

S&STM

NORTHERN

Merlin ZLMTP

Zonal Leak Location Monitoring System



ZLMTP-4-S Master with display



SZLTP-4-B Slave with blank door

Product Datasheet and Master Module Setup Guide

4 to 128 zones per Master Gateway | Leak location and fault monitoring | BACnet and MQTT

S&S Northern Limited

www.snsnorthern.com

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Document scope

This document combines the ZLMTP and SZLTP product datasheet, ordering matrix, enclosure information and the complete web-interface setup sequence for the SS-MM Master Gateway. Installation and commissioning must be completed by competent personnel using the project wiring drawings and the approved S&S sensing cable for each application.

System Overview

The Merlin ZLMTP is a pre-assembled multi-zone leak location system for water detection cable. Each SS-LM Leak Module supervises four independent zones. The SS-MM Master Gateway combines zone data, provides the web interface and presents the system to the building management system. One Master supports up to 32 Leak Modules, equal to 128 zones.

System components

Component	Role
ZLMTP Master Panel	Contains an SS-MM Master Gateway and 1 to 8 Leak Modules. Display and output-loom options are selected by part code.
SZLTP Slave Panel	Contains 1 to 8 Leak Modules and connects to a ZLMTP Master over Modbus RTU. Supplied with a blank door.
SS-LM Leak Module	Four four-core sensing inputs, four relay outputs, four low-current fault outputs and Modbus RTU communications.
SS-MM Master Gateway	Zone setup, web interface, trends, email, BACnet/IP, BACnet MS/TP, Modbus RTU and MQTT.

Monitoring

After calibration, compatible resistive water leak detection cable reports the affected zone and the measured distance from the cable termination. The system also identifies cable and communication faults. Display-equipped ZLMTP panels provide local status and event access through the 7 inch touchscreen.

Capacity

Panel sizes are 4, 8, 12, 16, 20, 24, 28 and 32 zones, corresponding to 1 to 8 Leak Modules. Additional SZLTP panels may be connected until the Master reaches its 32-module or 128-zone limit.

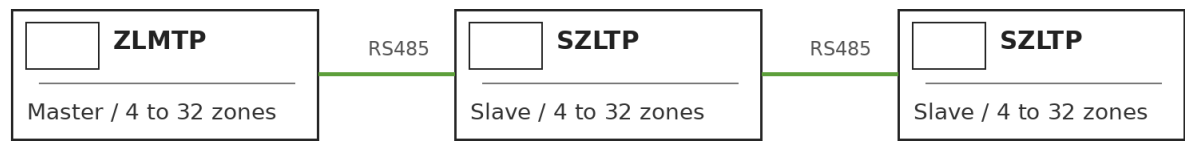
Communications

Connection	Function
Modbus RTU over RS485	Master-to-Leak-Module communication, including modules in SZLTP panels.
BACnet/IP and BACnet MS/TP	Leak, fault and distance data for a building management system.
MQTT	Data export to a compatible third-party service or the planned Merlin Data Cloud platform.
Local web interface	Network settings, zone setup, trends, email and system administration.

Typical System Arrangements

One Master with linked Slave Panels

Use a continuous RS485 route where the panels can be linked in sequence. Each Leak Module requires a unique Modbus address from 1 to 32. This arrangement centralises web, BMS and notification settings at one Master and is normally best suited to shorter, planned cable routes between panels.

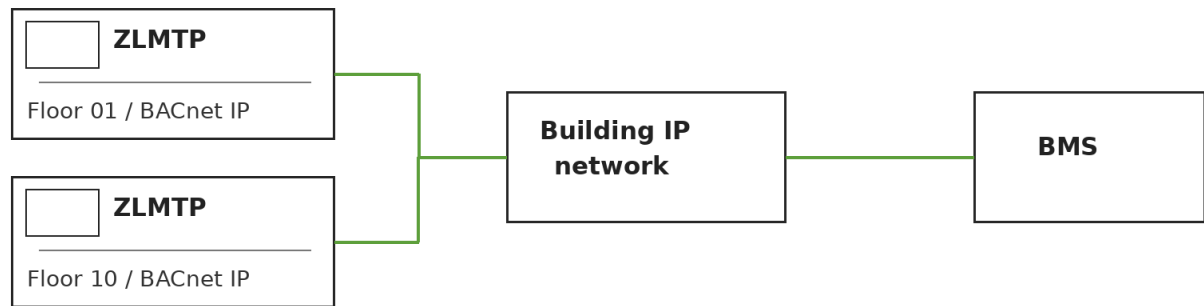


One Master Gateway polls the connected Leak Modules over Modbus RTU.

Example 1. ZLMTP Master with SZLTP Slave Panels over Modbus RTU.

Distributed Master Panels over BACnet IP

Where a building IP network is available, separate ZLMTP Master Panels can be positioned close to the protected areas. Connect each panel to a suitable IP point and commission it as an independent BACnet device. The BMS discovers and combines the devices; one ZLMTP does not automatically absorb the zones from another ZLMTP.



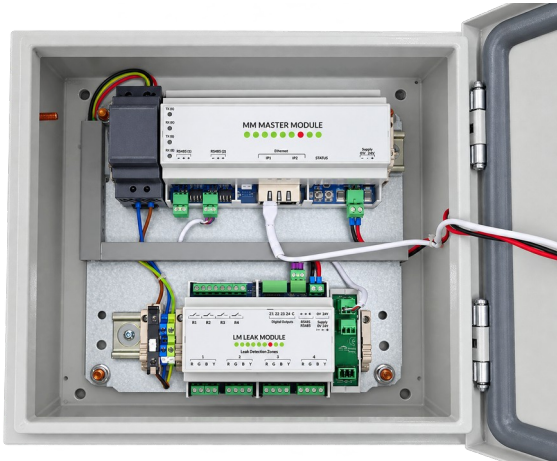
Example 2. Independent ZLMTP Master Panels connected to the building network.

