

Revisions

Date	Revision	Who	Description
22.08.2023	V 1.0	Deu	First release
23.08.2023	V 1.1	Deu	Updated content section, pictures added, errors removed

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1 General:

The DMA-22 (more than 75,000 devices are in field usage), which has been used very successfully to date, with all its variants and versions, will be replaced by a successor generation. The naming of the new generation remains the same as before, except for the suffix (A). The new version is thus basically called "DMA-22(A)".

Series applications with closed loop version devices are in already delivered to customers and successfully operating in the field. So qualification carried out in our laboratory is also proven through field use.

The aim of the new development of the successor generation was:

- Provide an (almost) 100% function and pin-compatible successor to the existing version
- Ensuring availability for the next decade
- Extending functionality
- Improve functionality for all analog inputs (command and feedback)
- Boosting performance to a higher level
 - extended computational power by usage of 32 bit instead of 16 bit CPU
 - floating-point instead of fixed-point calculations
 - 16 bit instead of 12 bit resolution for the A/D converter
- Extended temperature range to - 40° C to + 70° C
- Introduction of an USB-C interface with related connector to replace RS232 with RJ45 connector

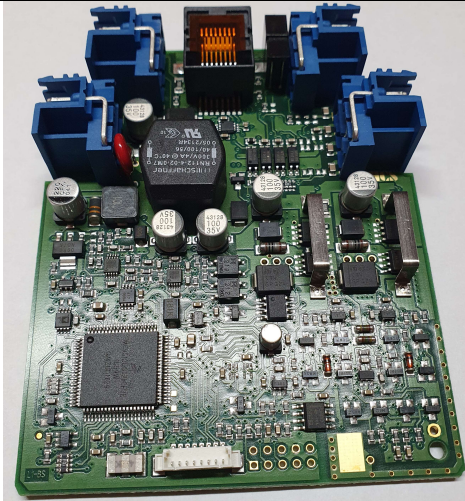
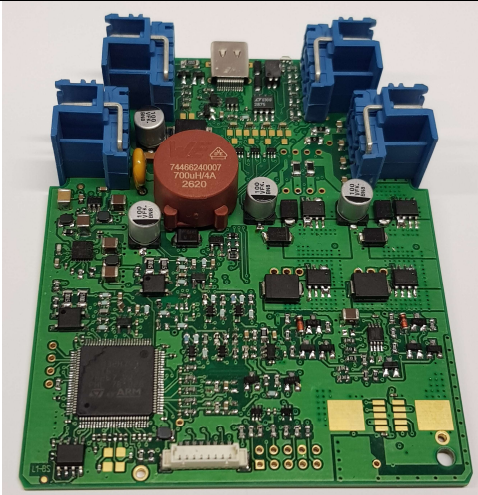
2 Scope:

Describe the differences and present the technical data, new features and performance characteristics of the new DMA-22(A) compared to the DMA-22.

3 Comparison „old“ vs „new“ (data):

3.1 Picture of the two different versions

3.1.1 Board view

Picture DMA-22 (old)	Picture DMA-22(A)(new) - series version with USB-C
	

3.1.2 Front view

Picture DAC-4 (old)	Picture DMA-22(A)(new) - series version with USB-C
	

3.2 Comparison of technical data:

Feature	DMA-22 „old“	DMA-22(A) „new“
Power supply (range)	24 V nominal	10 – 24 V nominal
Ambient temperature range	0° C – 50° C	- 40° C – + 70° C
Analog command and feedback inputs	Ca. 0.6 V residual voltage on open input	No residual voltage on open input
Resolution A/D converter for analog signals (set values and feedback values)	12 bit. Theoretical resolution: $\pm 0,005$ V	16 bit. Theoretical resolution: $\pm 0,00025$ V
Interface	RS232 max. 19.200 baud	USB-C
CPU	16 Bit fixed point	32 bit floating point
Cycle times	PWM and controller: 0,255 msec	- PWM: 0,045 msec - Controller: 0,100 msec

