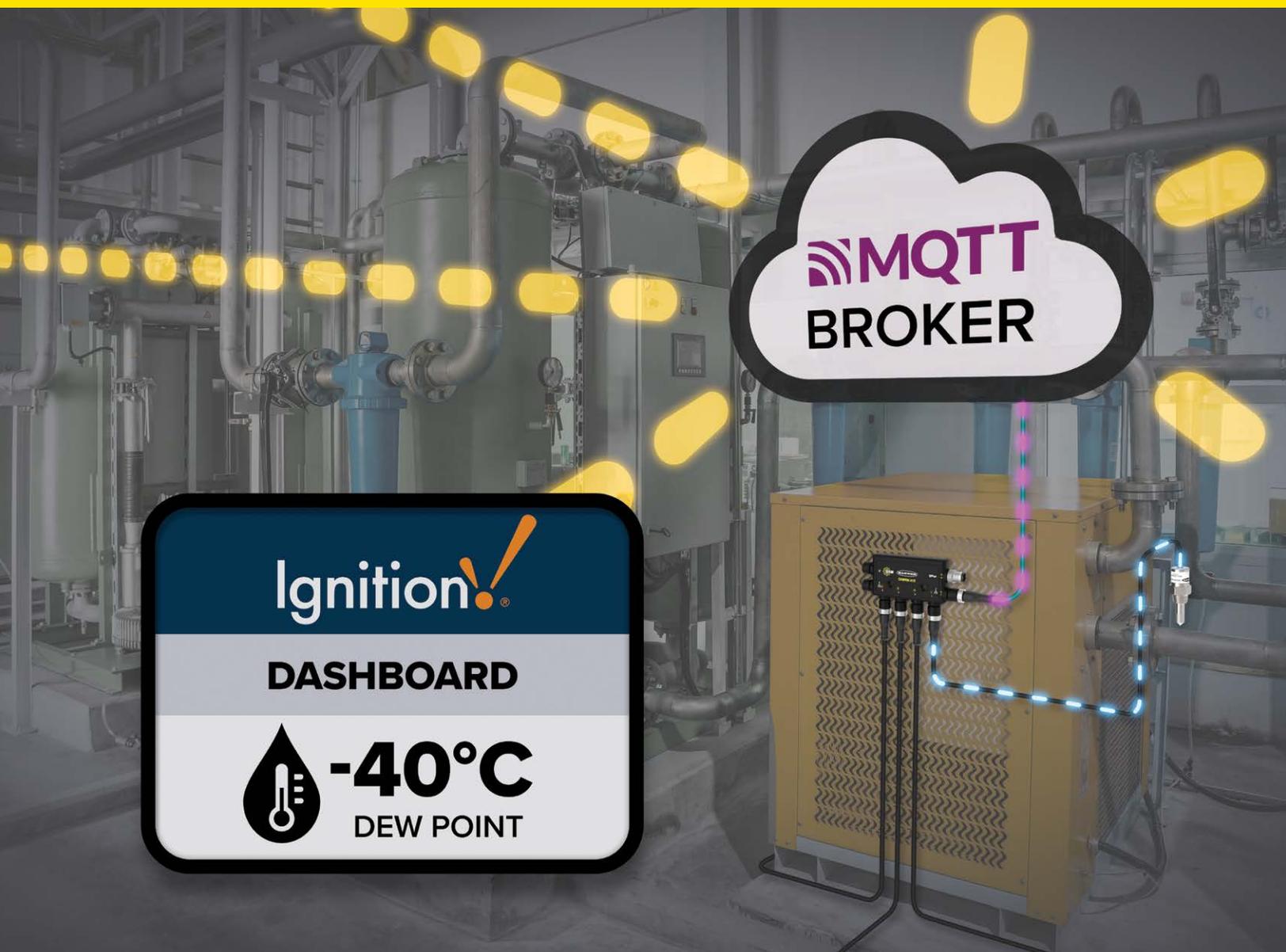


MQTT Made Easy



Publish the Data that Drives Insights, Directly from the Edge

- Transform an entire operation's device signals into live, actionable MQTT data
- Built-in MQTT edge publishing sends data to the broker without additional publishing components
- MQTT Sparkplug B data is generated and published by the DXM, eliminating downstream republish or translation layers
- MQTT payload structure is defined at the gateway using Local Registers, not reshaped downstream
- Store-and-forward buffering maintains continuity during broker or network interruptions
- Secure outbound MQTT communication is handled by the DXM using built-in TLS and authentication options
- Free DXM Configuration Software reduces setup and change effort by consolidating configuration in one place



MQTT Ready

Modern industrial operations depend on easy access to meaningful device-level data to monitor performance, identify issues, and make informed decisions. MQTT plays a central role in transporting that data into software systems where it can be used.