The permitted RS485 distance depends on cable type, baud rate, topology and site conditions. Apply the bias and termination settings defined for the commissioned network.

Panel Construction and Output Options

Standard panels without the O suffix

ZLMTP and SZLTP part codes that do not end in O use the standard pre-assembled backplate style shown below. The selected Master Gateway, display and Leak Modules are fitted and internally wired, but the separate pre-wired output terminal arrangement at the top of the board is not included.



ZLMTP-4-S: Master, display and 1 × LM



SZLTP-4-B: blank door and 1 × LM

Panels with the O suffix

An O at the end of the part code identifies the output variant. These panels include the factory pre-wired output termination arrangement located at the top of the backplate. The output option does not change the number of monitored zones; it changes how the zone outputs are presented for field connection.

Part-code ending	Panel construction	Example
B or S	Pre-assembled panel without the separate pre-wired output termination arrangement.	ZLMTP-16-S
B-O or S-O	Pre-assembled panel with factory pre-wired output termination at the top of the backplate.	ZLMTP-16-S-O

B means a blank door. S means a ZLMTP Master with display. O means the factory pre-wired output option. SZLTP Slave Panels use the B or B-O formats.

Panel Enclosure

The pre-assembled system is housed in a robust steel enclosure suitable for indoor control and monitoring installations. Enclosure size may vary with the selected zone count and fitted options. The specification below describes the enclosure type supplied for the illustrated four-zone panels.

Construction	
Material	Steel body and door with galvanised internal mounting plate
Finish	Textured light-grey thermosetting epoxy-polyester powder coat
Cable entry	Removable bottom gland plate
Earthing	Earth studs provided for protective bonding
Door security	Single lockable door
Protection and dimensions	
Ingress protection	IP65 to EN 60529 when correctly fitted and sealed
Equivalent classification	NEMA 4 when correctly fitted and sealed
External dimensions	400 H × 300 W × 150 D mm
Internal depth	Approximately 125 mm
Mounting plate	Approximately 240 W × 340 H mm
Gland plate aperture	Approximately 180 × 62 mm
Steel thickness	Body and door 1.2 to 1.5 mm; gland plate 2.0 to 2.5 mm

Installation notes

- Select glands and seals that maintain the required enclosure protection.
- Bond the enclosure, door and mounting plate in accordance with the project electrical design.
- Check factory and site terminals for correct tightness using suitable hand tools.
- Allow access for the door, gland plate and service inspection.

Confirm the final panel dimensions on the project submittal where more than one backplate size is used.

Sensing Cables and Accessories

The ZLMTP system is designed to work with the S&S range of four-core water leak detection cables. Contact S&S Northern Limited for pricing and selection of the correct cable for the project. Cable construction varies with the application, including floor-mounted and pipe-mounted installations.

S&S product	Typical application
WLMSC four-core shielded alarm and fault cable	Floor installations; available in various lengths.
WLMBC four-core braided alarm and fault cable	Water-pipe installations; available in various lengths.
WLMPR water leak puck	Point detection beneath equipment, in drip trays and at local low points.
WLM four-core lead wire	3 m as standard. May be extended by a competent field engineer using approved shielded alarm cable.
FLMC fuel leak cable	Fuel leak applications; available in various lengths. Confirm suitability for the monitored liquid and project configuration.

Cable length guidance

Cable resistance	Maximum active sensing cable per zone
13.1 Ω per metre	400 m
16.8 Ω per metre	300 m

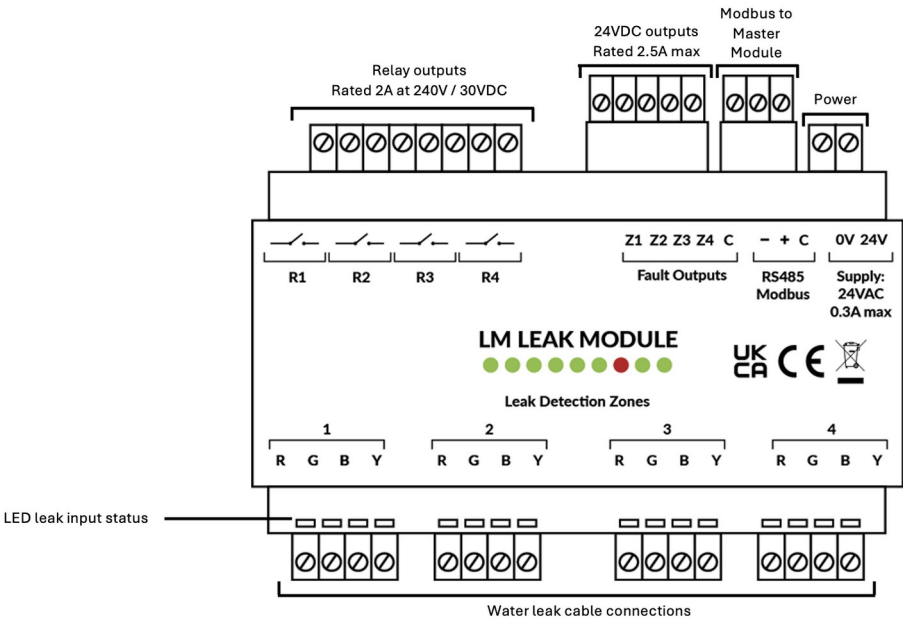
The lead wire has a maximum run of 50 m and must be installed before the active sensing cable. Do not insert link wire part way along the active sensing route. Each zone must be calibrated with the complete sensing run installed and fully dry.

Project selection

- Provide the application, route, approximate sensing length and number of zones.
- Identify floor, pipe, tray, equipment and fuel-risk areas separately.
- Confirm the required connector, lead-wire and termination quantities.
- Record the installed cable resistance value used for distance calculation.

SS-LM Leak Module

The SS-LM is a DIN-rail module with four independent four-core sensing inputs. Individual indicators show zone status. The module reports measurement, alarm and fault data to the SS-MM Master Gateway over Modbus RTU.



