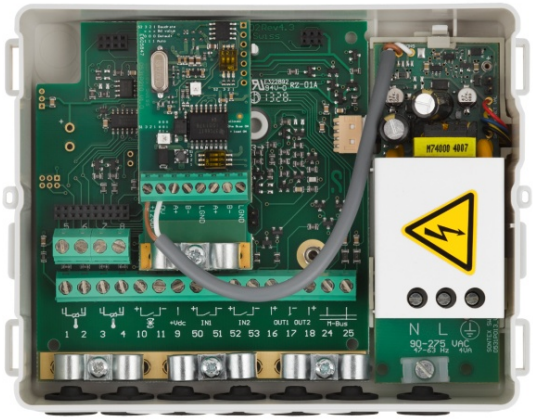
Sontex ■ Thermal Energy ■ Flow Metering ■

Supercal

BACnet MS/TP module

For Sontex Thermal Energy Meters
Supercal 531, Superstatic 440, Superstatic 449



The BACnet MS/TP module

- Compatible with ASHRAE 135 and ISO 16484-5
- Complies with the BACnet Device Profile B-ASC
- Up to 115200 bits/sec
- Supports multiple property of reading and writing
- RS-485 galvanically isolated from module

Versions

The **BACnet MS/TP module** is available with the following products:

- Integrator Supercal 531
- Thermal energy meter Superstatic 440
- Thermal energy meter Superstatic 449

Application

BACnet allows intelligent systems from various industries and manufacturers to exchange information and coordinate equipment operation to achieve optimum building performance.
The BACnet MS/TP module is available with the Supercal 531, Superstatic 440, Superstatic 449 meters and is used for data transfer to a BACnet system. The module can be used in various applications: In Business & Commercial buildings, residences, heating & cooling; where intelligent building management systems are used.

Functions

The BACnet MS/TP module communicates with the BACnet network via RS-485 and can be addressed as master or as a slave device.
Actual data, accumulated data, temperature or errors can be transmitted by the BACnet MS/TP module to the BACnet Controller.

Reliability

The BACnet MS/TP module communicates using RS-485 as its physical layer. The RS-485 port of the BACnet MS/TP module is galvanically separated.

Addressing

The BACnet MS/TP module can be addressed as a master/slave in the MAC Address range 0-127. The MAC Address 255 is used for broadcast.
The MAC Address must be unique for each device connected to the same RS-485 communication network.
By default the BACnet MS/TP module MAC Address is configured with a random value between 0-127.
The MAC Address of the module can be changed by the software Prog531 and Prog449.
The Device Instance Number (DIN) of the BACnet MS/TP module is set with a unique ID from the embedded MCU of the BACnet module. This DIN can also be read with the Prog531 and Prog449 configuration software supplied by Sontex.

TECHNICAL DATA BACnet MS/TP module

General

Operating temperature	5° to 55°C
Storage temperature	-10° to 55°C (dry environment)

Dimensions

Dimensions	66 x 30 mm
Mounting	in one of the module slots of the Supercal 531/449 integrator

Power supply

Internal power supply:	Mains switching power supply of 531 / 449 integrator 0531A030, 230 VAC with 2 outputs 0690A013, 24 VAC with 2 outputs
External power supply:	12 VDC / 150 mA

Network transmission and technical details

Bus communication	RS-485 twisted pair
RS-485 connection	Plug-screw terminal for A-, B+ and GND (2x3-pin) + 12 VDC / 0 VDC
Bus termination	Through DIP switch S1 or with an external resistor
BACnet Vendor Number	Sontex ID: 717
Data Link Layer	According to MS/TP Master/Slave
Data Protocol	According to BACnet MS/TP Master/Slave
BACnet Device Profile	B-ASC
Communication speed:	9600, 19200, 38400, 57600, 76800, 115200 bits/s or Auto Baud

Firmware compatibility

Supercal 531 / Superstatic 449 firmware release FW 3.7 or higher (FW ≥ V3.7)

Sontex Thermal Energy Flow Metering

Supercal

BACnet Protocol Implementation Conformance Statement (PICS) for Supercal 531, Superstatic 440, Superstatic 449

Date:	19.02.2015
Vendor Name:	Sontex SA
Product Name:	SUPERCAL 531/449
Product Model Number:	Module 0531A071
Applications Software Version:	since V2.42.0.10
Firmware Revision:	V2.0
BACnet Protocol Revision:	Rev. 12

Product Description

The thermal energy meter SUPERCAL 531/449 can be used in various commercial building and apartments, mainly for cooling and heating applications. The system based on signal inputs of two matched temperature sensors and any of e.g. Sontex flow meters.
Supercal 531/449 provide high accuracy e.g. energy, volume, power, flow, and temperature data via the local LCD display and various communication protocols, like BACnet MS/TP, LON FFT-10A and M-Bus.

BACnet Standardized Device Profile (Annex L):

- BACnet Application Specific Controller (B-ASC)

List all BACnet Interoperability Building Blocks Supported (Annex K):

Data Sharing	
BIBB	**Name**
DS-RP-B	Data Sharing Read-Property-B
DS-RPM-B	Data Sharing Read-Property-Multiple-B
DS-WP-B	Data Sharing Write-Property-B
DS-WPM-B	Data Sharing Write-Property-Multiple-B
DS-COV-B	Data Sharing Change-of-Value-B
DS-COVU-B	Data Sharing Change-of-Value-Unsolicited-B

Device Management	
BIBB	**Name**
DM-DDB-B	Device Management-Dynamic Device Binding-B
DM-DOB-B	Device Management-Dynamic Object Binding-B
DM-DCC-B	Device Management-DeviceCommunicationControl-B
DM-RD-B	Device Management-ReinitializeDevice-B