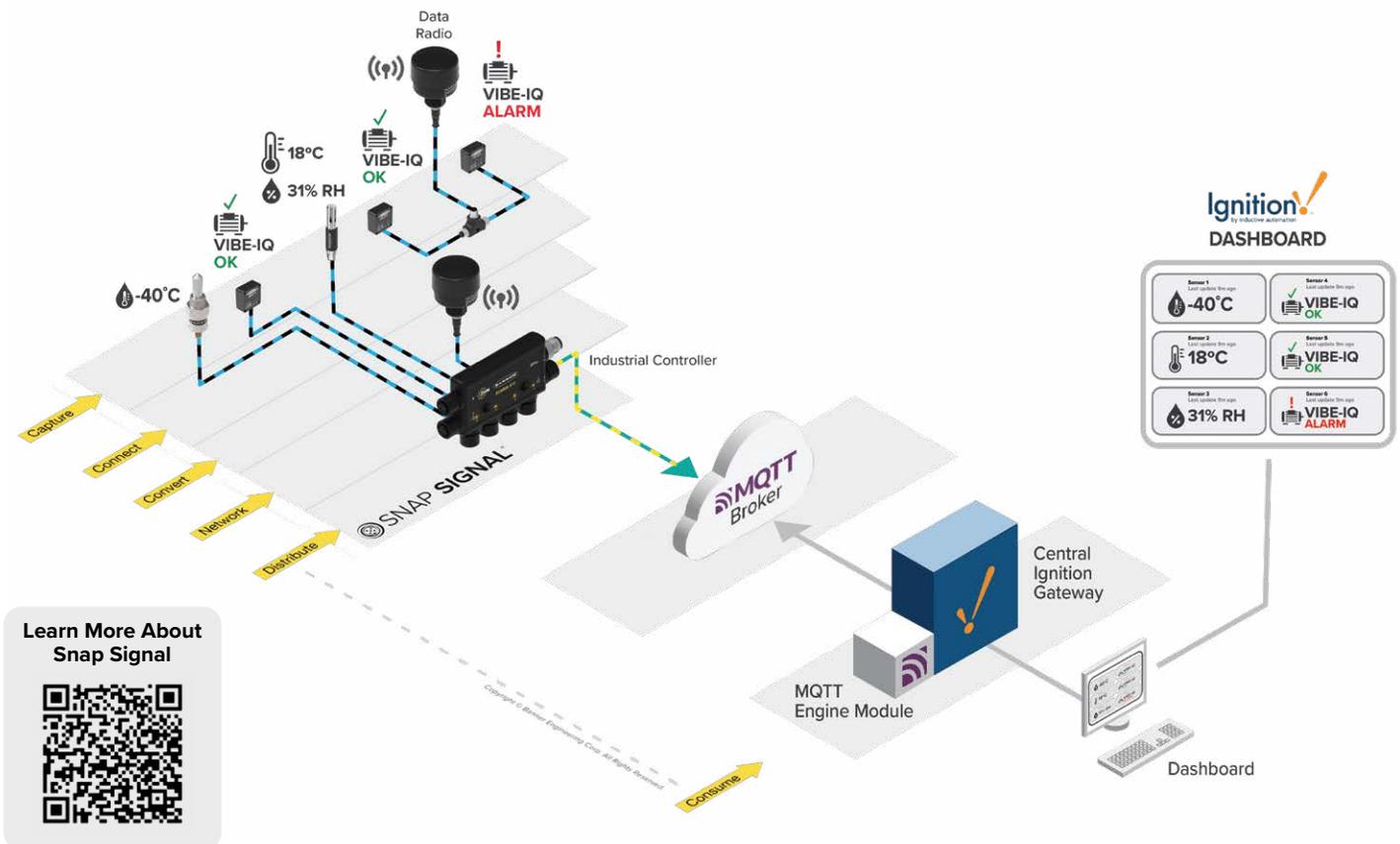
Banner's DXM controllers act as edge gateways, capturing signals from sensors, IO-Link devices, and control I/O across machines and equipment and publishing them via MQTT with native Sparkplug B support as structured data that subscribing applications can immediately consume.

