DTX - Overview

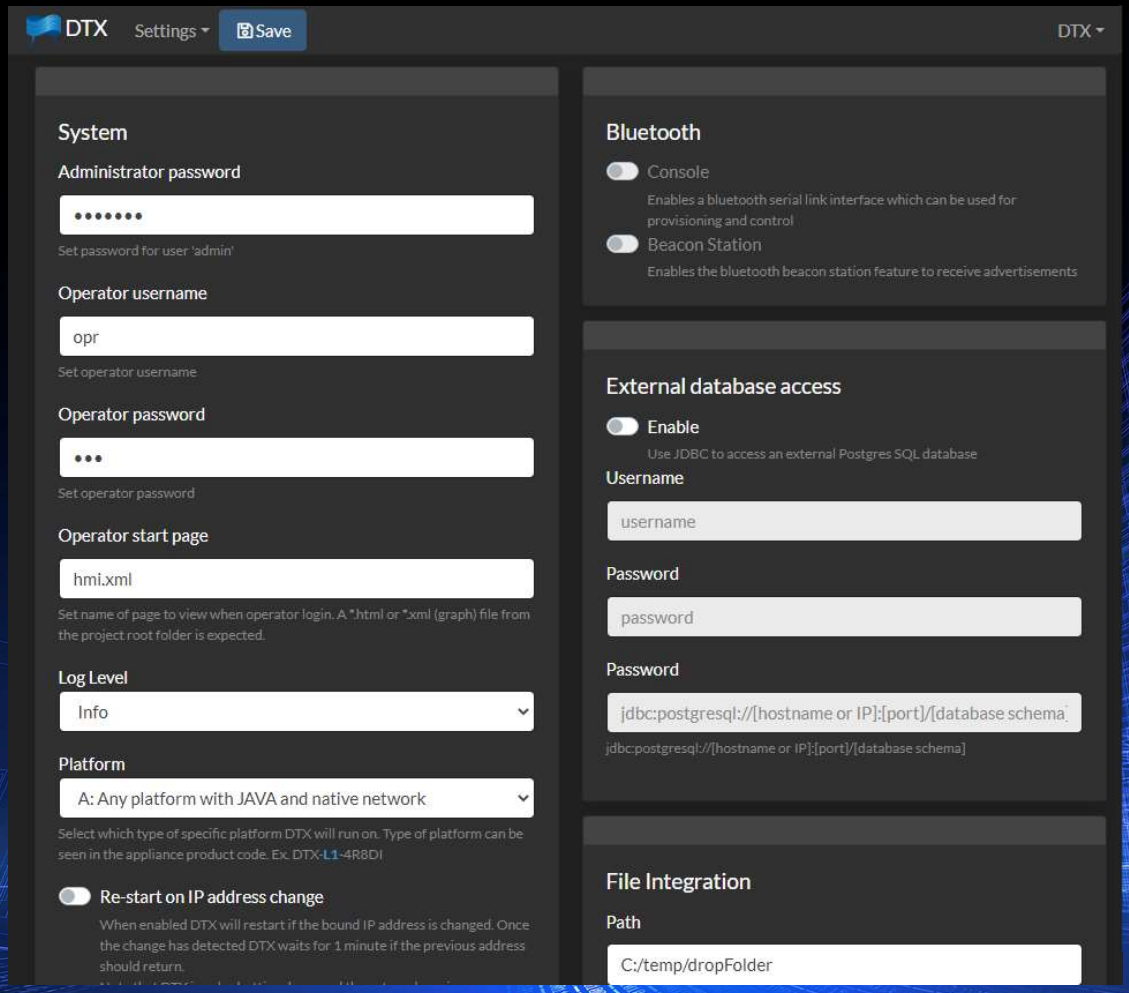
DAVITOR DTX is a multi functional runtime software for automation, visualization and integration with built in web based IDE.

