



**DATA SHEET**  
**AppLink-03**

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**NEWSON NV**

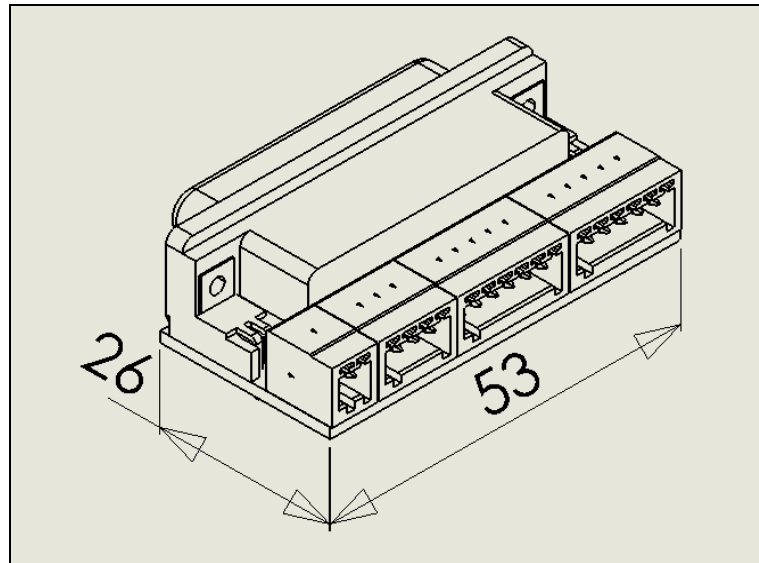
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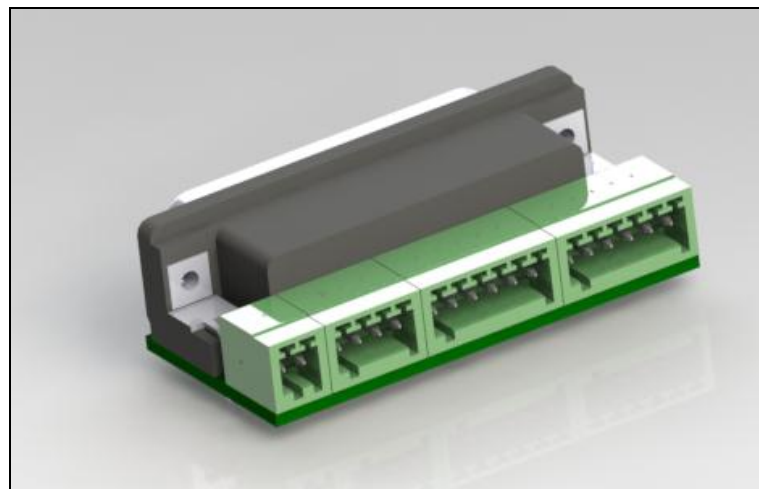
# 1 APPLINK-03

The **AppLink-03** hardware is an add-on for the CUA controller and provides an analog output. The Applink03 is basically a PWM-to-Analog-converter that uses the pulse width modulated (PWM) signal generated by the CUA-ETH controller on output IO 5 and converts this signal into an analog output. In order to ease the connection of the CUA-ETH controller several IO's are cross-wired through the AppLink.

## 1.1 DIMENSIONS



All dimensions are in mm.



## 1.2 HARDWARE TYPES

AppLink-03 0..5V : Analog output 0V to 5V

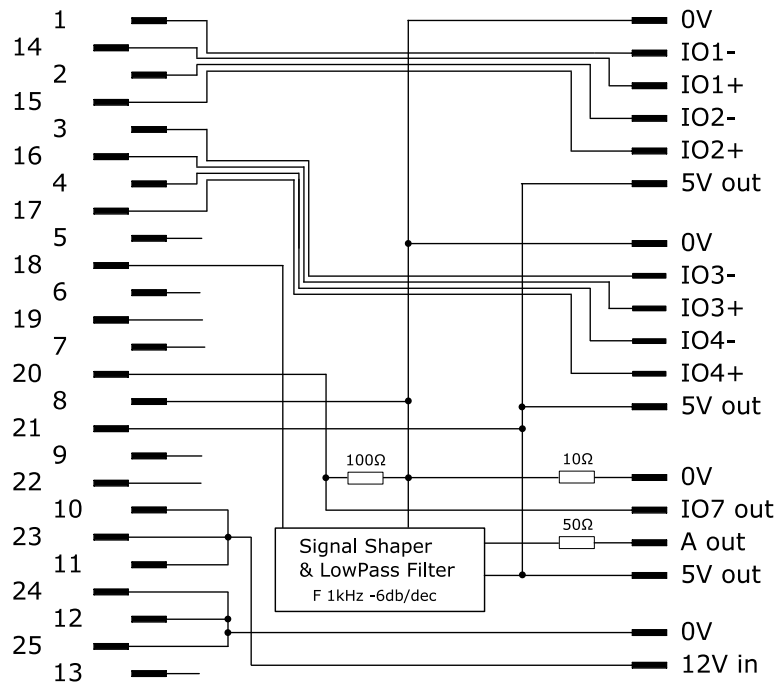
AppLink-03 0..10V : Analog output 0V to 10V