With native support for MQTT/Sparkplug B, store-and-forward capability, and secure outbound communication, the DXM delivers device-level data to the broker in a form ready for use by databases, manufacturing execution systems (MES), and SCADA platforms.

What was previously locked inside individual devices becomes visible at the system level. The signals that keep the operation running surface on dashboards where engineers, operators, and decision-makers can see what is happening and turn that insight into informed decisions.

Deliver Sensor Data Direct to Ignition via MQTT/Sparkplug B

A Banner DXM unlocks Banner's full portfolio of wired and wireless sensors. With native support for MQTT Sparkplug B and direct publishing to an MQTT broker, DXM controllers turn sensor signals into structured, software-ready data that subscribing applications can immediately use.



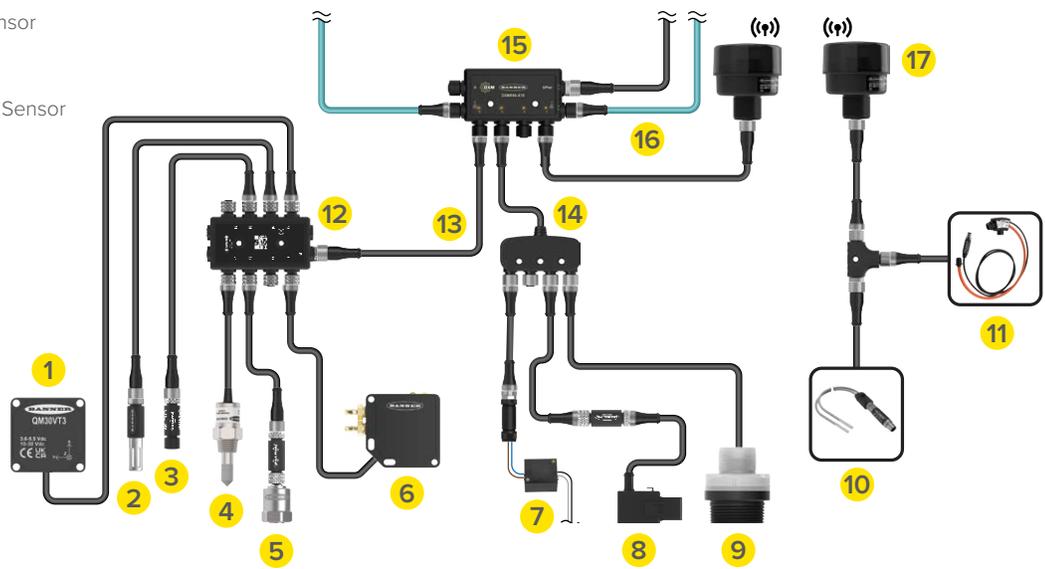
MQTT Publishing Devices

Banner's DXM controllers make it easy to turn device signals into actionable data for monitoring, control, and analysis, and publish it directly over MQTT from the edge.



Wired Sensors, Wireless Devices, & Connectivity

- 1 QM30VT Vibration and Temperature Sensor
- 2 S15S Temperature and Humidity Sensor
- 3 S15S Infrared Non-Contact Temperature Sensor
- 4 S24 Dew Point Sensor
- 5 S15C Pressure Sensor
- 6 QM42 Differential Pressure Sensor
- 7 S15C AC Voltage Sensor
- 8 Current Transformer
- 9 K50U Ultrasonic Sensor
- 10 Thermistor(s)
- 11 S15S Rogowski Coil Current Sensor
- 12 M12 Molded Junction Blocks
- 13 M12 Cordsets
- 14 Splitters
- 15 DXMR90-X1E Industrial Controller
- 16 Ethernet Cordset
- 17 R70 Data Radio



Build complete monitoring solutions from Banner's sensors, converters, and connectivity components that connect devices to a DXM.

- 1 Current Transformer Sensor
- 2 Dual Thermistor Sensor
- 3 Differential Pressure Sensor & Wireless Node
- 4 QM30VT Vibration and Temperature Sensor
- 5 Pressure Sensor
- 6 Temperature and Humidity Sensor Node
- 7 Dew Point Sensor
- 8 Temperature Sensor
- 9 Ultrasonic Sensor
- 10 Ethernet Cordset
- 11 DXM1200-X2 IIoT Gateway



Extend monitoring to hard-to-reach assets in a performance network using Banner's wireless sensors and nodes that connect devices to a DXM with less wiring.

Don't see what you need here? Please go to bannerengineering.com for more available models.