- DTX is both development environment and process runtime engine in a single program.
- DTX is platform independent and can run anywhere JAVA 11 and later can run.
- DTX uses JAVASCRIPT (ES6) as the automation script language.
- DTX has a built in HMI builder for creating visual dashboard of processes and states.
- DTX has a built in MAP builder for creating visual overview and controller of processes and states in the context of geo and linear backgrounds.
- DTX offers both code and graphical interface for creating bindings, rules and conditions for the automation.

- Full BACnet/IP stack with easy setup and intrinsic reporting support.
- BACnet browser.
- MODBUS TCP/RTU support (both master and slave)
- REST API for control and acquisition.
- Built in user database as well as setup for external Postgres SQL server.
- SMTP support (TLS) for sending notifications.
- HMI builder via built in diagrams.net editor.
- MAP builder with Leaflet technique.
- Automation block builder with built in Blockly editor.
- JavaScript automation editor via web based IDE.
- Support for LION fieldbus on designated hardware.
- Can act as MQTT broker.
- Can act as Bluetooth Beacon station (any format)
- Can handle multiple connected serial ports with ASCII and HEX R/W support and configurable serial package delimiter.
- Built in REST API server that produce any resource URI configured in JavaScript as well as some BACnet reserved resources.
- REST API client to consume any API.

DTX - Setup

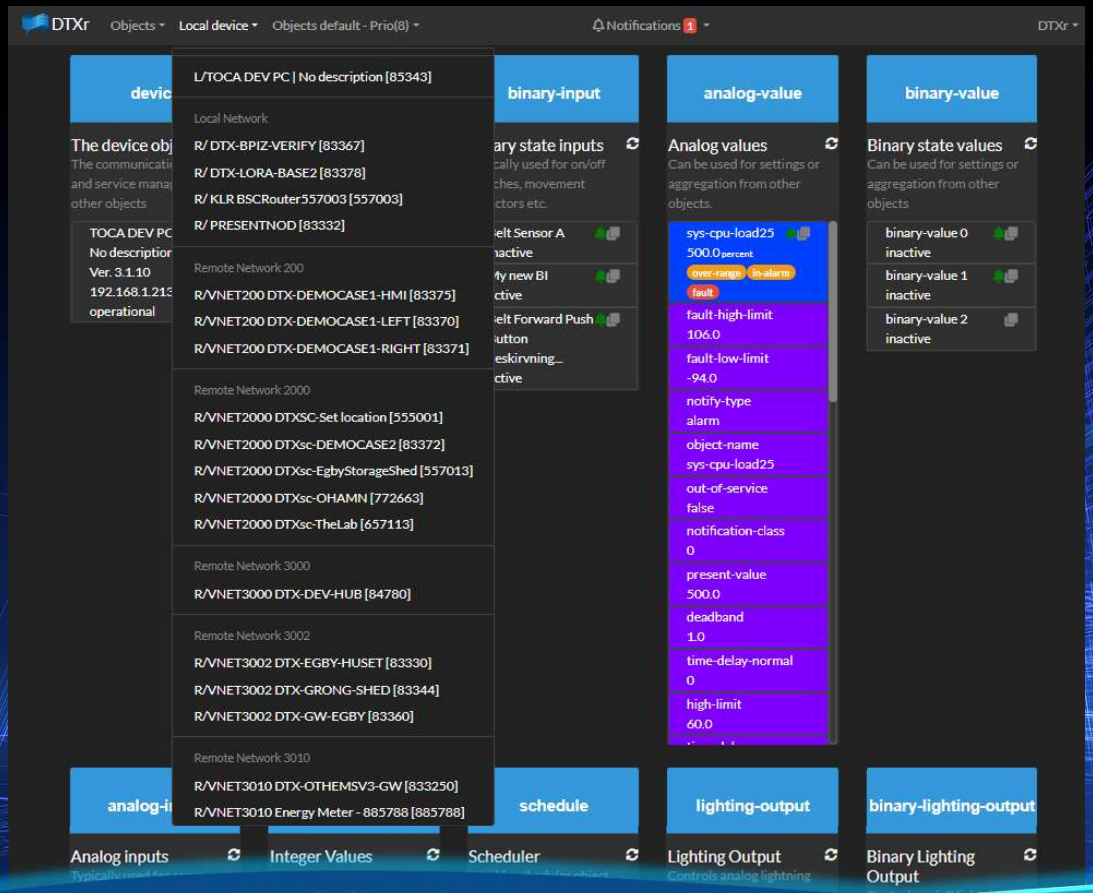
Web based device setup. Responsive GUI optimized for mobile devices.