SS-LM Leak Module connections and zone indications. Use the project wiring drawing for terminal identification.

Electrical	
Power supply	24 V AC/DC ±10%
Power consumption	0.3 A maximum at 24 V
Sensing inputs	4 × four-core leak cable inputs
Relay outputs	4 × relay; 2 A at 240 V AC or 2 A at 30 V DC
Fault outputs	4 × 24 V DC open collector; 2.5 mA maximum with 10 kΩ pull-up
Communications and housing	
Protocol	Modbus RTU over RS485
Protection	IP20 module; panel enclosure rating stated separately
Operating conditions	5 to 60 °C; 20 to 80% RH, non-condensing
Mounting and size	DIN rail; 106 W × 112 H × 62 D mm
S&S part code	SS-LM

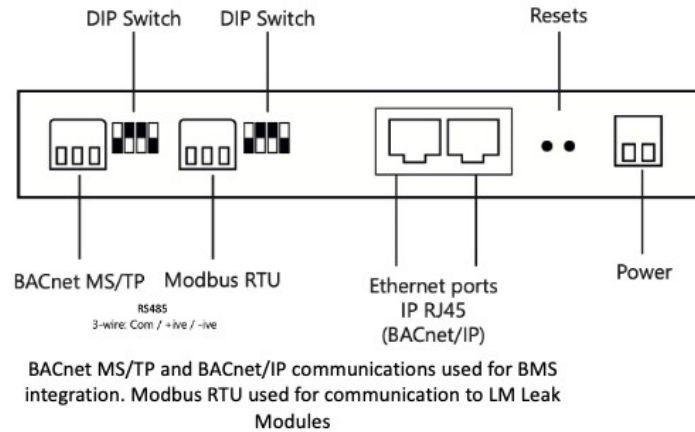
Indicators: off = uninitialised; steady green = calibrated and healthy; flashing green = uncalibrated; steady red = leak; flashing red = fault. The supplied module information states CE and UKCA conformity.

Technical check before final publication: the connection drawing and written note show different fault-output current units. The written specification above is used here; confirm the final rating on the approved production drawing.

SS-MM Master Gateway

The SS-MM configures the leak zones and aggregates data from up to 32 SS-LM Leak Modules. It provides BACnet communications for the BMS, MQTT data export, internal trends and email alarm settings through the embedded web interface.

CONNECTIONS



SS-MM connections. The two RS485 channels serve BACnet MS/TP and Modbus RTU.

Electrical and hardware	
Power supply	24 V AC/DC $\pm 10\%$
Power consumption	0.4 A maximum at 24 V
Ethernet	2 $\times$ shielded RJ45 10/100 Mbps ports
Serial connections	2 $\times$ EIA-485 ports
RS485 components	560 Ω bias and 120 Ω termination selected by DIP switch
System and communications	
Maximum capacity	32 Leak Modules / 128 zones
Protocols	BACnet/IP, BACnet MS/TP, Modbus RTU and MQTT
Operating conditions	5 to 60 $^{\circ}\text{C}$; 20 to 80% RH, non-condensing
Protection and size	IP20 module; DIN rail; 159 W $\times$ 90 H $\times$ 58 D mm
S&S part code	SS-MM

BACnet zone objects

The BACnet schedule provides multistate zone status, binary leak indication, analog leak distance and event-log data. Zone 1 begins at instance 10 and later zones increase in steps of ten. Configure every Master with a unique BACnet device ID and verify any reset permissions during BMS commissioning.

Product Range and Ordering

Standard panels without pre-wired outputs

The following products do not carry the O suffix. They use the standard pre-assembled backplate shown on page 5 and do not include the separate factory pre-wired output terminal arrangement at the top of the board.

SZLTP Slave with blank door

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	No	No	No	SZLTP-4-B	1 × LM / 4 zones / standard assembly
2	8	No	No	No	SZLTP-8-B	2 × LM / 8 zones / standard assembly
3	12	No	No	No	SZLTP-12-B	3 × LM / 12 zones / standard assembly
4	16	No	No	No	SZLTP-16-B	4 × LM / 16 zones / standard assembly
5	20	No	No	No	SZLTP-20-B	5 × LM / 20 zones / standard assembly
6	24	No	No	No	SZLTP-24-B	6 × LM / 24 zones / standard assembly
7	28	No	No	No	SZLTP-28-B	7 × LM / 28 zones / standard assembly
8	32	No	No	No	SZLTP-32-B	8 × LM / 32 zones / standard assembly

ZLMTP Master with blank door

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	Yes	No	No	ZLMTP-4-B	1 × LM / 4 zones / standard assembly
2	8	Yes	No	No	ZLMTP-8-B	2 × LM / 8 zones / standard assembly
3	12	Yes	No	No	ZLMTP-12-B	3 × LM / 12 zones / standard assembly
4	16	Yes	No	No	ZLMTP-16-B	4 × LM / 16 zones / standard assembly
5	20	Yes	No	No	ZLMTP-20-B	5 × LM / 20 zones / standard assembly
6	24	Yes	No	No	ZLMTP-24-B	6 × LM / 24 zones / standard assembly
7	28	Yes	No	No	ZLMTP-28-B	7 × LM / 28 zones / standard assembly
8	32	Yes	No	No	ZLMTP-32-B	8 × LM / 32 zones / standard assembly

Product Range and Ordering

ZLMTP Master with display and no pre-wired outputs

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	Yes	Yes	No	ZLMTP-4-S	1 × LM / 4 zones / standard assembly
2	8	Yes	Yes	No	ZLMTP-8-S	2 × LM / 8 zones / standard assembly
3	12	Yes	Yes	No	ZLMTP-12-S	3 × LM / 12 zones / standard assembly
4	16	Yes	Yes	No	ZLMTP-16-S	4 × LM / 16 zones / standard assembly
5	20	Yes	Yes	No	ZLMTP-20-S	5 × LM / 20 zones / standard assembly
6	24	Yes	Yes	No	ZLMTP-24-S	6 × LM / 24 zones / standard assembly
7	28	Yes	Yes	No	ZLMTP-28-S	7 × LM / 28 zones / standard assembly
8	32	Yes	Yes	No	ZLMTP-32-S	8 × LM / 32 zones / standard assembly