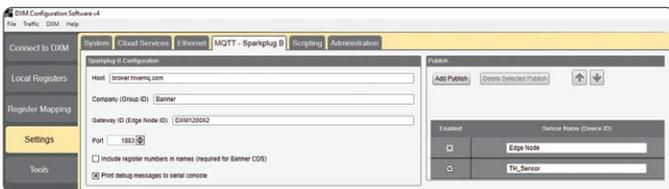
Configuring a DXM for MQTT Sparkplug B

Ensure the DXM Configuration Software and DXM firmware are updated to meet the following requirements:

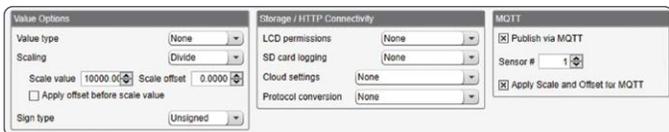
- DXM Configuration Software v4.19.8 or newer
- DXM700 v5.1 or newer
- DXM1200B2/X2 v5.1 or newer
- DXMR90-X1E v5.1 or newer
- DXMR110-8K v5.1 or newer

Local Register Configuration

- 1 Open the **Connect to DXM** tab.
- 2 Select **DXM Model** from the drop-down menu.
- 3 Open the **Local Registers** tab.
- 4 Select the **Edit Register** tab at the bottom of the screen.
- 5 In the **MQTT** area:
 1. Check the box labeled **Publish via MQTT**.
 2. Set the **Sensor Group #** (number) by entering a number or using the up/down arrows.
 - Up to 32 Sensor Group # (numbers) can be created.
 - Any number of registers can be assigned to a Sensor Group.
 - The Sensor Group number determines the Topic/Device grouping later in setup.



- 6 Check **Apply Scale and Offset for MQTT**.
 - This will change the output to floating-point values based on the scaling done in the Value Options section of the Local Registers setup.
 - Sparkplug B will always publish on change-of-state.

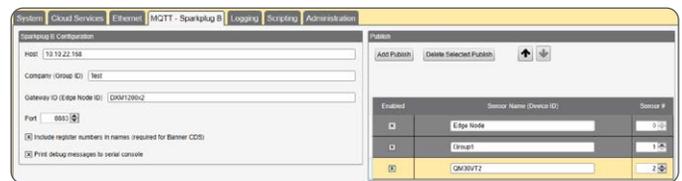


MQTT Configuration

- 1 In the DXM Configuration Software, with previous XML open, open the **Settings** tab.
- 2 Select the **Cloud Services** tab.

MQTT Configuration (continued)

- 3 In the **Network Interface** area, select MQTT – Sparkplug B from the Push method dropdown menu.
- 4 If authentication is required, check the Require Authentication box in the **MQTT Authentication** area, fill in your Username and Password, then click Send Authentication.
 - These credentials are stored in non-volatile memory, but they are not saved in the XML file, so they will not be displayed in the DXM Configuration Software in the future and can't be extracted from the DXM.
- 5 In the **Certificates** area, select the Use Encryption and/or the User Certificates box.
 - Selecting Encryption will change the default port from 1883 to 8883, but the port can still be adjusted in the MQTT – Sparkplug B tab.
 - The certificate, private key, and root CA files are stored in non-volatile memory, but are not saved in the XML file, so they will not be displayed in the DXM Configuration Software in the future and cannot be extracted from the DXM.
- 6 Select the **MQTT – Sparkplug B** tab.



- 7 In the **Sparkplug B Configuration** area:
 1. Enter your host IP or web address in the **Host** field
 2. Enter your **Company (Group ID)**
 3. Enter your **Gateway ID (Edge Node ID)**
 4. Unless Banner CDS* is required for the application, uncheck the box labeled **Include register numbers in names**.
 5. Check the **Print debug messages to serial console** box.

Checking this box is not required, but checking it will provide additional information through the Serial and UDP consoles within the DXM Configuration Software, which can help with troubleshooting.

- 8 In the **Publish** area, to add each sensor or group of sensors:
 1. Click the **Add Publish** button.
 2. Enter a name in the **Sensor Name (Device ID)** field.
 3. Enter a number in the **Sensor #** field.

The Sensor # (number) corresponds to the local registers and how those registers were set up to group sensor data together.

- 9 Save the file and send it to the DXM.
 - Save As saves as XML file
 - Next button to send to DXM

*Banner CDS (Cloud Data Services) is an optional cloud services subscription that provides cloud storage, data visualization, notifications, and data management for DXM controllers.

Scan to Watch the How To Video



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