- Platform type selection
- Admin password
- Operator user/password including operator start-up HMI view.
- Watchdog features
- Log level
- Device GEO location for device positioning.
- BACnet/IP specifics like “bind to IP” and a feature to set which BMS/SCADA device(s) that should receive notification from this device.
- Bluetooth Beacon station feature for supported wireless sensors.
- External database (Postgres SQL) setup.
- File integration folder setup for automatically reading files into JS engine for processing.
- HTTP ports setup for IDE and API.
- HTTP REST API token for external access.
- LION fieldbus enable/disable for designated platform.
- MQTT-setup when this device should act MQTT broker.
- EMAIL setup for SMTP over TLS.

DTX – Object Network Provisioning

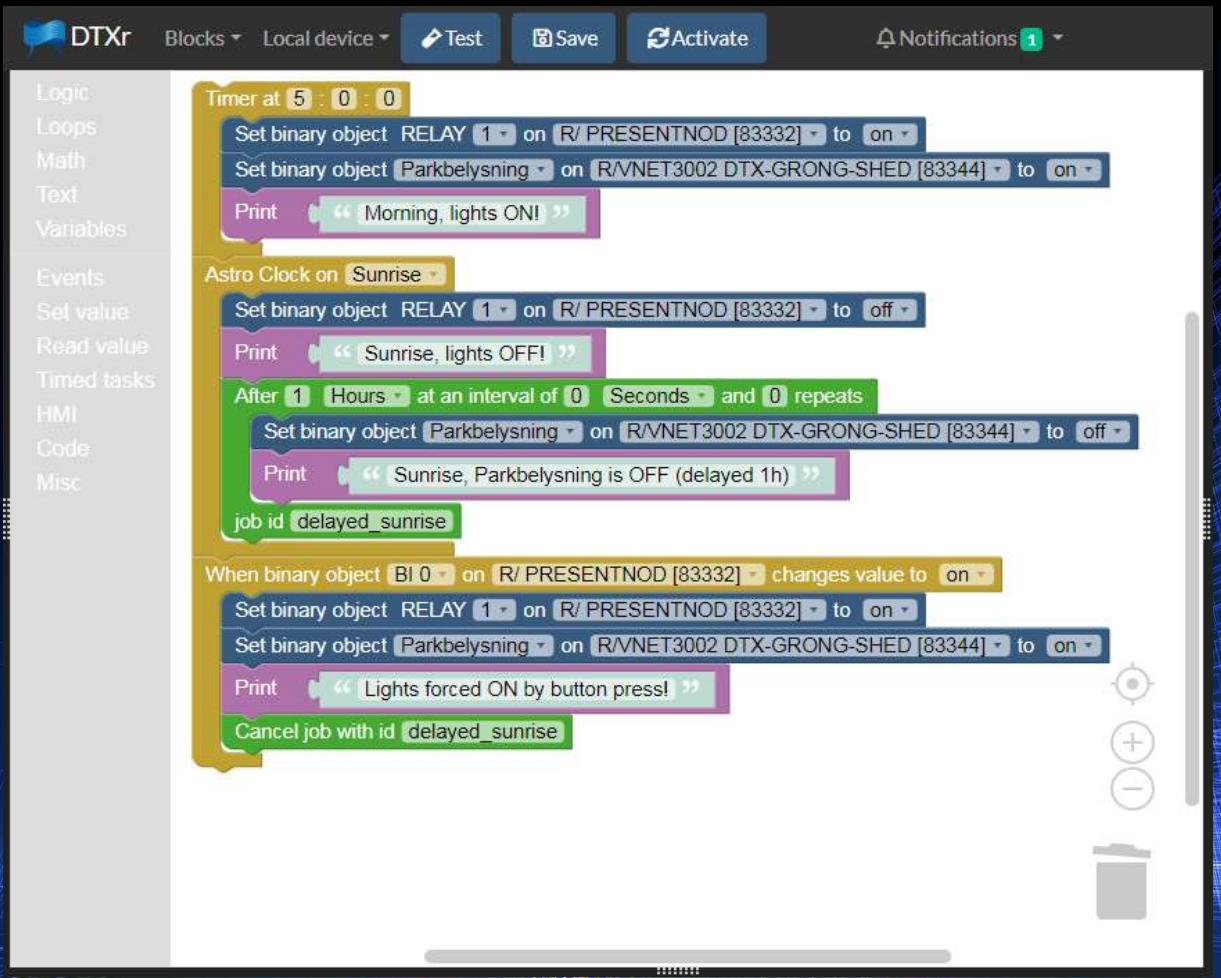
Essentially a network wide BACnet browser that finds and access all discoverable devices and offers an easy setup of names, descriptions, locations and such. Responsive GUI specifically for use in mobile devices. This is also the place to put object in OutOfService mode for maintenance and testing of both input and output objects.



