- Connects a Davis VantagePro2 or Vantage Vue to a BACnet network
- BACnet MS/TP over RS-485 compatible
- Easy BACnet network configuration via onboard switches
- Various selectable metric and imperial unit conversions
- Compatible with new Davis firmware; provides additional weather data
- Configurable alarm on gateway with two open collector outputs

Connections

Connection	Description
V +	Power Positive (8 to 28V DC; 100mW)
GND	Power Negative (Ground)
D +	RS-485 Data +
D -	RS-485 Data -
GND	Ground
Male DE-9	Serial communications (RS-232) between KTA-302 and Weather station via WeatherLink cable
Ethernet	The Ethernet connector is not used for BACnet functions.
OC1	Open Collector Output 1
OC2	Open Collector Output 2

LED	Function
Red Tx LED (next to RS-485 terminal)	Indicates serial communications sent on RS-485
Green Rx LED (next to RS-485 terminal)	Indicates serial communications received RS-485
Green Rx LED next to DE-9 connector	Indicates serial communications received (from weather station) on the serial port
Red Tx LED next to DE-9 connector	Indicates serial communications sent on the serial port

Setting Up BACnet Address and Baud Rate

The BACnet address and the baud rate are set through the switches near to the RS-485 connector.

- Setting the Baud Rate:

Baud Rate	Switch 7	Switch 8
9600	OFF	OFF
19200	ON	OFF
38400	OFF	ON
76800	ON	ON

- Setting the BACnet MAC ID

The BACnet MAC ID is set through the bit switches from 1 to 6 using binary decoding. Each switch represents the binary value and the address is set by the combination of those switches. The configurable range is from 0 to 63. See address table below.

Address	SW1	SW2	SW3	SW4	SW5	SW6	Address	SW1	SW2	SW3	SW4	SW5	SW6
0	OFF	OFF	OFF	OFF	OFF	OFF	32	OFF	OFF	OFF	OFF	OFF	ON
1	ON	OFF	OFF	OFF	OFF	OFF	33	ON	OFF	OFF	OFF	OFF	ON
2	OFF	ON	OFF	OFF	OFF	OFF	34	OFF	ON	OFF	OFF	OFF	ON
3	ON	ON	OFF	OFF	OFF	OFF	35	ON	ON	OFF	OFF	OFF	ON
4	OFF	OFF	ON	OFF	OFF	OFF	36	OFF	OFF	ON	OFF	OFF	ON
5	ON	OFF	ON	OFF	OFF	OFF	37	ON	OFF	ON	OFF	OFF	ON
6	OFF	ON	ON	OFF	OFF	OFF	38	OFF	ON	ON	OFF	OFF	ON
7	ON	ON	ON	OFF	OFF	OFF	39	ON	ON	ON	OFF	OFF	ON
8	OFF	OFF	OFF	ON	OFF	OFF	40	OFF	OFF	OFF	ON	OFF	ON
9	ON	OFF	OFF	ON	OFF	OFF	41	ON	OFF	OFF	ON	OFF	ON
10	OFF	ON	OFF	ON	OFF	OFF	42	OFF	ON	OFF	ON	OFF	ON
11	ON	ON	OFF	ON	OFF	OFF	43	ON	ON	OFF	ON	OFF	ON
12	OFF	OFF	ON	ON	OFF	OFF	44	OFF	OFF	ON	ON	OFF	ON
13	ON	OFF	ON	ON	OFF	OFF	45	ON	OFF	ON	ON	OFF	ON
14	OFF	ON	ON	ON	OFF	OFF	46	OFF	ON	ON	ON	OFF	ON
15	ON	ON	ON	ON	OFF	OFF	47	ON	ON	ON	ON	OFF	ON
16	OFF	OFF	OFF	OFF	ON	OFF	48	OFF	OFF	OFF	OFF	ON	ON
17	ON	OFF	OFF	OFF	ON	OFF	49	ON	OFF	OFF	OFF	ON	ON
18	OFF	ON	OFF	OFF	ON	OFF	50	OFF	ON	OFF	OFF	ON	ON
19	ON	ON	OFF	OFF	ON	OFF	51	ON	ON	OFF	OFF	ON	ON
20	OFF	OFF	ON	OFF	ON	OFF	52	OFF	OFF	ON	OFF	ON	ON
21	ON	OFF	ON	OFF	ON	OFF	53	ON	OFF	ON	OFF	ON	ON
22	OFF	ON	ON	OFF	ON	OFF	54	OFF	ON	ON	OFF	ON	ON
23	ON	ON	ON	OFF	ON	OFF	55	ON	ON	ON	OFF	ON	ON
24	OFF	OFF	OFF	ON	ON	OFF	56	OFF	OFF	OFF	ON	ON	ON
25	ON	OFF	OFF	ON	ON	OFF	57	ON	OFF	OFF	ON	ON	ON
26	OFF	ON	OFF	ON	ON	OFF	58	OFF	ON	OFF	ON	ON	ON
27	ON	ON	OFF	ON	ON	OFF	59	ON	ON	OFF	ON	ON	ON
28	OFF	OFF	ON	ON	ON	OFF	60	OFF	OFF	ON	ON	ON	ON
29	ON	OFF	ON	ON	ON	OFF	61	ON	OFF	ON	ON	ON	ON
30	OFF	ON	ON	ON	ON	OFF	62	OFF	ON	ON	ON	ON	ON
31	ON	ON	ON	ON	ON	OFF	63	ON	ON	ON	ON	ON	ON

