DC4

BMS Slave Unit

D-Series Controls
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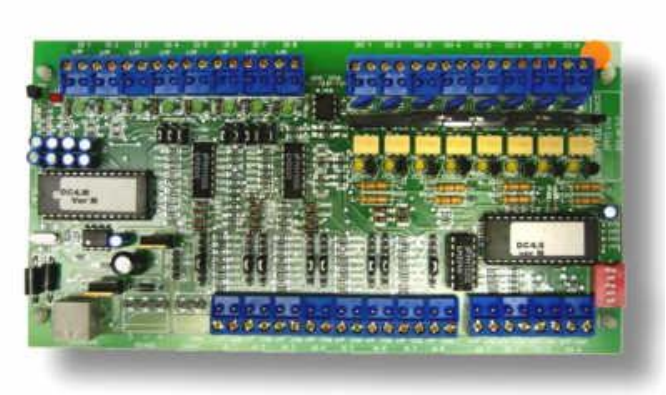


The **DC4** is a very cost effective extension of the Siemens Building Technologies System 600 BMS. It acts as a remote extension of the MBC or RBC. The system 600 programmer has access to the 28 points on the DC4. Each point can be unbundled and used in the usual manner including trending etc.

All connections to the DC4 are by means of plug-in screw terminal connectors which provides for quick, convenient installation, commissioning and maintenance.

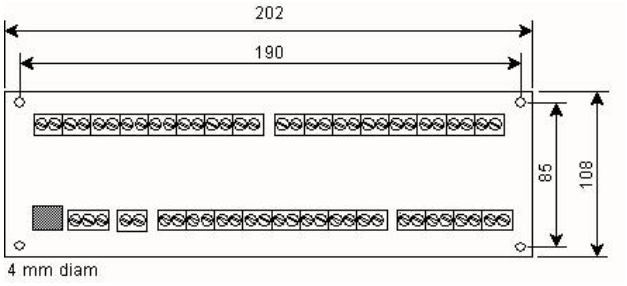
Features

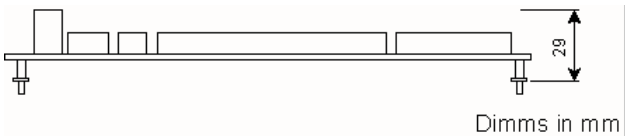
- 8 Digital outputs
- 8 Digital inputs
- 8 Analog inputs
- 4 Analog outputs
- BMS communications support (Siemens Building Technologies System 600 compatible)
- Accepts 10k, 47k and 100k NTC thermistor temperature sensors
- Analog inputs can be individually selected as 0-10 Volt or NTC sensor

Technical Data

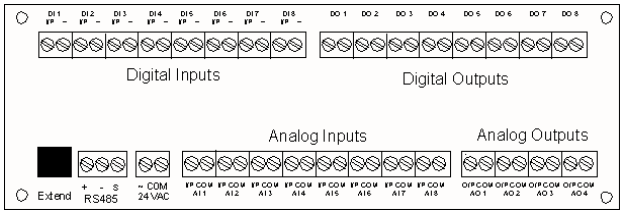
- Operating voltage 24 VAC, 2 VA
- Temperature sensors, NTC thermistors 10k, 47k or 100k - Temperature range -10 to 50º C, 0.25º C Resolution
- 0-10 Volt analog input 0 to 10 Volt, 0.04 Volt Resolution
- 0-10 Volt analog output 0 to 10 Volt, 0.0476 Volt Resolution - Source - sink current 1 mA max
- Digital outputs 220 VAC, 1 Amp running - 4 Amp max
- Digital inputs 24 VAC (20 mA trigger current)

Dimensions





Connections



DC4 Points list (BMS) Ver J onwards - Application 152

Point	Description	Units	ON / OFF	Slope	Intercept	Type
1	DI 1		ON.OFF	1	0	LDI
2	DI 2		ON.OFF	1	0	LDI
3	DI 3		ON.OFF	1	0	LDI
4	DI 4		ON.OFF	1	0	LDI
5	DI 5		ON.OFF	1	0	LDI
6	DI 6		ON.OFF	1	0	LDI
7	DI 7		ON.OFF	1	0	LDI
8	DI 8		ON.OFF	1	0	LDI
9	DO 1		ON.OFF	1	0	LDO