- Finds all discoverable BACnet devcies and sort them into virtual networks.
- Manage intrinsic reporting by switching on/off alarm on object level.
- Watch and acknowledge incoming intrinsic alarm notifications.
- Set name, location and description on objects.
- Set alarm low,high,fault levels on objects with enabled reporting.
- See Overridden objects.
- Set OutOfService on objects for test.
- Using the drop down to test different priorities when writing to output objects

DTX – Blocks

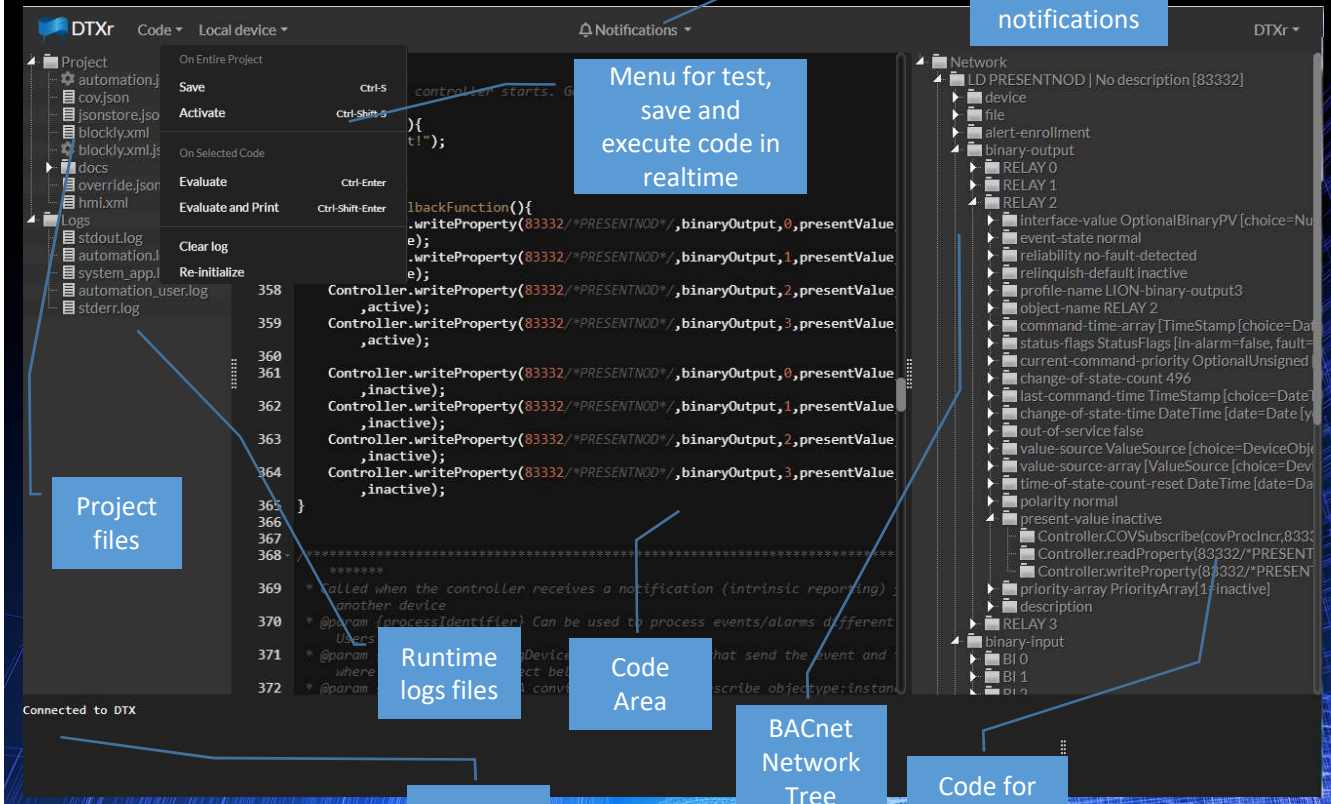
DTX utilize the Blockly game framework to simplify the automation setup.
Simple bindings can be performed and tested here with just a few clicks.