Standard Object Types Supported:

Object Name	Allowed Units
AI-0-Energy	MJ, GJ, Wh, kWh, MWh, BTU
AI-1-Volume	m^3, USGallon
AI-2-Energy-T1	MJ, GJ, Wh, kWh, MWh, BTU
AI-3-Volume-T1	m^3, USGallon
AI-4-Energy-T2	MJ, GJ, Wh, kWh, MWh, BTU
AI-5-Volume-T2	m^3, USGallon
AI-6-Auxiliary-A1	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon
AI-7-Auxiliary-A2	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon
AI-8–High-temperature	°C
AI-9–Low-temperature	°C
AI-10-Power	W, kW
AI-11-Flow	m^3/h
AI-12-Runnings-hours	Hours
CA-0-Set-Day1	BACnet Date year, month, day (wday = always wildcard)
AI-13-Energy-stored-ST1	MJ, GJ, Wh, kWh, MWh, BTU
AI-14-Volume-stored ST1	m^3, USGallon
AI-15-Energy-T1-stored ST1	MJ, GJ, Wh, kWh, MWh, BTU
AI-16-Volume-T1-stored-ST1	m^3, USGallon
AI-17-Energy-T2-stored ST1	MJ, GJ, Wh, kWh, MWh, BTU
AI-18-Volume-T2-stored-ST1	m^3, USGallon
AI-19-Auxiliary-A1-stored-ST1	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon
AI-20-Auxiliary-A2-stored-ST1	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon
CA-0-Set-Day2	BACnet Date year, month, day (wday = always wildcard)
AI-21-Energy-stored-ST2	MJ, GJ, Wh, kWh, MWh, BTU
AI-22-Volume-stored ST2	m^3, USGallon
AI-23-Energy-T1-stored ST2	MJ, GJ, Wh, kWh, MWh, BTU
AI-24-Volume-T1-stored-ST2	m^3, USGallon
AI-25-Energy-T2-stored ST2	MJ, GJ, Wh, kWh, MWh, BTU
AI-26-Volume-T2-stored-ST2	m^3, USGallon
AI-27-Auxiliary-A1-stored-ST2	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon
AI-28-Auxiliary-A2-stored-ST2	No-units, MJ, GJ, Wh, kWh, MWh, BTU, m^3, USGallon

Device Object Identifier:

Device Object Type Property Identifier	Property Data Type	1	2
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString (max. 16 characters)	R	W
Object_Type	BACnetObjectType	R	R
System_Status	BACnetDeviceStatus	R	R
Vendor_Name	CharacterString	R	R
Vendor_Identifier	Unsigned16	R	R
Model_Name	CharacterString	R	R
Firmware_Revision	CharacterString	R	R
Application_Software_Version	CharacterString	R	R
Location	*CharacterString*	*O*	-
Description	*CharacterString*	*O*	-
Protocol_Version	Unsigned	R	R
Protocol_Revision	Unsigned	R	R
Protocol_Services_Supported	BACnetServicesSupported	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	R
Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	R	R
Max_APDU_Length_Accepted	Unsigned (max. 480)	R	R
Segmentation_Supported	BACnetSegmentation	R	R
Local_Time	STX531 Time	O	W
Local_Date	STX531 Date	O	W
Daylight_Savings_Status	*BOOLEAN*	*O*	-
APDU_Timeout	Unsigned (10.000 ms)	R	R
Number_Of_APDU_Retries	Unsigned (5)	R	R
Max_Master	Unsigned (127)	O	R
Max_Info_Frames	Unsigned (1)	O	R
Device_Address_Binding	List of BACnetAddressBinding (empty)	R	R
Database_Revision	Unsigned (1)	R	R

Calendar Object Identifier:

Calendar Object Type Property Identifier	Property Data Type	1	2
Object_Identifier	BACnetObjectIdentifier (1-24)	R	R
Object_Name	CharacterString (max. 16 characters)	R	W
Object_Type	BACnetObjectType	R	R
Present_Value	BOOLEAN	R	R
Description	CharacterString (max. 16 characters)	O	W
Date_List	List of BACnetCalenderEntry	R	W
Profile_Name	CharacterString (max. 16 characters)	O	W

Analogue-Input Object Identifier:

Analogue-Input Object Type Property Identifier	Property Data Type	1	2
Object_Identifier	BACnetObjectIdentifier (1-24)	R	R
Object_Name	CharacterString (max. 16 characters)	R	W
Object_Type	BACnetObjectType	R	R
Present_Value	REAL	R	R
Description	CharacterString (max. 16 characters)	O	W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	*BACnetReliability*	*O*	-
Out_Of_Service	BOOLEAN	R	W
Update_Interval	*Unsigned*	*O*	-
Units	BACnetEngineeringUnits	R	R
COV_Increment	*REAL*	*O*	-

1 = BACnet Conformance Code 135-2004
2 = BACnet Conformance Code Stx531 BACnet
W = Writable
O =Optional
R = Required + Readable
- = Not supported

Data Link Layer Options:

- MS/TP master (Clause 9), baud rate(s):
  9600, 19200, 38400, 57600, 76800, 115200, Auto Baud

Character Sets Supported:

- ANSI X3.4 / UTF-8*
  * Enumeration 0 = ANSI X3.4 was replaced by UTF-8, introduced in BACnet Addendum-H, approved January 2010

Technical assistance
For technical support, please contact your local Sontex representation or Sontex SA directly.

Sontex hotline: sontex@sontex.ch, +41 32 488 30 04

Detailed declarations of conformity can found on our home page: www.sontex.ch

Subject to change without notice Data Sheet BACnet MS-TP Module EN 28-10-2016