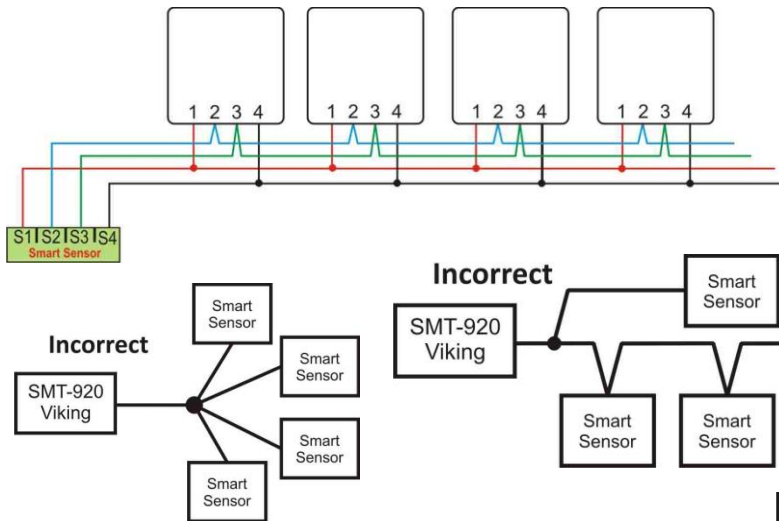


The “Smart Sensor” has been designed to be used exclusively with the SMT-920 “Viking” HVAC commercial controller with version 2.51 firmware or greater. For the touch screen version of the Smart Sensor (RS-SSDII), Viking firmware version 2.9 or greater is required to be able to take advantage of the more advanced functions that this sensor can provide.

The Smart Sensor provides the Viking with humidity and temperature data that permits the Viking to control the fresh air economy cycle based on the enthalpy of the air – this is by far the most energy efficient way. It further provides the Viking with more accurate room temperature data as there are no analogue line losses associated with traditional 2 wire temperature sensors.

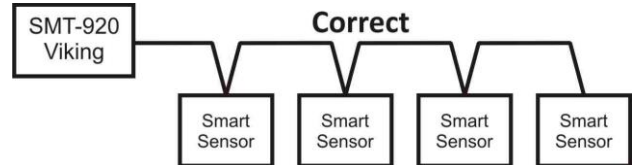
Wiring



The Smart Sensor wires into the Viking’s 4 Smart Sensor terminals located under the slide off cover at the top of the Viking controller. These terminals are labelled “Smart Sensor S1, S2, S3 & S4.”

All sensors are to be wired in series using screened cable and grounded in one location only, particularly when used on long cable runs or when cabling may be run where electrical noise may be present.

Star wiring or “T” branches will not be tolerated and communication errors may result.



Defining the Smart Sensor Address on the Viking Network

Within each Smart Sensor there is a switch block that defines the address of the sensor on the Viking sensor network.

The RS-SS (non-touch screen version) has a 4 way switch block with switches labelled 1 to 4. These switches are used exclusively to set the address & define the function of the RS-SS thermostat on the network.

The RS-SSD (touch screen version) has an 8 way switch block. The first 4 switches (Sw 1,2,3 & 4) are used to set the RS-SSD sensor address and function on the network, the remaining 4 switches (Sw 5,6,7 & 8) are used to control additional functions supported in this sensor - see next page “RS-SSD Advanced switch Functions.”

2 Way Switch Block

Each Smart Sensor has a separate 2 way switch block. These 2 switches are used to bring the communications end of line resistor into circuit. This EOL resistor may help reduce communication errors on large networks or long network runs. If you have communication errors on long cable runs turn both of these switches ON, but only on the last sensor in the network. Leave these switches OFF unless you are experiencing communication errors causing loss of the sensor on the network.