- Automatic COV-subscriptions when selecting event driven blocks for input objects on any node on the network.
- No need to manually enter any network objects keys or such. The object related blocks automatically scans the network and lists the objects that can be used for the block purpose.
- Supports all basic presentValue-R/W operations to BACnet objects network wide.
- Controls HMI graphical objects on DTX-devices.
- Blocks for interoperate with the JavaScript engine directly on DTX-devices.
- Each block can be tested separately with the [Test] button. Even the conditional blocks like IF, ELSE etc.

DTX – Coding

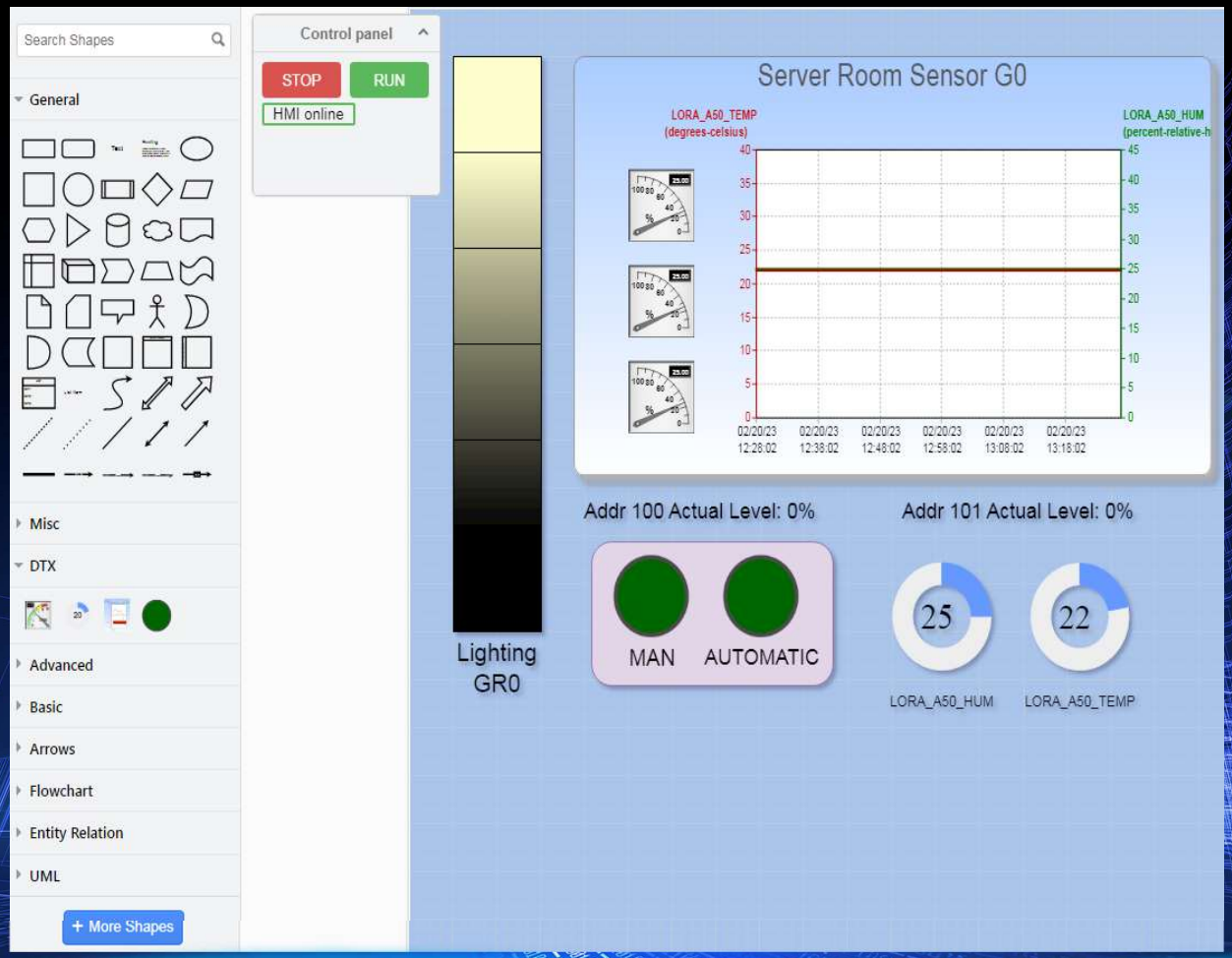
DTX has a built in JavaScript editor for advanced automation and system integrations scripting.