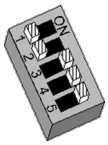
Point	Description	Units	ON / OFF	Slope	Intercept	Type
10	DO 2		ON.OFF	1	0	LDO
11	DO 3		ON.OFF	1	0	LDO
12	DO 4		ON.OFF	1	0	LDO
13	DO 5		ON.OFF	1	0	LDO
14	DO 6		ON.OFF	1	0	LDO
15	DO 7		ON.OFF	1	0	LDO
16	DO 8		ON.OFF	1	0	LDO
17	TEMP 1	DEG C		0.25	-10	LAI
18	TEMP 2	DEG C		0.25	-10	LAI
19	TEMP 3	DEG C		0.25	-10	LAI
20	TEMP 4	DEG C		0.25	-10	LAI
21	TEMP 5	DEG C		0.25	-10	LAI
22	TEMP 6	DEG C		0.25	-10	LAI
23	TEMP 7	DEG C		0.25	-10	LAI
24	TEMP 8	DEG C		0.25	-10	LAI
25	0-10V IN 1	VOLTS		0.04	0	LAI
26	0-10V IN 2	VOLTS		0.04	0	LAI
27	0-10V IN 3	VOLTS		0.04	0	LAI
28	0-10V IN 4	VOLTS		0.04	0	LAI
29	DAY.NGT		NIGHT.DAY	1	0	LDO
30	0-10V IN 5	VOLTS		0.04	0	LAI
31	0-10V IN 6	VOLTS		0.04	0	LAI
32	0-10V IN 7	VOLTS		0.04	0	LAI
33	0-10V IN 8	VOLTS		0.04	0	LAI
34	0-10V OUT 1	VOLTS		0.05	0	LAO
35	0-10V OUT 2	VOLTS		0.05	0	LAO
36	0-10V OUT 3	VOLTS		0.05	0	LAO
37	0-10V OUT 4	VOLTS		0.05	0	LAO

Note: Point 29 is only available when using the BMS Terminal. When using the D-Terminal, this connection will not be displayed and points 30 to 37 will all shift down one position (i.e. point 34 will become point number 33, etc.)

Controller Setup

The controllers must each be programmed with an address for BMS operation. The address is set by means of the dip switch on the controller. The dip switch settings have the following values.

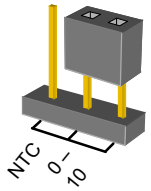
Switch Number	OFF Value	ON Value
1	0	1
2	0	2
3	0	4
4	0	8
5	0	16



The address is calculated by adding the **ON** values together.

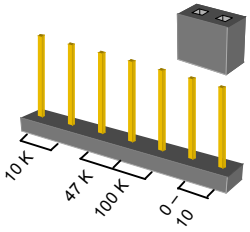
The dip switch shown here has switches 1 & 2 OFF while 3, 4 & 5 are ON. The address is calculated as 4 + 8 + 16 = 28

The Analog Inputs can be individually configured. Each input can be selected as either 0 - 10 Volt or a NTC thermistor sensor input. There are 2 jumper settings for each input.



JP 102 to JP 802

These jumpers are used to selects for either a 0 - 10 Volt or NTC thermistor input.



JP 101 to JP 801

These jumpers are used to select for either the 0 - 10 Volts or the value of NTC thermistor that is attached.

Special Notes

1. The standard DC4 only supports SI units. Non SI can be supplied on request.
2. The points numbered 17 to 24 and those numbered 25 to 32 are both representations of the same physical analog inputs. When the analog input is connected to a NTC thermistor temperature sensor, then unbundle the point from the points 17 to 24. When using the analog input as 0 to 10 Volts then unbundle the point from the points 25 to 32. The points 17 to 24 are corrected, by the DC4, to allow for the non-linearity of the thermistor curve.

   Example 1:

   If analog input 1 is connected to a 100k NTC thermistor then you would unbundle the point as address TCCLDD17 with a slope of 0.25, an intercept of -10 and the type L.

   Example 2:

   If the analog input 2 is connected to a 0 to 10 Volt device then you would unbundle the point as address TCCLDD26 with a slope of 0.04, an intercept of 0 and the type L. This would return the value 0 to 10. If the 0 to 10 Volt device is for instance a pressure sensor with the range 0 to 500 Pa, you might prefer to unbundle the point as address TCCLDD26 with a slope of 2.0, an intercept of 0 and the type L. This would return the values 0 to 500.

   The slope to use is calculated as follows:

   SLOPE = 0.004 X RANGE

   Therefore if the range was 500 the slope will be:

   SLOPE = 0.004 X 500 = 2.0

3. The Siemens Building Technologies 10k NTC sensor has an internal diode which offsets the value read by the DC4. To use these sensors, the intercept must be changed from -10 to -5 to correct for the effect of the internal diode. The BMS standard report will however show a value which is 5 Deg C lower than actual but the unbundled point will show the correct value.
4. The DC4 is fabricated without any non-volatile (permanent) memory. Due to this design any "OPERATOR" priority commands will be lost during a power failure.

   Example:

   If for instance you were to unbundle a digital output as FANRUN and you commanded FANRUN to ON, your point FANRUN would appear in the point log as:

   FANRUN ( ) ON -N- P:OPER

   Should the power to the DC4 become interrupted or the communication to the DC4 be lost for more than 30 seconds, then when the DC4 returns from failure, the point log would show the following:

   FANRUN ( ) OFF -N- P:OPER

   The FANRUN would default to OFF and remain as such until it is changed by another operator command or be released from OPERATOR priority and change under program control. The points can be commanded using POINT COMMAND LCTLR SET etc. These commands will be restored by the BMS when the DC4 recovers from failure.