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HC500 Heater **C**ontroller

Second generation -#2

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In 2004/2005 the HC500 was initially designed to be a lower cost alternative for the HC200. However, continued developments of the HC500 soon evolved to a product family becoming the successor of the HC200 (low cost and high end), HC300 and HC400.

When the HC500 Temperature-Units (TU) were developed the HC-BUS limitations were exposed. No more than 8 TUs (63 temperature channels) could operate with a single CPU-Unit (CU). We quickly realized the market demanded more than 63 temperature channels.

In 2014 it became known the 8 bit processors used in for the HC500 devices would soon be obsolete.

I.e. we were forced to make a development decision for the the successor of the HC500.

Having nothing to improve about the HC500, the successor product family would have been in any case constructed the same way.
We could have continued production of the HC500 for 2 years, then discontinue HC500 and in case of spare part needs we would have supplied a

- mechanically (form factor, size)
- electrically (connectors)

and

- functional

100% compatible successor.

If a single HC500 device would have failed, the complete HC500 would have been replaced with the successor system. A considerable financial expense, even if nothing else (e.g. at the PLC program) would have needed to be changed.

With respect to limited environmental resources, we chose a much more time consuming solution. The revisions of all HC500 devices include a modern/actual 32 bit processor and a higher performing HC-BUS (HC-BUS2) that is downward compatible the “original” HC-BUS.
This is an extreme cost advantage for spare part needs of installed first generation HC500 systems.

Only the defective device in the HC500 of the first generation must be replaced. For example, if an OC fails only the OC of the first generation HC500 requires replacement.

Devices of the second HC500 generation are identified with the extension “2” behind the product device abbreviation.

CU**2** = compatible successor of CU
E.g. HC500-CU**2**-3DP



OC**2** = compatible successor of OC (Output-Card)
I.e. HC500-OC2-230-16-I

etc.

Visually both HC500 generations can be distinguished with:

	first HC500 generation	second HC500 generation
color of enclosure	CU, OU, OMM, VU and TU = light grey	CU2, OU2, OMM2, VU2 und TU2 = charcoal
LCD display	CU = no	CU2 = yes
front panel	OC = without product name	OC2 with product name

After 2 years in development, the second HC500 generations have additional advantages for the user too.

1.)
HC-BUS2 allows 16 TUs (HC-BUS „only“ 8 TUs).
2.)
CU2 has both a LCD display and diagnostic LEDs (CUs „only“ diagnostic LEDs).
3.)
Ethernet networks built-in CU2s (no need for PROFIBUS-DP proxy and gateways).

Regarding master (usually a PLC or PC) programming the second HC500 generation is no different than the first HC500 generation.
Development of the HETRONIK PLC-master simply continues to support new functions of the second generation.

Of course only development of the second HC500 generation is continued. I.e., new functions in hard- and firmware are not adapted to the first generation.
The second HC500 generation is a further development of the first generation and yet compatible with the first generation.

If all devices are from a second HC500 generation system, only then will the system work with HC-BUS2.
HC-BUS and HC-BUS 2 are electrically identical but have two totally different protocols.

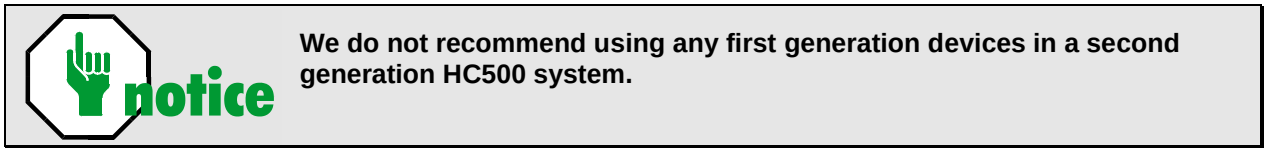
If a first generation device is inserted in a second generation HC500 system, the HC500 system will function like a system of the first generation.
This functions only of course, if max. 8 TUs (max. 63 channels) and not functions of the second generation are used.