- Just in time activation of code into the runtime engine. No need to compile or upload of binaries.
- Supports ES6 JS version.
- Project Tree to the left.
- BACnet network Tree to the right.
- BACnet browser with Who-Is /Who-Is-Global features.
- Features drag of pre-defined JS-code from the BACnet tree into coding area for quick understanding of the built in JS-functions for various operations.
- All parts of the script can be tested by first selecting the specific and hit CTRL-ENTER.
- Project files are automatically backed up to a zip archive and can be downloaded as BACnet file object.

DTX – HMI Builder

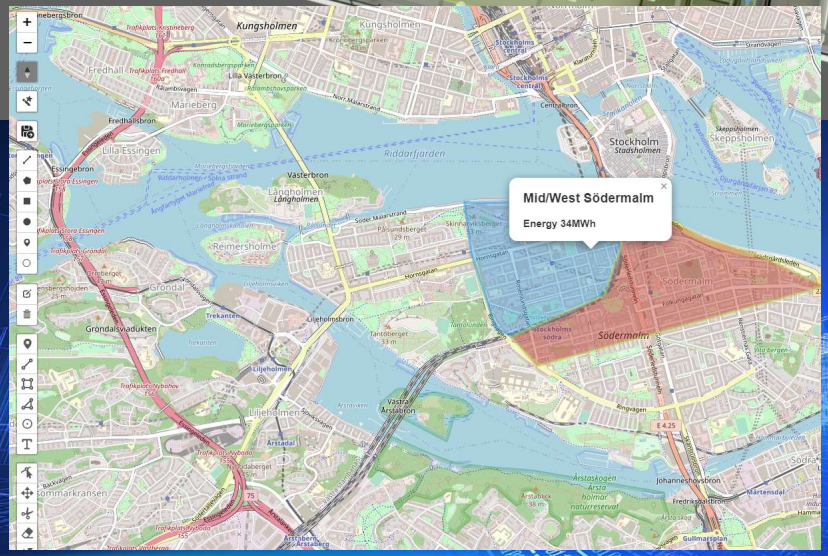
DTX has a built in graphical HMI builder to create any kind of visualization.
The editor is very user friendly and allow almost free form editing and layout. And then at any time connect your objects for acquisition and control.



- Built in editor based on diagrams.net (former draw.io).
- SVG – scaled vector graphic for lossless zooming.
- ANY graphical component in the sheet can be bound to a BACnet object by setting the [object key] on the component's properties'.
- **Real-time** update of all objects when changes occurs on the automation object layer.
- A specific DTX-palette of object for diagrams, gauges and buttons to simplify.
- Multiple pages can be created to create a complex HMI with menu system.
- A built in viewer is used that presents the HMI without menus and toolbars to use by operator in production mode.