Part-code structure

Element	Meaning	Example
ZLMTP	Master panel containing the SS-MM Master Gateway.	ZLMTP-20-S
SZLTP	Slave panel containing Leak Modules only.	SZLTP-20-B
4 to 32	Number of monitored zones. Each LM adds four zones.	20 = 5 LM
B	Blank door. Used for SZLTP and non-display ZLMTP panels.	ZLMTP-24-B
S	Display fitted. Used on ZLMTP Master Panels.	ZLMTP-24-S
O	Factory pre-wired output termination arrangement.	ZLMTP-24-S-O

Zone progression

Part codes increase in steps of four zones: 1 LM = 4 zones, 2 LM = 8 zones, 3 LM = 12 zones, 4 LM = 16 zones, 5 LM = 20 zones, 6 LM = 24 zones, 7 LM = 28 zones and 8 LM = 32 zones.

Product Range and Ordering

Panels with factory pre-wired outputs

The O suffix identifies the factory pre-wired output variant. The termination arrangement is positioned at the top of the backplate. Zone capacity, Master function and display selection remain defined by the other elements of the part code.

SZLTP Slave with blank door and outputs

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	No	No	Yes	SZLTP-4-B-O	1 × LM / 4 zones / pre-wired outputs
2	8	No	No	Yes	SZLTP-8-B-O	2 × LM / 8 zones / pre-wired outputs
3	12	No	No	Yes	SZLTP-12-B-O	3 × LM / 12 zones / pre-wired outputs
4	16	No	No	Yes	SZLTP-16-B-O	4 × LM / 16 zones / pre-wired outputs
5	20	No	No	Yes	SZLTP-20-B-O	5 × LM / 20 zones / pre-wired outputs
6	24	No	No	Yes	SZLTP-24-B-O	6 × LM / 24 zones / pre-wired outputs
7	28	No	No	Yes	SZLTP-28-B-O	7 × LM / 28 zones / pre-wired outputs
8	32	No	No	Yes	SZLTP-32-B-O	8 × LM / 32 zones / pre-wired outputs

ZLMTP Master with blank door and outputs

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	Yes	No	Yes	ZLMTP-4-B-O	1 × LM / 4 zones / pre-wired outputs
2	8	Yes	No	Yes	ZLMTP-8-B-O	2 × LM / 8 zones / pre-wired outputs
3	12	Yes	No	Yes	ZLMTP-12-B-O	3 × LM / 12 zones / pre-wired outputs
4	16	Yes	No	Yes	ZLMTP-16-B-O	4 × LM / 16 zones / pre-wired outputs
5	20	Yes	No	Yes	ZLMTP-20-B-O	5 × LM / 20 zones / pre-wired outputs
6	24	Yes	No	Yes	ZLMTP-24-B-O	6 × LM / 24 zones / pre-wired outputs
7	28	Yes	No	Yes	ZLMTP-28-B-O	7 × LM / 28 zones / pre-wired outputs
8	32	Yes	No	Yes	ZLMTP-32-B-O	8 × LM / 32 zones / pre-wired outputs

Product Range and Ordering

ZLMTP Master with display and pre-wired outputs

LM	Zones	Master	Display	Outputs	S&S part code	Description
1	4	Yes	Yes	Yes	ZLMTP-4-S-O	1 × LM / 4 zones / pre-wired outputs
2	8	Yes	Yes	Yes	ZLMTP-8-S-O	2 × LM / 8 zones / pre-wired outputs
3	12	Yes	Yes	Yes	ZLMTP-12-S-O	3 × LM / 12 zones / pre-wired outputs
4	16	Yes	Yes	Yes	ZLMTP-16-S-O	4 × LM / 16 zones / pre-wired outputs
5	20	Yes	Yes	Yes	ZLMTP-20-S-O	5 × LM / 20 zones / pre-wired outputs
6	24	Yes	Yes	Yes	ZLMTP-24-S-O	6 × LM / 24 zones / pre-wired outputs
7	28	Yes	Yes	Yes	ZLMTP-28-S-O	7 × LM / 28 zones / pre-wired outputs
8	32	Yes	Yes	Yes	ZLMTP-32-S-O	8 × LM / 32 zones / pre-wired outputs

Selection examples

Requirement	Example selection	Reason
20-zone Slave, no output loom	SZLTP-20-B	5 LM, blank door, standard internal assembly.
20-zone Master with display	ZLMTP-20-S	5 LM, Master Gateway and display, no pre-wired output termination.
28-zone Master with outputs	ZLMTP-28-S-O	7 LM, Master Gateway, display and pre-wired output termination.
32-zone Slave with outputs	SZLTP-32-B-O	8 LM, blank door and pre-wired output termination.

Information required for quotation

State the number and location of zones, required Master and Slave arrangement, display selection, pre-wired output option, sensing cable type and length, local output actions, BMS protocol, panel network topology and any email or MQTT requirement.

Master Module Setup Guide

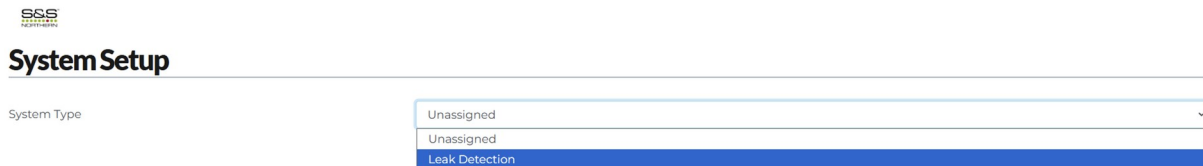
Access and initial application selection

After installation and power-up, connect a commissioning computer to the same local IP network as the Master Gateway. Open a web browser and enter the default address 192.168.1.151.

