

# VERSATRONIK 505

## In The Mix 2011



### Product Update Overview 2011:

There is soon to be a revised mixing valve controller to replace the current mixing valve controller. The current 7133 392 has been used for a number of years now and for those of you that recall an older newsletter issue #4, you will know that the older control was reviewed in detail. This new control replaces the current unit with some minor and major updates.



Vitotronic 050/200-H, HK1. However, if the Vitodens 200, WB2A installation has a single

mixing valve zone that utilized the original version of this control, then this unit will work just fine as a replacement.

When you un-box this control, you will note the product similarities to the current unit. The hardware that is used to mount the unit to the mixing valve is

the same. The rearmost section is used to mount to the mixing valve motor. The differences make themselves apparent in the front sections of the controller where the electronics are housed.

With the disassembly of the older units, in comparison to this new control, you will notice the different method of interfacing the PCB with the mixing valve motor. This new unit uses a plug connection between the electronics board and the motor. It is this interconnection which provides the 120VAC signal to pulse the valve open and closed.

Both the older unit and the new unit are supplied with a 120VAC power cord. It is a traditional three-prong power cord with a "green" 40 plug. The 40 plug is keyed to ensure that it only fits where it belongs.

This new unit, unlike the older unit, does not have a front-mounted power switch.

The second 120VAC connection is the pump output which is labelled as "20". This plug is traditionally white in colour and, like the 40 plug, is only keyed for use by pump plugs.

The pump output of this control is capable controlling a pump having an amperage of up to 1FLA. If it is necessary to control a pump with greater than a 1FLA draw, a motor contactor can be used for higher amperage pumps.

The pump output may also be used for providing a switching signal to relay or zone modules. The pump output of this device is always ON unless in warm weather shutdown or

DWH priority. The pump output makes an ideal control signal for alternate functionality.

To modify operation of the pump output, refer to the boiler control coding. Refer to specific manual for details.



### 145 KM-BUS

As commented previously, communication to the boiler control is via the 145 KM-BUS protocol. A two-wire cable is supplied with the unit. The cable has two purple plugs which can be used a few different

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**In The Mix 2011 Continued**

ways. In an application where two of these mixing valve controllers are used with a Vitotronic 300, KW3 boiler control, one mixing valve can communicate with the KW3 and the second mixing valve control can be daisy-chained from the first valve.

An alternate connection method is the use of a KM-BUS Expansion Module to connect the two mixing valve controls to the boiler control.

The third connection method requires the removal of one of the ends of the supplied 145 KM-BUS cable when connecting to a Vitodens 200, WB2B. With the plug removed, the wires can be terminated into terminals 6 and 7 of the X3 plug.

New to this control is the use of a KM-BUS plug which uses a two-pole terminal plug as opposed to the older three-pole plug.

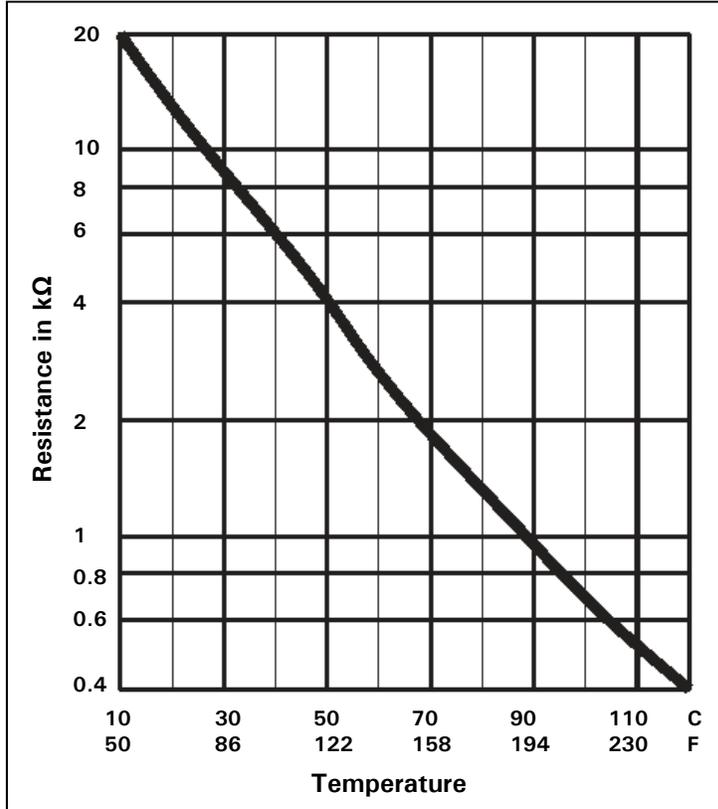
To avoid plug-in alignment mishaps, the 145 plug is coded to ensure that it is only able to be plugged into one spot. A key is part of the coding function of the plug to provide the necessary coding. Ensure this key is always there to avoid issues.

**Supply Temperature Sensor**

One of the last remaining connections is the supply temperature sensor. This is a strap-on sensor with an orange #2 plug.