BACnet Services Supported

- Read Property
- Read Property Multiple
- Write Property
- Device Communication Control
- Reinitialise Device
- Who-Has
- Who-Is

Standard Object-Types Supported

- Analogue Input
- Analogue Value
- Binary Value
- Device
- Date Value
- Integer Value
- Time Value

Data Link Layer Option

- BACnet MS/TP master. Baud rates: 9600, 19200, 38400 and 78800

Device Object Properties

Property Name/ID	Access	Default
Object Identifier	R	838000 + MAC Address
Object Name	R	KTA-302
Object Type	R	Device
System Status	R	Operational
Vendor Name	R	Ocean Controls
Vendor Identifier	R	838
Model Name	R	KTA-302 BACnet
Protocol Version	R	1
Protocol Revision	R	14
Max APDU Lenght	R	128
APDU Timeout	R	3000 ms
Number APDU Retries	R	3

Analogue Input Objects

Analogue Input Objects are the values read from the Davis Weather Station.

Analogue Objects Properties

Property Name/ID	Access	Default	Note
Object Identifier	R		See table bellow
Object Name	R		See table bellow
Object Type	R	ANALOG INPUT	
Present Value	R		Value read from Weather Station
Status Flags	R	All false	*
Event State	R	NORMAL	
Out Of Service	R	FALSE	
Units	R/W		See table bellow for default

*Alarm Flag set to true when the Davis Weather Station alarm is reached. The alarms have to be configured by Weather Link Software or on Weather Station Console.

Analogue Objects Supported

Object Name	Instance	Default Unit	Supported Units
Barometer Trend 3h	0	No_Units	No_Units
Barometer	1	mmHg	InHg,mmHg,mb
Inside Temperature	2	Deg C	Deg F, Deg C
Inside Humidity	3	%	%
Outside Temperature	4	Deg C	Deg F, Deg C
Wind Speed	5	m/s	Mph, m/s, fps, kph
Wind Speed Average	6	m/s	Mph, m/s, fps, kph
Wind Direction	7	Deg	Deg Angular
Extra Temperature 1	8	Deg C	Deg F, Deg C
Extra Temperature 2	9	Deg C	Deg F, Deg C
Extra Temperature 3	10	Deg C	Deg F, Deg C
Extra Temperature 4	11	Deg C	Deg F, Deg C
Extra Temperature 5	12	Deg C	Deg F, Deg C
Extra Temperature 6	13	Deg C	Deg F, Deg C
Extra Temperature 7	14	Deg C	Deg F, Deg C
Soil Temperature 1	15	Deg C	Deg F, Deg C

Soil Temperature 2	16	Deg C	Deg F, Deg C
Soil Temperature 3	17	Deg C	Deg F, Deg C
Soil Temperature 4	18	Deg C	Deg F, Deg C
Leaf Temperature 1	19	Deg C	Deg F, Deg C
Leaf Temperature 2	20	Deg C	Deg F, Deg C
Leaf Temperature 3	21	Deg C	Deg F, Deg C
Leaf Temperature 4	22	Deg C	Deg F, Deg C
Outside Humidity	23	%	%
Extra Humidity 1	24	%	%
Extra Humidity 2	25	%	%
Extra Humidity 3	26	%	%
Extra Humidity 4	27	%	%
Extra Humidity 5	28	%	%
Extra Humidity 6	29	%	%
Extra Humidity 7	30	%	%
Rain Rate per Hour	31	mm	In, mm
UV Index	32	No_units	No_units
Solar Radiation	33	W/m2	W/m2
Storm Rain	34	mm	In, mm
Day Rain	35	mm	In, mm
Month Rain	36	mm	In, mm
Year Rain	37	mm	In, mm
Day Evapotranspiration	38	mm	In, mm
Month Evapotranspiration	39	mm	In, mm
Year Evapotranspitarion	40	mm	In, mm
Soil Moisture 1	41	millibar	millibar
Soil Moisture 2	42	millibar	millibar
Soil Moisture 3	43	millibar	millibar
Soil Moisture 4	44	millibar	millibar
Leaf Weatenesses 1	45	No_Units	No_Units
Leaf Weatenesses 2	46	No_Units	No_Units
Leaf Weatenesses 3	47	No_Units	No_Units
Leaf Weatenesses 4	48	No_Units	No_Units
Console Battery Voltage	49	V	V
Wet Bulb	50	Deg C	Deg F, Deg C
Wind Speed last 2 minutes	51	m/s	Mph, m/s, fps, kph
Wind Gust last 10 minutes	52	m/s	Mph, m/s, fps, kph
Wind Direction for 10 minutes gust	53	m/s	Mph, m/s, fps, kph
Dew Point	54	Deg C	Deg F, Deg C
Heat Index	55	Deg C	Deg F, Deg C
Wind Chill	56	Deg C	Deg F, Deg C
THSW Index	57	Deg C	Deg F, Deg C
Rain Last 15 minutes	58	mm	In, mm
Rain Last Hour	59	mm	In, mm
Rain Last 24 Hours	60	mm	In, mm
Barometric Sensor Raw Reading	61	mmHg	InHg,mmHg,mb
Absolute Barometric Pressure	62	mmHg	InHg,mmHg,mb