Setting Sensor Network Address and Sensor Function

If **ANY** of the 4 address switches in the Smart Sensor(s) are in the OFF position then the sensor values are used by the Viking for **inside** temperature and humidity measurement. If multiple sensors are used as inside sensors then the Viking will use the average value of these sensors and use this average value as for control. The Viking will display the average temperature while the sensors will display their individual values.

If **ALL** of the 4 address switches in the Smart Sensor are in the ON position the sensor value are used by the Viking for **outside** air temperature and humidity measurement.

If all 4 address switched on the RS-SSD are on, only the outside temperature readings are displayed on the LCD.

Note - You may have multiple Smart Sensors connected to any Viking up to a maximum 16 sensors, however you can have only 1 sensor defined as an outside Smart Sensor and no 2 Smart Sensors on the same Viking network can share the same DIP switch address combination. Having multiple sensors with the same DIP switch combination will cause communication errors and erratic behaviour.

Enthalphy vs RH Limiting Economy Control”

If only an outside Smart Sensor is installed with a standard 2 wire (non-communicating sensor) inside, the Viking will permit you to set a HIGH outside RH limit. If the outside RH exceeds this threshold then economy cycle functions will be suspended.

If the Viking has both the inside and outside Smart Sensors then the Viking will automatically switch to “Enthalpy Mode” and calculate the suitability of outside air for economy cooling based on the measured inside and outside enthalphy.

See **Setting the Economy Control** options in the Viking manual for more information on this feature.

TT Terminals - Remote Temperature sensor.

The Smart Sensor has a set of terminals marked “TT”. If you wire a standard Smart Temp 2 wire sensor to these terminals then the DRY BULB sensor within the Smart Sensor is disabled and the dry bulb temperature is measured by the remotely connected temperature sensor. The humidity sensor fitted to the Smart Sensor is still used for RH measurement.

This external sensor is automatically detected by the Smart Sensor when connected, no other installer input is required. Placing a momentary dead short on the Smart Sensors “TT” terminals will initiate or cancel the afterhours run feature built into the sensor.

RS-SSDII Touch screen LCD sensor version.

As well as all the functions described above, this Smart Sensor has the ability to display useful information such as the outside temperature and humidity (if an outside Smart Sensor is fitted to the Viking), the inside temperature and humidity, whether the Viking is calling for heating or cooling as well as other useful information.

RS-SSD Advanced Functions Switch Settings

Sw	Function	Off	On
Sw5	ON/OFF Function	Disabled	Enabled
Sw6	After Hours Function	Disabled	Enabled
Sw7	Set Temperature Adjustment	Not Permitted	Permitted
Sw8	Display Only Mode	Off	On



Sw – 5 The ON/OFF function permits the user to manually override (force) the Viking to off, locking out any time clock scheduling that may be controlling the Viking. For example, manually force the Viking off before a long holiday or when renovations are taking place. The Text “OFF” will flash on the sensor display when forced off via the On/OFF function. The Viking will display “Smart Sensor OFF” when this function is active. (Note – entering the Viking installer menu will reset this function)

Sw – 6 The timed after hours run facility of the Viking can be controlled at the sensor if this function is enabled. To reduce confusion the afterhours button is ONLY shown on the Smart Sensor display when the Viking is not running and therefor the after hours function applies.

Sw – 7 Should it be necessary the smart sensor will permit the user to adjust the set temperature to within set limits (as defined in the Viking “Change temperature Control Limits” menu) with the temperature +/- buttons when enabled. These buttons are only shown when the Viking is running.

Sw – 8 If you wish to use the smart sensor simply as a display / remote set point adjustment turn Sw8=On. In this mode the temperature and humidity sensor within the smart sensor are disabled and the RS-SSD will only display the value of the other smart sensor(s) on the network (or the average of other indoor smart sensors if more than one smart sensor is on the network). The RS-SSD will display dashes when sw8 is on without other indoor sensors on the network.

*For further information please contact Smart Temp or an authored Smart Temp Distributor.
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