The mixing valve controller can also accept a #17 plug, which is an identical sensor, but is used for measuring return temperature of the mixing valve circuit.

Like the 145 KM-BUS plug, the plug used for the supply sensor is now a two-pole plug unlike the older three-pole design.



For the first time being used as a mixing valve sensor, the sensor supplied with the new control is a 10Kohm NTC sensor. This resistance value is not new to Viessmann applications as there were 10Kohm sensors used for DHW, boiler and low loss header applications for Vitodens 200, WB2A in the past.

This sensor has a resistance value measured at 25°C/77°F. The NTC (Negative Temperature Co-efficient)

classification is based on the characteristic that says the resistance increases with a decrease in temperature. The 500ohm reference sensors were PTC (Positive Temperature Co-efficient) where the resistance increases with temperature. Be careful which sensors are used from your trunk and tool box as they will most likely

be the incorrect resistance value and display a fault on the display screen.

The housing of the sensor looks like an older sensor that used a similar multi-hole metal band, but ensure that an older sensor is not used as they are 500ohm sensors.

Fastening the sensor to a pipe requires the removal of the sensor cover. A flat blade screwdriver can be used to pop the cover off. Once removed, you will see the channel where the multi-hole metal band is placed. The band is designed to allow one of the holes to be placed over the fastening device and wrapped around the pipe and then overlap the fastener. The set screw will lift the brass fastener thereby tightening the band and pushing the sensor down on the pipe.

**Rotary Dial Addressing**

Addressing of the controller is achieved by turning the rotary dial to the proper setting. The older model used a DIP switch for addressing so this dial setting is a welcome update.

The rotary dial addressing provides a couple of functions, the first is to



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address the mixing valve and the second provides the coding for a return temperature sensor. The older 7133 392 controllers used a DIP switch to program this sensor.

Refer to both of these control manuals for more detailed information.

Applications which use this new control with the older Vitodens 200,

Heating Circuit	Connected Sensor	Rotary Selector Position
<b>Vitotronic 300, KW3 Control</b>		
Circuit M2	Supply temperature sensor	2 (factory default setting)
	Supply and return temperature sensor	3
Circuit M3 (Vitotronic 300, KW3)	Supply temperature sensor	4
	Supply and return temperature sensor	5
<b>Vitodens 200, WB2B Boiler</b>		
Mixing Valve Circuit	Supply temperature sensor (only)	2
<b>Vitodens 200, WB2A Boiler (Comfortrol)</b>		
Mixing Valve Circuit	Supply temperature sensor (only)	0

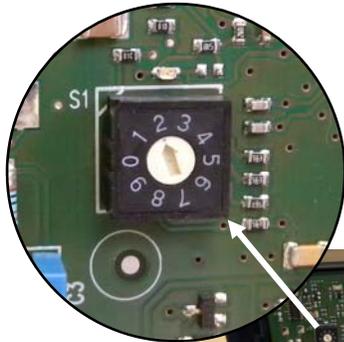
WB2A boiler, the scan codes can be viewed on the Comfortrol display.

Open the door and select *System* then *Operating Status*. From there, press A to continue to the screen that shows the scan codes.

Scan 1 shows six digits and the middle two

Return temperature sensor use is applicable to Vitotronic 300, KW3 control installations only.

Verify communications to the boiler by viewing the number of KM-BUS participants. For the Vitotronic 300, KW3, Scan 1, digit 4 shows the number of KM-BUS participants. To access the diagnostic scan, press the  and the  buttons simultaneously for approximately two seconds. Once it says "Diagnosis" at the top of the screen, press the  button and go to Scan 1.



indicate the presence of a Mixing Valve Extension Kit. The middle two digits are what you want to look at to verify the KM-BUS

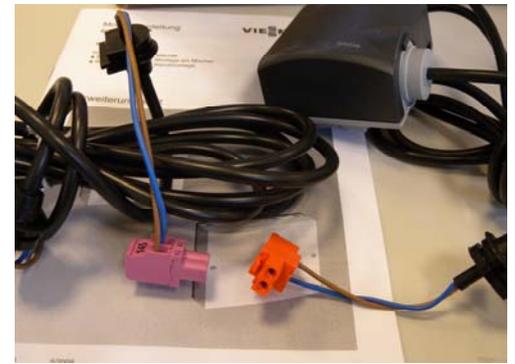


communication. For larger size boilers without the internal pump, look for 06 in the middle digits. The smaller Vitodens with the internal variable speed pump, look for 07 in the middle of the scan code.

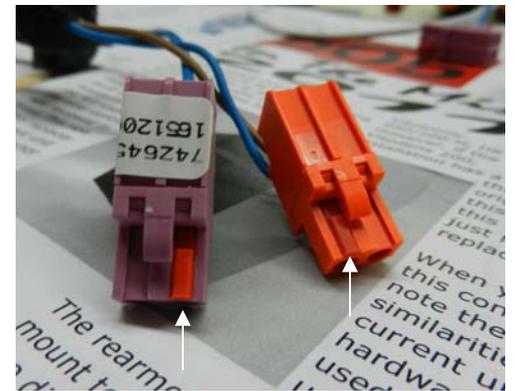
Once communication has been verified with the scan codes, you can also perform a relay test to verify rotation. As well, a sensor check or heating curve adjustment can be done to ensure movement of the valve with the recalculated setpoint.

