

The **DC3** 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 11 points on the DC3. Each point can be unbundled and used in the usual manner including trending etc.

All connections to the DC3 are by means of plug-in screw terminal connectors which provides for quick, convenient installation, commissioning and maintenance.

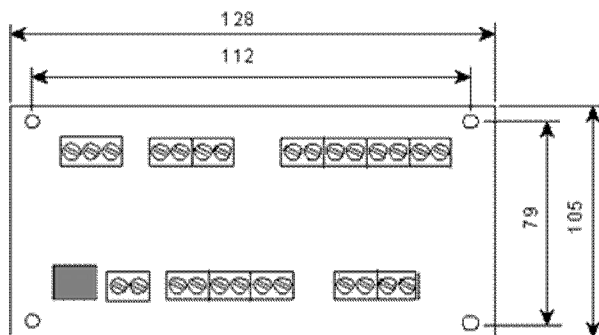
Features

- 4 Digital outputs
- 2 Digital inputs
- 3 Analog inputs
- 2 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

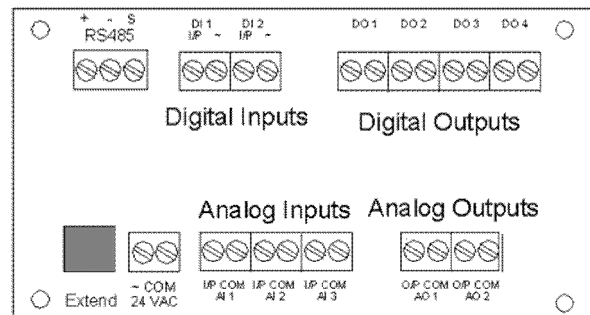
Technical Data

- Operating voltage 24 VAC, 2 VA
- Temperature sensors
- Sensing elements - NTC thermistors 10k, 47k or 100k
- Temperature range -10 to 50°C, 0.25°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 current

Dimensions



Connections



DC3 Points list (BMS) Version A - Application 140

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	DO 1		ON.OFF	1	0	LDO
4	DO 2		ON.OFF	1	0	LDO
5	DO 3		ON.OFF	1	0	LDO

Point	Description	Units	ON / OFF	Slope	Intercept	Type
6	DO 4		ON.OFF	1	0	LDO
7	TEMP 1	DEG C		0.25	-10	LAI
8	TEMP 2	DEG C		0.25	-10	LAI
9	TEMP 3	DEG C		0.25	-10	LAI
10	0-10V IN 1	VOLTS		0.04	0	LAI
11	0-10V IN 2	VOLTS		0.04	0	LAI
12	0-10V IN 3	VOLTS		0.04	0	LAI
13	0-10V OUT 1	VOLTS		0.05	0	LAO
14	0-10V OUT 2	VOLTS		0.05	0	LAO

DC3 Points list (BMS) Version B - Application 141

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	DO 1		ON.OFF	1	0	LDO
4	DO 2		ON.OFF	1	0	LDO
5	DO 3		ON.OFF	1	0	LDO
6	DO 4		ON.OFF	1	0	LDO
7	TEMP 1	DEG C		0.25	-10	LAI
8	TEMP 2	DEG C		0.25	-10	LAI
9	TEMP 3	DEG C		0.25	-10	LAI
10	0-10V IN 1	VOLTS		0.04	0	LAI
11	0-10V IN 2	VOLTS		0.04	0	LAI
12	0-10V IN 3	VOLTS		0.04	0	LAI
13	0-10V OUT 1	VOLTS		0.05	0	LAO
14	0-10V OUT 2	VOLTS		0.05	0	LAO
29	DAY.NGT		NIGHT.DAY	1	0	LDO

Note: Point 29 is only available when using the BMS Terminal. When using the D-Terminal, this connection will not be displayed.

Special Notes

- The standard DC3 only supports SI units. Non SI can be supplied on request.
- The points numbered 7 to 9 and those numbered 10 to 12 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 7 to 9. When using the analog input as 0 to 10 Volts then unbundle the point from the points 10 to 12. The points 7 to 9 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 TCCLDD7 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 TCCLDD11 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 TCCLDD11 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:

$$SLOPE = 0.004 \times RANGE$$

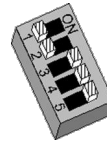
Therefore if the range was 500 the slope will be:

$$SLOPE = 0.004 \times 500 = 2.0$$

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.

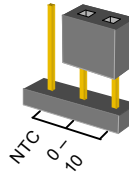
Switch Number	OFF Value	ON Value
1	0	1
2	0	2
3	0	4
4	0	8
5	0	16



The address is calculated by adding the ON values together.

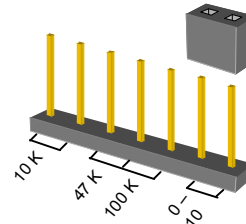
The dip switch shown here has switches 1 & 2 OFF while 3, 4 & 5 are ON. The address is calculated as 4 + 8 + 16 = 28

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 302

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



JP 101 to JP 301

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

- The Siemens Building Technologies 10k NTC sensor has an internal diode which offsets the value read by the DC3. 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.
- The DC3 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 if 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 DC3 become interrupted or the communication to the DC3 be lost for more than 30 seconds, then when the DC3 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 LCTRL SET etc. These commands will be restored by the BMS when the DC3 recovers from failure.