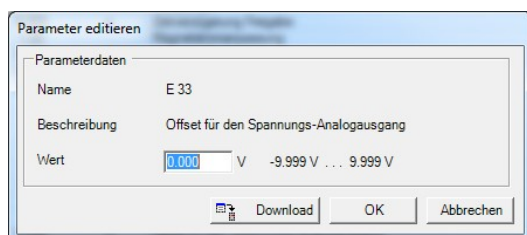
4 New software functions (parameters):

The redesign of the existing DMA-22 has expanded the range of functions. This is described below:

Reamrk: depending on the softwawre vesion of any old DMA-22 some parameters have been already implemented. These parameters are generally available now.

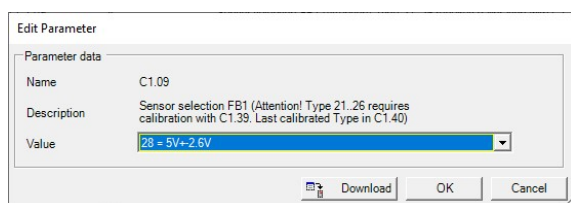
4.1 Offset analog output E33:

Possibility to set the analog output with any voltage offset



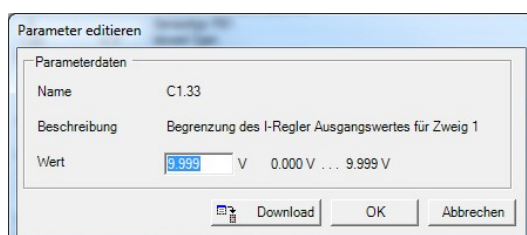
4.2 Feedback input FB1 / C1.09:

Possibility to select also select an input for voltage signal 5 V + - 2.6 V:



4.3 Limitation I-portion C1.33:

Possibility to limit the I-controller output value



4.4 Correction factor feedback signal negative range C1.36:

Possibility to adapt negative feedback signal

4.5 Dead band compensation C1.37:

Possibility for dead band compensation for branch 1

4.6 Dead band compensation C1.38:

Possibility for dead band compensation for branch 1

5 Import existing parameter settings:

This is necessary, for example, if you want to transfer a parameter set, i.e. a parameter file, from an old software version to a newer software version. It may also be necessary to use the same setting parameters in another software version.

The HCSTool prevents a download of another software version. The software version on the target hardware must be identical to the software version set in the HCSTool.

There are three possibilities for this:

- Enter the parameters manually into a parameter file opened with "File / New"
- Use the "Import data" function. This means that you want to transfer the data from a known parameter file for a certain software into a new file for another software version
- Use the "Upgrade to (A) device" function. This will allow you to directly convert into a parameterfile compatible to DMA-22(A):

Remark: only available for selevted software vesions of DMA-22!

Refer also to the user manual for HCSTool (file: " HCSTool User Manual R1.2.pdf").
Here chapter 5.5.

6 Error - Codes

The following error messages are defined:

Error code #	Description
1	Operating error
2	Cable fraction feedback 1 (FB1)
3	Over current or short circuit output stages
4	Cable fraction feedback 2 (FB2) – only available in specific software applications
5	Cable fracture/overload for certain voltage signals set point input S1.05
6	Cable fracture/overload for certain voltage signals set point input S1.06
7	Not used
8	Open circuit at output stages
9	Not used
10	PROFIBUS time out (E23) – only available in specific software applications
11	Overload current > 22 mA feedback input 1 (input FB1)
12	Overload current > 22 mA feedback input 2 (input FB2) – only available in specific software applications
13	Not used
14	Not used
5	Overload current > 22 mA set point input S1.05
16	Overload current > 22mA or < - 22mA set point input S1.06
17	Not used

7 Interesting facts

- When changing the operation mode, selected sensors (C1.09 / C2.09) are automatically reset to the default value "0 - 10 V".
- When changing the operation mode, activated comparators (C1.25 / C2.25) are automatically reset to the default value "off".
- When changing current sensors, the cable fracture detection or overload protection is automatically switched on, if available.

End of document.