Credential	Default
Username	admin
Password	admin



Gateway login page.



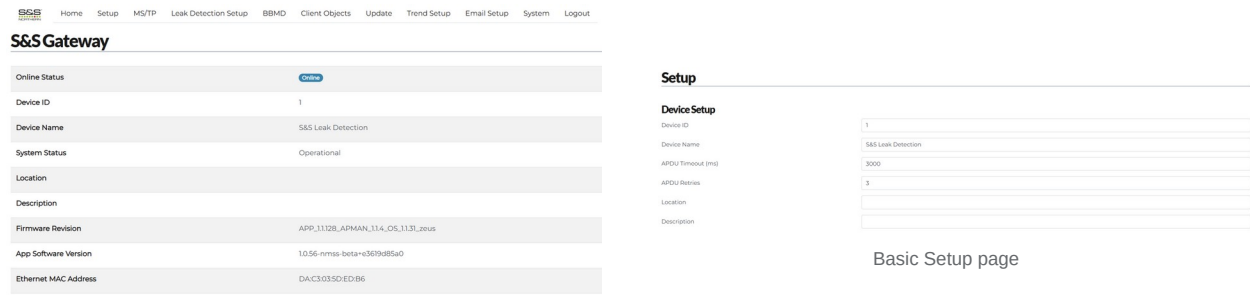
Initial application selection: choose Leak Detection and submit.

1. Log in using the default credentials.
2. At the first login, enter a new password when prompted. Record it securely in the commissioning documentation.
3. Select Leak Detection as the application, then select Submit. The application-selection page is presented only before the system setup has been completed.

Commissioning security

Change the default password before the unit is connected to a shared network. Agree the final IP address, device ID, time settings, email route and BMS permissions with the responsible network and controls teams.

Home Page and Basic Setup



Home page

Basic Setup page

Home page information

Setting	Range or option	Purpose
Online Status	Indication	Shows whether the Master Gateway has an internet connection.
Device ID	0 to 4194302	Unique BACnet device instance for this Master.
Device Name	Text	Commissioning name, for example Floor 1 Master Module Gateway.
System Status	Indication	Overall operating condition.
Location	Text	Physical or project location.
Description	Text	Additional equipment description.
Firmware Revision	Read only	Installed firmware revision.
App Software Version	Read only	Installed application version.
Ethernet MAC Address	Read only	Gateway network hardware address.

Basic Setup fields

Setting	Range or option	Purpose
Device ID	0 to 4194302	Unique BACnet device instance.
Device Name	Text	Descriptive gateway name.
APDU Timeout	Milliseconds	Wait before an unacknowledged BACnet message is retransmitted.
APDU Retries	Count	Maximum retransmissions for an unacknowledged message.
Location	Text	Installation location.
Description	Text	Additional site description.

Time Password and IP Setup

Local date and time

Local Date and Time

Date

27/08/2026

Time

13:47:19

Network Time Protocol

☒

NTP Servers

8.8.8.8

pool.ntp.org

Time Zone

Europe/London

Auto MS/TP Time Synchronization

☒

Submit

Setup tab: Local Date and Time.

Setting	Range or option	Purpose
Date	Local date	Set the gateway date.
Time	Local time	Set the gateway time.
Network Time Protocol	Enabled or disabled	Permits time synchronisation from an NTP service.
NTP Servers	IP address or host	Defines the time source.
Time Zone	Region	Controls local offset and display format. A US zone shows the US date format on the touchscreen.
Auto MS/TP Time Sync	Enabled or disabled	Sends time synchronisation to the BACnet MS/TP network.

Password update

Open the Setup tab, enter the old password, enter and confirm the new password, then select Update.

Password Update

Old password

New Password

Confirm

Update

Password Update fields

IP Setup

Device IP Address

192.168.1.100

Subnet Mask

255.255.255.0

Default Gateway

192.168.1.1

DHCP Name

BACnet/IP Port

3443

NTP Servers

Use DHCP DNS

☒

Update

IP Setup fields

IP credentials

Setting	Range or option	Purpose
Device IP Address	IPv4 address	Static address assigned to the gateway.
Subnet Mask	IPv4 mask	Local network subnet.
Default Gateway	IPv4 address	Router used for traffic outside the local subnet.
DHCP Name	Text	Name presented when DHCP is used.
NTP Servers	Address list	Time synchronisation source.
Use DHCP DNS	Enabled or disabled	Uses DNS settings supplied by DHCP.

BACnet IP Setup

The SS-MM supports BACnet/IP and BACnet MS/TP. Coordinate the network number, UDP port, multicast and device instance with the BMS engineer. Each Master Gateway must have a unique device ID.

Primary BACnet IP

BACnet/IP Primary Setup

Enabled

☒

UDP Port

47808

Multicast Address

BACnet Network Number

1

Submit

BACnet/IP Primary Setup.

Setting	Range or option	Purpose
Enabled	On or off	Enables the primary BACnet/IP connection.
UDP Port	0 to 65535	BACnet/IP UDP port agreed for the site.
Multicast Address	224.0.0.0 to 239.255.255.255 or blank	Optional multicast group address.
BACnet Network Number	Site value	Unique network number for the BACnet/IP segment.

Secondary BACnet IP

BACnet/IP Secondary Setup

Enabled

☐

UDP Port

47809

Multicast Address

BACnet Network Number

3

Public IP Address

Restrict Access

☐

Add Permitted Foreign Device

Submit

BACnet/IP Secondary Setup.