## 2 CONNECTOR IO-EXTENSION SIDE

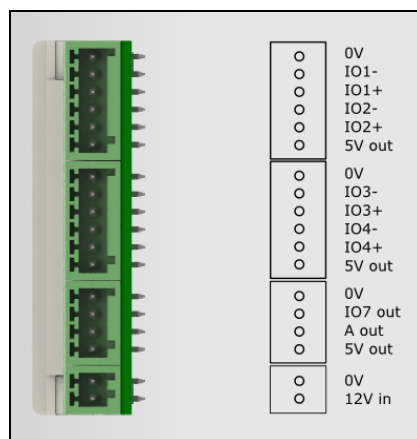
### 2.1 CONNECTOR TYPE

- Phoenix MC 0,5/2-G-2,5
- Phoenix MC 0,5/4-G-2,5
- Phoenix MC 0,5/6-G-2,5
- Phoenix MC 0,5/6-G-2,5

### 2.2 INTERNAL SCHEME



### 2.3 PIN DESCRIPTIONS



**IO1-, IO1+, IO2-, IO2+, IO3-, IO3+, IO4-, IO4+:** Differential I/O, RS485 compliant

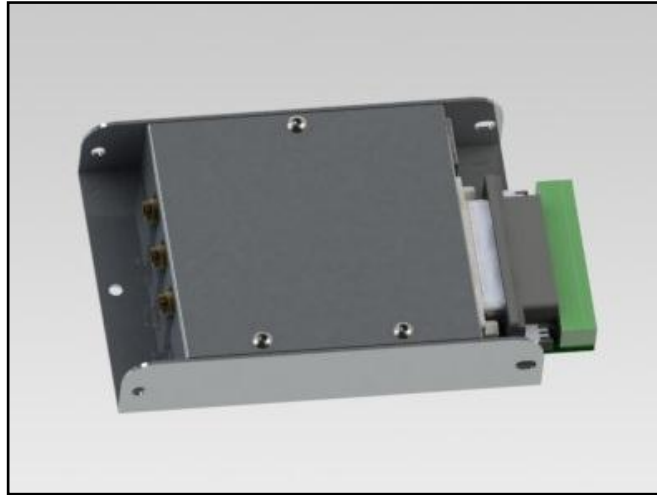
**A out:** Analog output

**IO7 out:** TTL output

### 3 USING THE APPLINK-03

#### 3.1 CONNECTION TO CUA

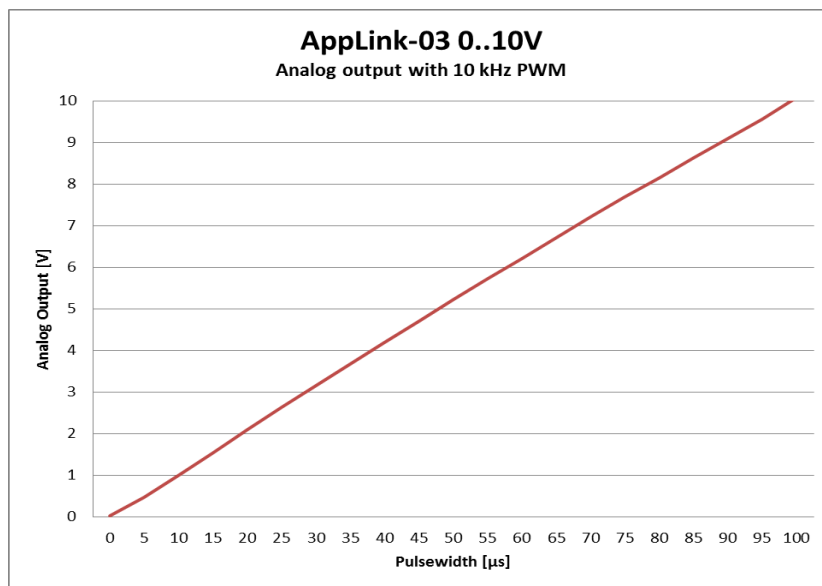
Via sub-D 25p male, connect directly into the sub-D 25p female of the CUA-board.



#### 3.2 PWM TO ANALOG

In a typical pulse width modulated (PWM) signal the base frequency is fixed but the pulse width is variable. This PWM signal can be generated on IO-outputs 5, 6 and 7 of the CUA-ETH controller. The Applink-03 uses the PWM signal on IO5 to convert this signal into an analog output.

The idea behind generating the analog output from a PWM signal is to analog low-pass filter the PWM output to remove most of the high frequency components. The Applink-03 implements such a filter. Below a typical graph showing the relation between pulsewidth of the PWM signal and the analog output (A out) of an Applink-03 (0..10V)



### 3.3 RHOTHOR DLL FUNCTIONS

The rthor library contains the `rtSetOscillator` function to control the PWM signal send to the LowPass filter. In order to enable the analog output, IO6 of the CUA controller needs to be configured as `OUT*OSC1`. The best results are achieved with a 10kHz PWM signal. The pulsewidth of the PWM can be modified to change the Analog output:

Example scripts:

Enable the PWM output and set the analog output to 50% of the maximum voltage

```
rtListOpen(1)
rtSetIO(16,16)
rtSetOscillator(1, 100, 50)
rtListClose()
```

Change the analog output to 40% of the maximum output

```
rtListOpen(1)
rtSetOscillator(1, 100, 40)
rtListClose()
```