The LCD screen of the second generation HC500 CU2 display if the HC-BUS or HC-BUS2 is active.

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Question:
I have a HC500 system of the first generation.
Does devices of the second generation function in this system?
Answer:
Yes, without exception.

Question:
I have a HC500 system of the second generation.
Does devices of the first generation function in this system?
Answer:
We do not guarantee this officially.



If this HC500 system does not have more than 8 TUs and no functions supported in the second generation exclusively are in use, it will function.
In practice it can be tried (trial & error respectively success) with no risk to harm devices.

Question:
What are the consequences if a first generation device is inserted in a second generation HC500 system and HC-BUS2 reverts back to HC-BUS ?

Answer:
None, as long as the production process is not utilizing functions only supported in the second generation.

Question:
I have requested a CU, OC, VU, TU, OMM and OU but was quoted a CU2, OC2, VU2, TU2, OMM2 and OU2. Why?
Answer:
CU, OC, VU, TU, OMM, OU are discontinued. CU2, OC2, VU2, TU2, OMM2, OU2 are the compatible successors.

Question:
Can I harm the electronics if I mix devices from both HC500 generations?
Answer:
No, as long as all supply voltages (24 Vdc and all ac voltages) are removed before devices are exchanged.

first HC500 generation		second HC500 generation	
CPU-unit (CU)			
HC500-CU-HN	(500.102)	HC500-CU2-HN	(500.112)
HC500-CU-HCOM	(500.103)	HC500-CU2-HCOM	(500.113)
HC500-CU-2DP	(500.203)	HC500-CU2-2DP	(500.213)
HC500-CU-3DP	(500.204)	HC500-CU2-3DP	(500.214)
HC500-CU-4DP	(500.205)	HC500-CU2-4DP	(500.215)
HC-BUS Extender (EXT)			
HC500-EXT-M	(500.122)	not already available	
HC500-EXT-R	(500.123)	not already available	
output-cards (OC)			
HC510-OC-77-8-I	(510.285)	not already available	
HC510-OC-77-16-I	(510.273)	not already available	
HC510-OC-115-10-SL	(510.284)	not already available	
HC510-OC-230-16	(510.211)	HC510-OC2-230-16	(510.213)
HC510-OC-230-16-S	(510.221)	HC510-OC2-230-16-SL	(510.223)
HC510-OC-230-16-I	(510.271)	HC510-OC2-230-16-I	(510.274)
HC510-OC-230-16-SL	(510.272)	HC510-OC2-230-16-I-SL	(510.275)
HC510-OC-230-10-I-V2	(510.281)	not already available	
HC510-OC-230-10-SL-V2	(510.283)	not already available	
HC510-OC-254-10-I	(510.292)	not already available	
HC510-OC-254-10-SL	(510.294)	not already available	
HC510-OC-254-12-I	(510.253)	not already available	
HC510-OC-480-10-I	(510.291)	not already available	
HC510-OC-480-10-SL	(510.293)	not already available	
HC510-OC-480-12-I	(510.525)	not already available	
HC510-OC-480-12-SL	(510.262)	not already available	
racks (RK) Because RKs do not have active components, there are no RK2.			
output-module-master (OMM)			
HC500-OMM	(510.501)	not already available	
output-unit (OM)			
HC500-OU-24-12-V2	(500.602)	not already available	
voltage-units (CU)			
HC500-VU-230	(500.401)	HC500-VU2-Y	(500.402)
HC500-VU-480	(500.411)	HC500-VU2-D	(500.412)
temperature-units (TU)			
HC500-TU-8-TC-V2	(500.321)	not already available	
HC500-TU-8-PT100-V2	(500.322)	not already available	
HC500-TU-8-TC-PID-V2	(500.331)	not already available	
HC500-TU-8-PT100-PID-V2	(500.332)	not already available	
HC500-TU-8-420-PID-V2 old name: HC500-TU-8-420-PID	(500.333)	not already available	
HC500-TU-8-10V-PID-V2	(500.334)	not already available	

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