Setting	Range or option	Purpose
Enabled	On or off	Enables the secondary BACnet/IP port.
UDP Port	0 to 65535	Secondary BACnet/IP UDP port.
Multicast Address	Valid multicast or blank	Optional group address for the secondary connection.
BACnet Network Number	Site value	Unique number for the secondary BACnet network.
Public IP Address	IPv4 address or blank	Public address used where the secondary connection requires it.
Restrict Access	Enabled or disabled	Limits access to the permitted foreign-device entry when required.
Permit Foreign Device	Address selection	Defines the foreign device allowed by the restriction.

BACnet MS TP and Routing

BACnet MS TP

SSS

[Home](#) [Setup](#) [MS/TP](#) [Leak Detection Setup](#) [BBMD](#) [Client Objects](#) [Update](#) [Trend Setup](#) [Email Setup](#) [System](#) [Logout](#)

Setup

Devices

Slave Proxy

MS/TP Setup

MAC Address

0

Baudrate

38400

Max Masters

127

Max Info Frames

20

BACnet Network Number

2

Submit

BACnet MS/TP Setup.

Setting	Range or option	Purpose
MAC Address	0 to 127	Unique address on the MS/TP trunk.
Baud Rate	Site selection	Must match the other devices on the trunk.
Max Masters	Default 127	Highest expected master MAC address.
Max Info Frames	10 to 20 recommended	Number of messages the device may send while holding the token.
BACnet Network Number	Site value	Unique number for the BACnet MS/TP network.
Restrict Access	Guide reference	The draft guide repeats the secondary-IP access wording in this section; confirm availability against the installed firmware.

The Connected MS/TP Devices tab and the MS/TP Slave Proxy settings are not used by the leak-detection application.

Routing

Router Setup

Send Establish Connection To Network

☐

Establish Connection Termination Time

0

Submit

Router Setup.

Setting	Range or option	Purpose
Send Establish Connection to Network	Enabled or disabled	Instructs a BACnet half-router to establish communication when its PTP link is inactive.
Establish Connection Termination Time	Seconds; 0 = permanent	Time the PTP connection remains active without message traffic.

The gateway acts natively as a BACnet router between its configured BACnet networks. Confirm network numbers are unique and that routing is permitted by the site controls design.

BACnet Broadcast Management

BACnet broadcast management is used where BACnet/IP devices must exchange broadcast traffic across different IP subnets. Configure BBMD and foreign-device entries only where required by the site network design.

BACnet Broadcast Management Device

Primary IP Port ▾

BBMD Distribution Table ▾

Foreign Device Table ▾

Secondary IP Port ▾

BBMD Distribution Table ▾

Foreign Device Table ▾

Submit

BACnet Broadcast Management Device page.

Broadcast Distribution Table

- The gateway supports broadcast distribution entries on the primary and secondary BACnet/IP ports.
- Up to 50 Broadcast Distribution Table entries and 50 foreign devices are supported per port.
- Add or remove an entry from the table, or allow the table to be updated through BACnet where that function is permitted.
- Enter the remote BBMD IP address and distribution mask, then submit the entry.
- The default distribution mask is 255.255.255.255. If the IP router forwards directed broadcasts, the mask may be set to match the router subnet mask.

Foreign devices

Foreign Device Table ▾

IP Address	Time-to-Live seconds
------------	----------------------

Foreign Device Table.

A BACnet/IP device on another subnet may register as a foreign device so it can send and receive broadcasts through the BBMD. Enter a valid device IP address and the required time-to-live, then select Add Device. Confirm that the entry appears in the Foreign Device Table and remains registered for the required period.

BBMD changes affect BACnet traffic between subnets. Obtain network and BMS approval before enabling broadcast forwarding.

Leak Zone Setup

Open Leak Detection Setup and select Add to create a zone. Configure each zone against the physical Leak Module address and the input used on that module.

Leak Detection Setup

Baud Rate

38400

Zone ID	Zone Name	Address	Zone Input	Cable Ω/m	Leak Detect Threshold kΩ	Leak/Fault Outputs	Leak/Fault Delay sec	Email Alarm	Firmware Version	Cable Length m	Leak Resistance kΩ	Leak Distance m	Status	Calibrate	Delete
1	Zone 1	1	1	131	8	Separate	0	No	V1.5	126.3	Open	0.0	Ok	Calibrate	X
2	Zone 2	1	2	131	8	Separate	0	No	V1.5	127.8	Open	0.0	Ok	Calibrate	X
3	Zone 3	1	3	131	8	Separate	0	No	V1.5	125.7	Open	0.0	Ok	Calibrate	X
4	Zone 4	1	4	131	8	Separate	0	No	V1.5	126.2	Open	0.0	Ok	Calibrate	X

Add

Leak Detection Setup table.

Setting	Range or option	Purpose
Zone ID	1 to 128	Unique zone number within the Master system.
Zone Name	Maximum 32 characters	Meaningful location or asset name.
Address	1 to 32	Modbus address of the Leak Module.
Zone Input	1 to 4	Physical input on the selected Leak Module.
Cable Ohms per Metre	5.0 to 25.0; 2 decimals	Resistance value for the installed sensing cable. The setup guide shows 13.1 as the default.
Leak Detect Threshold	2.0 to 10.0; 2 decimals	Sensitivity threshold. The guide table shows 8.0 as default, while its explanatory note states 6; confirm the approved commissioning value.
Leak and Fault Outputs	Separate or Combined	Separate: leak operates relay and fault operates digital output. Combined: both conditions operate the relay.
Leak and Fault Delay	0 to 30 seconds; default 0	Delay applied before the alarm output changes state.
Email Alarms	Yes or No	Enables email notification for this zone.

Zone Status and Calibration

Read-only zone information

Setting	Range or option	Purpose
Firmware Version	Indication	Firmware reported by the addressed Leak Module.
Cable Length	Metres; 1 decimal	Calculated after successful calibration.
Leak Resistance	2 decimals or Open	Measured leak resistance. Open indicates no detected leak path.
Leak Distance	Metres; 1 decimal	Calculated distance from the cable termination.

