX activity is traffic, not proof of a valid response. A still photo cannot establish an LED sequence; observe the complete pattern and allow for startup. Historical cellular/APN settings are outside this Ethernet procedure.

ETC II wiring evidence

Complete manufacturer page retained so earth, shield and termination context remain visible. Select the figure matching the installed interface; the figures cover different arrangements.

COM4/COM5 RS-422/RS-485 Connection

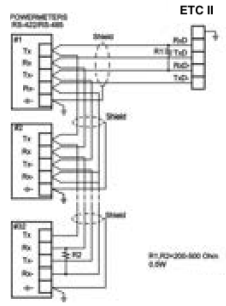


Figure 2-9 Multidrop RS-422 Connection

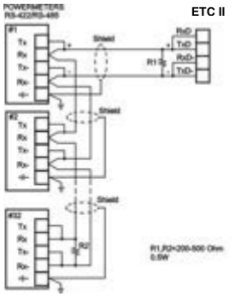


Figure 2-10 Multidrop RS-485 Connection

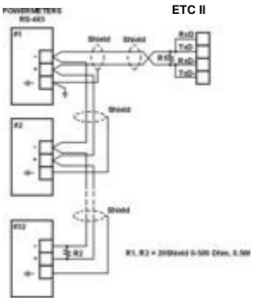


Figure 2-11 Multidrop RS-485 Connection

Source: ETC II Installation and Operation Manual, BG0594 Rev. A5, printed/PDF p. 11, Figures 2-9, 2-10 and 2-11.

Resolution limitation: the embedded source drawing is poor. Do not infer an unclear pin label, polarity or resistor value from this reproduction. Obtain a sharper drawing or confirmed product-specific instruction before wiring. This page is evidence, not a replacement installation drawing.

ETC One Plus wiring evidence

Complete manufacturer page retained with the supply/communications labels, SH/shield network, end termination and earth symbols. Do not crop away the protective or reference connections.

COM1 RS-485 Connection

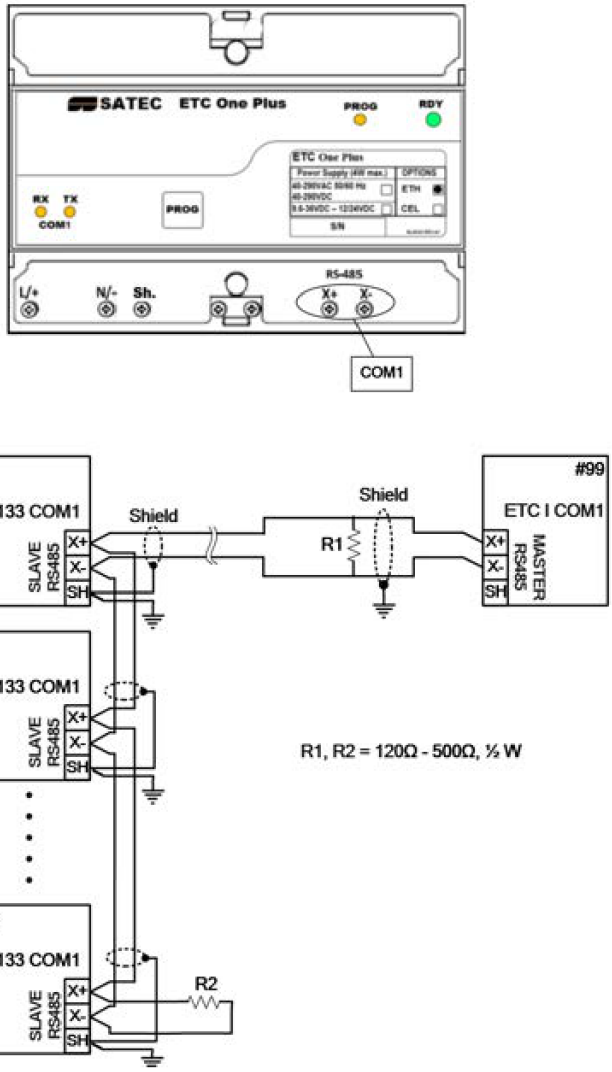


Figure 2-6 COM1 RS-485 2-Wire Connection

Source: ETC ONE PLUS Installation and Operation Manual, BG0596 Rev. A2, printed/PDF p. 10, Figure 2-6.

Known conflict: the figure includes meter #32; the forwarding table on p. 27 specifies 1-31. The figure is reproduced faithfully, not endorsed as proof that address 32 works. Do not replace its earth/shield arrangement or resistor range with a generic rule. Confirm the installation-specific design.

Commissioning record

Record observed settings and results. Blank fields are deliberate: this is a reusable worksheet, not an example of a tested installation.

Gateway and operating mode	Site record
Model / option / firmware	_____
Nameplate / supply checked by	_____
Pass-through / Data Server / both	_____
ETC own address / IP / subnet / gateway	_____
Upstream service / port / client	_____
Backup filename / date / read method	_____

Meter / address / route	Serial settings / source register	Read result / freshness
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

For Data Server: record each source block, actual ETC exchange start, payload format, decoded status, timestamp and sequence. Retain the BMS mapping and the agreed repeatability criterion.

If the test fails

Keep one known meter and one client in the test path. Separate local meter failure from forwarding failure, then separate successful forwarding from stale or incorrectly mapped exchange data. Retain the exact request, response/exception, settings and wiring photographs for product support. Do not label the gateway faulty from a ping or LED alone.

Manuals supplied with this package

ETC II IOM: BG0594 Rev. A5 - manuals/etc-ii-iom.pdf
ETC II Modbus: BG0595 Rev. A2 - manuals/etc-ii-modbus.pdf
ETC One Plus IOM: BG0596 Rev. A2 - manuals/etc-one-plus-iom.pdf

Manufacturer product photographs: satec-global.com/products/etc-ii/ and satec-global.com/products/etc-i/. Source assets and checksums are recorded in image-provenance.json. Technical references checked against these document revisions on 6 November 2026; no customer installation has been tested.