Analogue Units Supported

Unit	Abrev.	BACnet Code
Degrees Fahrenheit	Deg F	64
Degrees Celsius	Deg C	62
Percent Relative Humidity	%	29
Inches Of Mercury	inHg	61
Millimetres of Mercury	mmHg	59
Millibar	mb	134
Inches	In	32
Millimetres	mm	30
Miles per Hour	mph	78
Meters per Second	m/s	74
Feet per Second	fps	76
Kilometres per Hour	kph	75
Volts	V	5
Degrees Angular	Deg	90
Watts per Square Meter	W/m2	35
No Units	No_Units	95

Time Objects

Time Objects are read from the Davis Weather Station.

Time Object Properties

Property Name/ID	Access	Default	Note
Object Identifier	R	0, 1	
Object Name	R	(0) Time of Sunrise (1) Time of Sunset	
Object Type	R	TIME (50)	
Present Value	R		Values are read from Weather Station
Status Flags	R	All false	

*These values require longitude and latitude to be set. Longitude and latitude can be set using the WeatherLink software or the Weather Station console.

Date Object

Date Object is read from the Davis Weather Station.

Date Object Properties

Property Name/ID	Access	Default	Note
Object Identifier	R	0	
Object Name	R	Start date of current storm	
Object Type	R	DATE (42)	
Present Value	R		Value is read from Weather Station
Status Flags	R	All false	

*These values require longitude and latitude to be set. Longitude and latitude can be set using the WeatherLink software or the Weather Station console.

Analogue Value Objects

Analogue Value Objects define the alarm set point value. See Alarm Section for further information.

Analogue Value Object Properties

Property Name/ID	Access	Default	Note
Object Identifier	R	0, 1	
Object Name	R	(0) Set Point 1 (1) Set Point 2	
Object Type	R	ANALOG VALUE	
Present Value	R/W	0	
Status Flags	R	All false	
Event State	R	NORMAL	
Out Of Service	R	FALSE	
Units	R	No_Units	
Relinquish Default	R	0	
*Proprietary Property /3306	R/W	1	See on Alarm Section

*Proprietary Property has **data type Enumerated.**

Integer Value Objects

Integer Value Objects define which instance number will be controlled by alarm set points. See Alarm Section for further information.

Integer Value Object Properties

Property Name/ID	Access	Default	Note
Object Identifier	R	0, 1	
Object Name	R	(0) Instance of SP1 (1) Instance of SP2	
Object Type	R	INTEGER VALUE	
Present Value	R/W	0	Instance number of Analogue Input Object that should be controlled by alarm.
Status Flags	R	All false	
Out Of Service	R/W	TRUE	Write true to disable respective alarm
Units	R	No_Units	
Relinquish Default	R	0	

Binary Value Objects

Binary Value Objects show the status of the alarm open collector outputs. See Alarm Section for further information.

Binary Value Object Properties

Property Name/ID	Access	Default	Note
Object Identifier	R	0, 1	
Object Name	R	(0) OC Output 1 (1) OC Output 2	
Object Type	R	BINARY VALUE	
Present Value	R	0	Status of output
Status Flags	R	All false	
Out Of Service	R	FALSE	
Event State	R	NORMAL	
Polarity	R	NORMAL	

Alarms

The KTA-302 BACnet Gateway provides two configurable alarms which can enable or disable two open collector outputs. To activate those alarms, the user has to set false in the Out of Service property of the Integer Value Object and configure the desirable parameters.

Alarm 1

Object/Name	**Property**	
Integer Value 0 / Instance of SP1	Present Value	Write the instance number of the analogue input object to be controlled.
Integer Value 0 / Instance of SP1	Out Of Service	Enable or Disable the alarm
Analogue Value 0 / Set Point 1	Present Value	Write the desirable set point
Analogue Value 0 / Set Point 1	Proprietary Property / 3306	Activate Alarm when: 0 – Equal to SP 1 – Greater than SP 2 – Lower than SP 3 – The alarm flag is activated
Binary Value 0 / OC Output 1	Present Value	Shows status of the OC1 output.

Alarm 2

Object/Name	**Property**	**Note**
Integer Value 1 / Instance of SP2	Present Value	Write the instance number of the analogue input object to be controlled.
Integer Value 1 / Instance of SP2	Out Of Service	Enable or Disable the alarm
Analogue Value 1 / Set Point 2	Present Value	Write the desirable set point
Analogue Value 1 / Set Point 2	Proprietary Property / 3306	Activate Alarm when: 0 – Equal to SP 1 – Greater than SP 2 – Lower than SP 3 – The alarm flag is activated
Binary Value 1 / OC Output 2	Present Value	Shows status of the OC2 output.