Status indications

Status	Meaning or use
OK	Zone calibrated and operating normally.
Leak Detected	Water detected above the configured threshold.
Leak Reset	Leak condition has been reset.
Uncalibrated / Calibrating	Calibration is required or in progress.
Test Init / Test Leak / Test Fault / Test Leak and Fault	Commissioning test states.
Comms Error	Communication with the Leak Module is unavailable.
Cable Fault	Cable continuity or termination fault.
Cable Oversized	Installed sensing length is outside the supported calibrated range.
Cable Read Error	Cable measurement could not be obtained.

Calibration

The screenshot shows the 'Leak Detection Setup' interface. At the top, there's a 'Baud Rate' dropdown set to '38400'. Below it is a table with columns: Zone ID, Zone Name, Address, Zone Input, Cable Ω/m, Leak Detect Threshold kΩ, Leak/Fault Outputs, Leak/Fault Delay sec, Email Alarm, Firmware Version, Cable Length m, Leak Resistance kΩ, Leak Distance m, Status, Calibrate, and Delete. There are four zones listed. A modal dialog box is open in the center with the text: 'Please ensure the cable is dry before performing calibration. Do you wish to continue?' with 'Yes' and 'No' buttons. An 'Add' button is at the bottom left of the table.

Zone ID	Zone Name	Address	Zone Input	Cable Ω/m	Leak Detect Threshold kΩ	Leak/Fault Outputs	Leak/Fault Delay sec	Email Alarm	Firmware Version	Cable Length m	Leak Resistance kΩ	Leak Distance m	Status	Calibrate	Delete
1	Zone 1	1	1	13.1	8	Separate	0	No	V1.5	126.3	Open	0.0	Ok	Calibrate	X
2	Zone 2	1	2	13.1	8	Separate	0	No	V1.5	127.8	Open	0.0	Ok	Calibrate	X
3	Zone 3	1	3	13.1	8	Separate	0	No	V1.5	125.7	Open	0.0	Ok	Calibrate	X
4	Zone 4	1	4	13.1	8	Separate	0	No	V1.5	126.2	Open	0.0	Ok	Calibrate	X

Calibration confirmation prompt.

1. Install the full lead wire and active sensing-cable route and confirm it is completely dry.
2. Check the module address, zone input and cable resistance setting.
3. Select Calibrate and confirm the prompt. Wait for the status and calculated cable length to update.
4. Use Delete only when the zone record is no longer required.

Trending and CSV Export

The Master Gateway can retain internal trend records and export them in CSV format. Open Trend Setup and select Add to create a trend.

Trending Setup

Total Records
1000000

Available Records
97200 (97 %)

Assigned Records
28800 (3 %)

Data Storage Days
ID

No CSV files
Generate

USB disconnected
Save

USB Eject
☐

Trend ID	Trend Name	Log Object	Log Type	Log Interval (min)	COV Increment	Buffer Size	Record Count	CSV File	Reset	Delete
1	Trend Zone001_LeakDistance_Zone1	Zone001_LeakDistance_Zone1	Polled	1	1	16400	1		☐	X
2	Trend Zone001_Status_Zone1	Zone001_Status_Zone1	Polled	1	1	16400	1		☐	X

Add

Trend Setup page.

Setting	Range or option	Purpose
Trend ID	Identifier	Unique reference for the trend record.
Trend Name	Automatic	Name generated for the selected object.
Log Object	Object selection	BACnet or application point to record.
Log Type	COV or Polled	COV records changes; Polled records at the configured interval.
Log Interval	Time interval	Sampling interval for a polled trend.
COV Increment	Change threshold	For COV logging, records the point when its value changes by the configured increment.
Buffer Size	Record capacity	Maximum retained records. The oldest records are overwritten when the buffer is full.
Record Count	Read only	Number of records currently stored.
CSV File	Generated link	Available after Generate is selected.

Trend actions

- Select Generate to create the downloadable CSV file.
- Use Reset to clear the stored records for that trend.
- Use Delete to remove the trend definition.

The Trend Setup page also displays total, available and assigned record capacity, data-storage days, the generated CSV-file count and USB connection, save and eject controls.

Recommended commissioning records

Retain the final zone schedule, calibration results, alarm tests, cable lengths, BMS point checks and an exported sample trend with the project handover documents.

Email Alarms and Logout

Email setup

Enable Email Alarms for each required leak zone, then configure the email service and recipient addresses. The site IT team must provide the approved server, authentication and security details.

Email Setup

Enabled

Yes

Account Provider

Other

Outgoing Mail Server (SMTP)

Outgoing Server Port

587

Login User Name

Login Password

From Name

From Address

Secure Connection Type

Auto

Email account and server settings.

Provider setting	Purpose	Server setting	Purpose
Enabled	Enable the email service.	Outgoing Mail Server SMTP	Approved mail host or IP address.
Account Provider	Select the configured provider type.	Outgoing Secure Port	Port required by the approved service.
Email Name	Name assigned to the sender account.	Login User Name	Authentication user where required.
Email Address	Sender account email address.	Login Password	Authentication password where required.
Auth Required	Enable provider authentication.	From Name	Sender name shown to recipients.
Global System Alarms and Notifications	Address used for system-wide notifications.	From Address	Sender address shown to recipients.
		Secure Connection Type	Security method supported by the mail service.

To Addresses

Enter email address

X

Add To Address

Submit

To Addresses: add the required alarm recipients and submit the settings.

Logout

When commissioning is complete, open the Logout tab and select Click here to Logout. Confirm that the session returns to the login page, particularly on shared commissioning computers.

Log out

Click here to Logout

Logout page.

Commissioning and BMS Handover

Pre-commissioning

- Confirm panel part code, LM quantity, display selection and whether the O output option is fitted.
- Verify power, protective bonding, glands, segregation and all field terminations.
- Assign unique Modbus addresses to every Leak Module and a unique BACnet device ID to every Master.
- Confirm every sensing run is the approved S&S four-core cable type and is completely dry before calibration.