The number of KM-BUS participants for a Vitodens 200, WB2B boiler with a Vitotronic 200 control can be viewed at Scan 2, digit 3. Remember, the pump module in itself is a KM-BUS participant. Accessing the scan codes is the same as the Vitotronic 300 control. Press the  and the  buttons simultaneously for approximately two seconds and use the + and — buttons to view the desired scan screen.

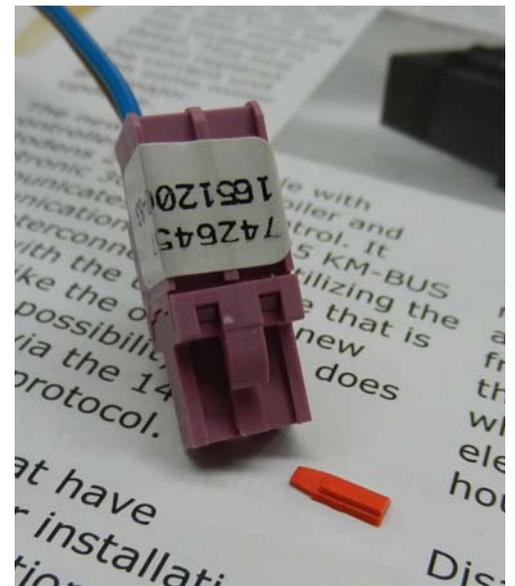
**Details Details Details Details**



Picture showing two-pole plug connections for strap-on sensors and 145 KM-BUS communication cabling.



Note the arrows pointing to the keys located in the back of each plug to ensure the correct connection socket location is maintained.



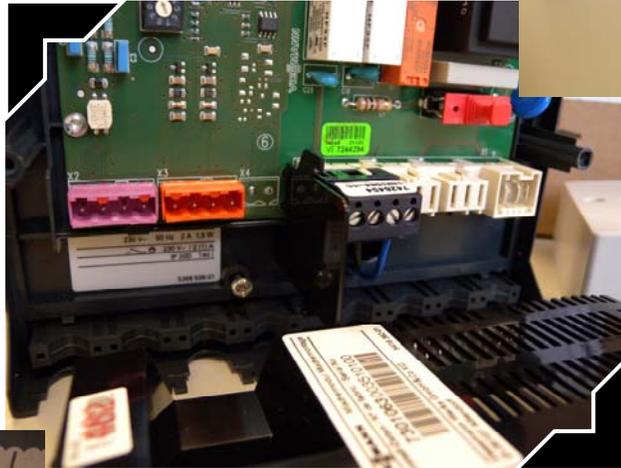
Key can be removed from plug by simply pulling down on it. Should it fall out, ensure it is reinstalled into the plug as shown in the previous picture.

# Scrapbook Photo Album

Plug Connections: 40, 20,  
52, 145, 2 and 17



Front Cover removed  
showing inside.



Inside controller with cover  
removed showing PCB.



Motor section with rear  
bracket. Front cover removed



Some of the hardware that is supplied with the mixing  
valve controller kit to mount onto the valve itself.



# Versatronik 505 Quiz!



Welcome to the first newsletter Versatronik 505 quiz. For the first 5 individuals to return a 100% correct page, we have some special prizes!! We know you have always wanted a pencil holder Trimatik MC cube!!

- 1) What issue # was our last Versatronik 505?\_\_\_\_\_
- 2) What does a Vitocontrol-C add to any boiler room?\_\_\_\_\_ & \_\_\_\_\_
- 3) What is a Node?\_\_\_\_\_
- 4) How many objects does a GC1 control have?\_\_\_\_\_
- 5) Does Autobinding require additional software?\_\_\_\_\_
- 6) Are both SNVT and SNFU part of a Node Object?    Yes    No
- 7) Does a GC1 have unlimited data points from a Node Object?    Yes    No
- 8) How many essential parts are there in a GC1 node object?\_\_\_\_\_
- 9) Connection of points between Node Objects is called "Tying-Off"?    Yes    No
- 10) Is a light bulb an acceptable diagnostic tool?    Yes    No
- 11) What is the coding address for Viessmann node value?\_\_\_\_\_
- 12) The SNIVET point SNVT\_temp\_p provides actual and setpoint values?    Yes    No
- 13) Can one Node Object output have more than one binding?    Yes    No
- 14) What additional resource can you use for Viessmann LON information?\_\_\_\_\_
- 15) Is a Vitotronic 100, GC1 an outdoor reset control?    Yes    No

Please fax, email, call or however send the completed quiz to KWE to the attention of Jeffrey Cox. The answers to the quiz will be in the next issue of Versatronik 505 newsletter.

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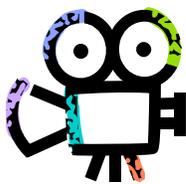
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