DTX – MAP Builder

DTX has a built in map designer for creating overview SCADA charts with maps, layers and areas.



- Can be used for geographical Lat/Long maps as well as XY backgrounds like drawings and schematics.
- Supports multiple basemaps in one configuration.
- Each basemap can have multiple layers.
- Each layer can have multiple areas like polygons, circles, lines, text and map marker.
- An area can be used as a touch area for trigger backgrounds event in DTX automation engine.
- An area can have a popup with custom html code to create cusomt forms for specific control

Product - DTX-L1-4R8DI

DTX-L1-4R8DI is a 4 relay 8 digital input BACnet/IP advanced controller.

- DTX runtime environment pre-installed.
- Utilizing the LION fieldbus integration between DTX and digital IO.
- Offers in different IO configurations where 4 relay and 8 digital input is the base variant. Can be supplied with up to 16 relay and 32 inputs.
- Can be supplied with three different option on CPU depended on the processing and network speed requirements:
  - Raspberry PI Zero 2
  - BananaPi Zero
  - RADXA Zero
- The digital inputs is 24V sourced and the relay outputs is high current mains.
- See complete and detailed spec

- Easy installation via DTX provisioning.
- High quality aluminium casing
- DIN-mount with zero-tool snap mechanism.
- CE-compliant

Input: 12-24V ⎓ 1A

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Product - DTX-B1-SC1

NEW!

DTX-SC – BACnet/SC – Secure Connect Router. Creates secure BACnet/IP networking without the need for VPN or IPSec! New BACnet addendum for interconnecting virtual BACnet networks over Internet.
DTX-B1-SC1 is a multi role BACnet device that can be either HUB, HUB & Router or Router.

- BACnet/IP stack with multiple routing devices
- Primary/Secondary HUB capability for redundant paths from device networks to HUB.
- Direct HUB-to-HUB communication to support redundancy setups

- BACnet/IP over Internet.
- Using WebSocket technique that can be easily configured in any firewall.
- "Calling out" to a designated HUB so no need for incoming firewall openings.
- DIN-mount
- CE-compliant

Input: 12-24V ⎓ 1A

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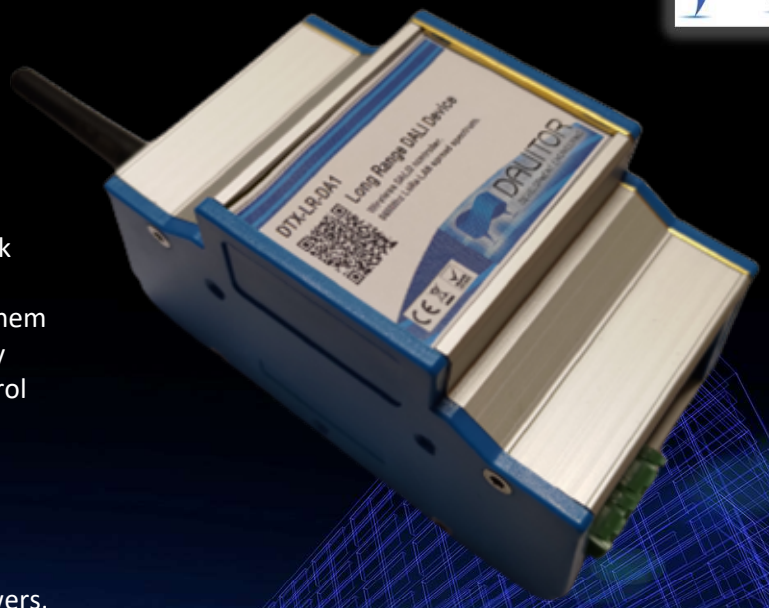
Product - DTX-LR-DA1

NEW!