Functional tests

Test	Expected evidence
Healthy zone	Green/OK status, plausible calibrated length and no active output.
Water leak	Correct zone, leak indication, measured distance, configured output and BMS alarm.
Cable fault	Correct fault status, configured fault action and BMS indication.
Local outputs	Relay or digital fault action operates the intended alarm, valve or interface.
Communications	Stable Modbus, BACnet and IP communications without duplicate addresses.
Email and trend	Correct recipient receives the test alarm and CSV export contains time-stamped records.

BMS points

Verify zone status, leak state, leak distance and event information against the final BMS point schedule. Zone object instances begin at 10 for Zone 1 and increase in steps of ten. Confirm whether BMS reset commands are permitted and record the final BACnet network, device and object references.

Handover records

- Final panel schedule and part codes.
- Zone names, module addresses, inputs, cable type, resistance and calibrated lengths.
- IP, BACnet and RS485 settings, with passwords transferred through the approved secure process.
- Alarm cause-and-effect, email recipients, trend configuration and test results.
- As-installed sensing cable route drawings and maintenance instructions.

Cloud Connectivity

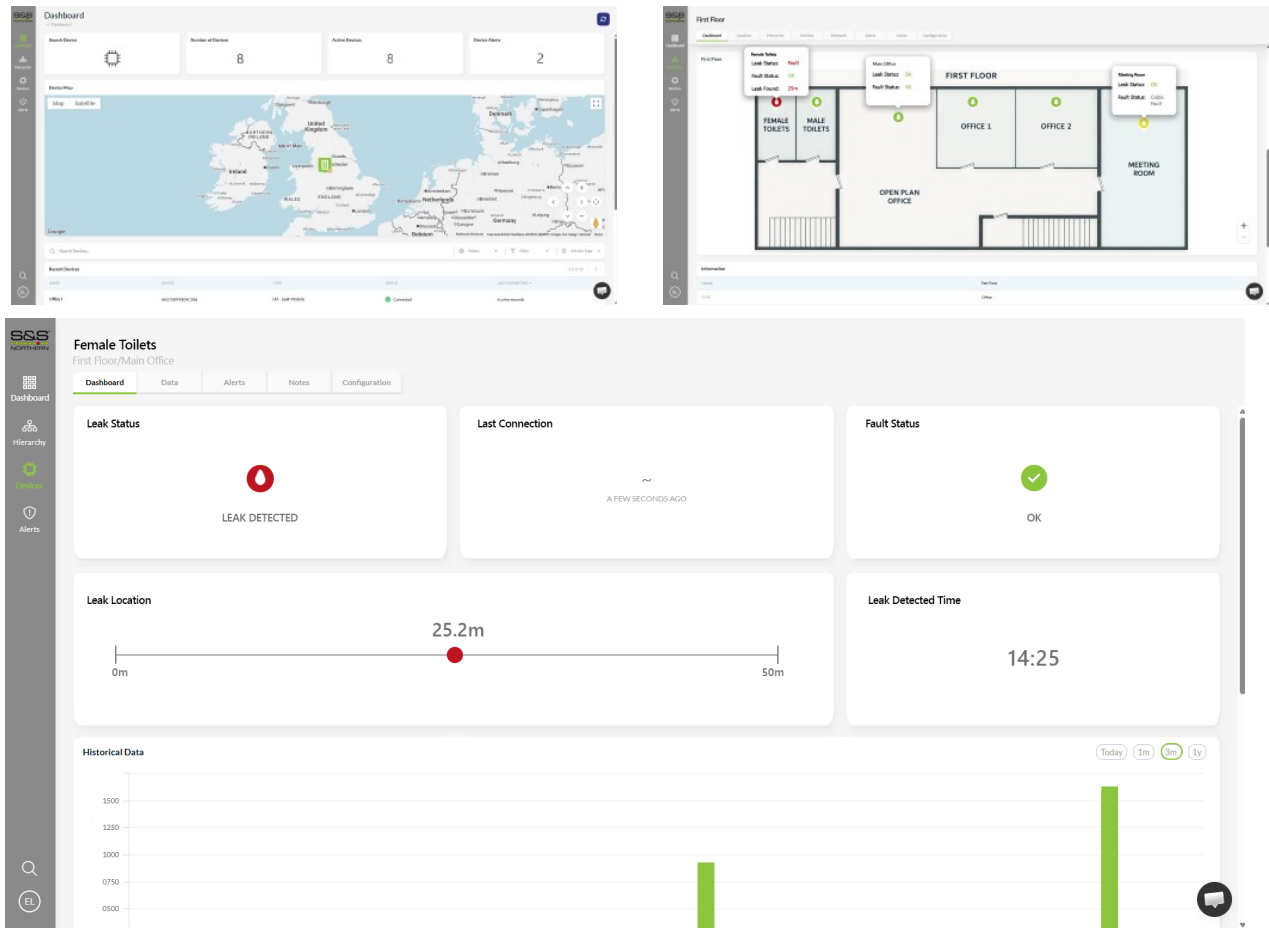
MQTT data export

The SS-MM supports MQTT communications. This allows leak and fault data to be exposed to a compatible third-party cloud service where the customer already operates a platform. The destination, topic structure, payload, credentials and network-security requirements are agreed for each integration.

Merlin Data Cloud planned for 2027

S&S Northern Limited is developing a dedicated leak-monitoring service at merlindatacloud.com. The proposed subscription platform is intended to show all customer projects on a world map, allow drill-down to a building and imported floor plan, and then present detailed information for an individual leak zone.

View	Planned use
All projects	See deployed systems and current status in one account.
Building and floor plan	View floors, zones and alarm locations in context.
Zone detail	Review leak status, cable distance, time, faults and historical trends.
Reporting	Alarm and fault email notifications, trends and exportable reports.



Proposed zone view showing leak status, cable distance and trend data.

The screens are concept images and the service is planned for 2027. Final presentation, functions, commercial terms and release timing may change.