Long Range Wireless DALI2 Device



- Works as a wireless link between DTX and a DALI network
- Can read any 8-24bit DALI/DALI2 message and forward them to DTX for monitor and control. Meaning you can use any DALI-sender (scene-selector, button-sender etc.) as control device on the remote DALI network.
- Use DTX development environment to setup a control program with user HMI, weekly schedules, timers etc.
- Typical usage is far distant arrangements like lighting towers, racing tracks, parking lots, multiple sport fields arenas etc. Anywhere where signal cable arrangement is to long or to expensive. In open condition you can control a DALI network up to 3km from the base station.
- Over the air setup or via serial TTL cable connection. Only three parameters to setup – Address, Channel and Security Key.
- Sub gigahertz frequency band for enhanced penetration through walls and other obstacles.
- Possibility to enable RELAY-feature for longer reach (mesh). *This is a feature coming later in 2023.*

- DALI and DALI2 support.
- Uses JSON-RPC as message formatting.
- 868Mhz LoRa spread spectrum technology.
- User defined wireless security key for data integrity and intrusion prevention.
- Coverage examples with 17cm antenna: Up to 3km reach in open range, approx. 500 meters on the ground in light residential areas, 50-100m indoor through a series of concrete walls and constructions.
- Several antenna alternatives (SMA) extends the range.
- Compatible to DTX with platform signature L3,B4 or B6.
- NORM DIN standard – IP27
- *Note, DALI provision is not supported! Use a 3rd party tool to first provision your lamps and gears with addresses and groups etc. DTX-LR-DA1 is essentially a control device and a network analyser that can control a defined network, not set it up from scratch.*

Accessory - DTX-LR-TH1/TH2

NEW!

Battery powered long range wireless sensor for temperature and humidity.

- Runs on standard 3xAAA battery. 3-5 years dependent on battery capacity.
- Use DTX development environment to monitor, store or send the readings to any other system or share via REST API.
- Incoming measurements are automatically provisioned locally as BACnet AI (Analog Input) and TL (Trend Log) objects that can be used from SCADA or other BACnet standard PLC's by COV.
- Over the air setup or via serial TTL connection. Only three parameters to setup – Address, Channel and Security Key.
- Sub gigahertz frequency band for enhanced penetration through walls and other obstacles.
- Possibility to use continuously powered units as RELAY-stations for longer reach (mesh). *This is a feature coming later in 2023.*
- Typical usage is any indoor environment metering.

- LoRa spread spectrum technology.
- Customer defined security key for data integrity and intrusion prevention.
- 0 to 50 ±2°C and 20-90% ±5% RH range (or in the TH2 model -40 to 80°C ±0.5°C and 0-100% 2-5%RH)
- 868Mhz
- IP27 - only for indoor domestic use.
- Update frequency 270s (minimum).
- Saves battery by not sending if readings are unchanged.
- Coverage examples with 17cm antenna: Up to 3km reach in open range, approx. 500 meters on the ground in light residential areas, 50-100m indoor through a series of concrete walls and constructions.
- Uses JSON-RPC as message format.
- Several antenna alternatives (SMA) extends the range.
- Compatible to DTX with platform signature L3,B4 or B6.

Typical use cases and scenarios

- A full BACnet BMS platform with COV, Intrinsic reporting, trend logging etc.
- Build Internet interconnected BACnet networks with the new standard BACnet Secure Connect.
- Monitoring industrial processes by wireless MODBUS units, process and expose the readings to customer via REST API , push notifications or database integrations.
- Control industrial and commercial building lightning with DTX DALI adapters, by cable or wireless connection.
- Integration between industrial processes AND building automation to save energy by adapting lighting, heating after industrial process usage and behaviour.
- A system integration tool between customer systems, machines and applications.
- Wide area monitoring and control with the sub gigahertz LoRa devices for Modbus and DALI. E.g. street lighting and sports arenas.
- A converter between BACnet and other networks devices.
- Universal Robot integration with built in support for RTDE support.
- Natively support for the Ruuvi (www.ruuvi.com) sensor that can detect movement, position, temp and humidity. The parameter are directly converted to automation object and can be used in the automation process as is.

Contact us

For pricing and availability please contact us on info@davitor.com or +46702226010

Regards
Dev Team of DAVITOR AB