Compact Real-Time Designs

The **ADwin-Gold** is a powerful Real-Time systems in very compact and robust design. It includes many system features in a small package at a reasonable price. The **ADwin-Gold** is built in a reliable metal enclosure and includes a fast, local Real-Time CPU and memory, analog and digital inputs and outputs, as well as an USB or Ethernet interface for the communication with a PC.

The analog inputs are connected via two 8-channel MUX and two PGA to 2x16bit and 2x14bitADCs. The signal acquisition is controlled by the ADwin-CPU. The sampling rate is determined by the ADC conversion time, MUX settling time, and CPU workload. It is always possible to acquire two channels without any phase-shift, important for correlated signals.

The **ADwin-Gold** has 2 or 8 analog outputs. The output range is +/-10V with a settling time of 10µs to FSR and 3µs FSR/10. Parallel updating is achieved by using one DAC per channel, with one register per DAC. It is possible to first write new values into the register, and then start the conversion for all channels with a single command synchronously.

**ADwin-Gold** provides 32 programmable digital input and output channels at 5V TTL /CMOS level, plus an Event input. The channels can be software selected in blocks of 8 as inputs or outputs. After power-up all channels are configured as inputs.

Optional configurations allow additional features such as counters, quadrature encoder interfaces, RS-232/-485, automotive CAN bus interfaces, CANopen®, LINbus® and SSI interfaces.

**ADwin-Gold** can be used in laboratories, on a DIN-rail in industrial machines, or in mobile and in-vehicle applications.

### ADwin-Gold

<table>
<thead>
<tr>
<th>System features <strong>ADwin-Gold</strong>:</th>
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<tr>
<td>2 x 8 analog inputs, ±10V multiplexed to 2 x 16-bit ADC (5µs) and 2 x 14-bit ADC (0.5µs), 2 analog outputs 16-bit DAC (3µs), 16 digital inputs, 16 digital outputs D-SUB, 1 trigger input, 1 processor ADSP21062, 32-bit, 40MHz, 256KB int. RAM, 16MB ext. RAM, 2m power supply cable to the desktop computer, compact metal enclosure</td>
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| ADwin-Gold-ENET | **ADwin-Gold** with integrated Ethernet interface (10/100 MBit/s), BNC sockets for analog signals |
| ADwin-Gold-D-ENET | **ADwin-Gold** with integrated Ethernet interface (10/100 MBit/s), D-SUB sockets for analog signals |
| ADwin-Gold-USB | **ADwin-Gold** with integrated USB interface, BNC sockets for analog signals |
| ADwin-Gold-D-USB | **ADwin-Gold** with integrated USB interface, D-SUB sockets for analog signals |

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<tr>
<th><strong>ADwin-Gold</strong> Options (manufacturing options only, later upgrading is not possible)</th>
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<tr>
<td><strong>Gold-CAN</strong></td>
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<td><strong>Gold-CAN-LS</strong></td>
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<td><strong>Gold-CO1</strong></td>
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<td><strong>Gold-DA</strong></td>
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<td><strong>Gold-MEM64</strong></td>
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<td><strong>Gold-Boot</strong></td>
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<td><strong>Gold-Mount</strong></td>
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**Accessories**

- **Gold-Pow**: External power supply (12V DC) for the **ADwin-Gold** (10-35V)

1) via software; 2) via software and driver
### Analog Inputs
- **Input Channels**: 16
- **ADC Resolution**: 2x ADC @ 14bit, 2x ADC @ 16bit
- **ADC Conversion Time**: 14bit: 0.5µs, 16bit: 5µs
- **Input Range**: +/- 10V
- **Input Over-voltage**: +/- 35V
- **Input Resistance**: 33kΩ
- **Isolation**: no, max. clock: 1Mbit/s
- **Gain**: 1, 2, 4, 8
- **Input Type**: Differential
- **PGA**: G = 1, 2, 4, 8
- **MUX Settling Time**: 14bit: 3µs, 16bit: 5µs
- **Connector**: 25 pin D-Type
- **Input Channels 16**: in 8 blocks of 8
- **Input/output Channel**: 4x8, software selectable
- **Software Selectable**: 10x1 pull down
- **Mode**: Software selectable
- **Input Current**: 10 (1) µA
- **Input Voltage**: ± 35V
- **CAN Channels**: 1
- **CAN Bus**: 2, 3µs
- **CAN Type**: High-speed, automotive
- **Counter**: +/− 2 LSB
- **Counter Resolution**: 32 bit
- **Multiplexer**: 2
- **Output Current**: 35 (8) mA / ch.
- **Input/Output Channel**: 32 digital I/Os, programmable as in- or output
- **Serial Interfaces**: CAN bus, LIN bus
- **Typical INL**: ± 2 LSB
- **Typical DNL**: ± 1 LSB
- **Resolution**: 32 bit

### Analog Outputs
- **Output Channels**: 2 / 8
- **Resolution**: 16bit
- **Output Range**: ± 10V
- **Output Current Max.**: ±/− 25mA
- **Output**: GND shorts circuit proof
- **GND**: 1 MBIT/s max.
- **Dimensions**: 214 × 67 × 109 mm / 214 × 97 × 109 mm
- **Weight**: 1320g / 1760g
- **Typical INL**: ± 3/4 µA
- **Typical DNL**: ± 5/6 µA
- **Resolution**: 16bit
- **Type of Counter**: multifunctional
- **General**: CPU, ADSP21062 / 21060
- **Type**: ADSP21062 / 21060
- **CPU RAM**: 256kByte / 512kByte
- **Memory**: 16MB / 64MB
- **PC Interface**: USB or Ethernet
- **USB**: With Ethernet
- **Ethernet**: 10/100 Mbit/s
- **Boot-Loader**: With Ethernet
- **Dimensions**: 214 × 67 × 109 mm / 214 × 97 × 109 mm
- **Weight**: 1320g / 1760g
- **Operating Temp. Range**: 0°C to 55°C
- **Storage Temp. Range**: -20°C to 70°C

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1) Optional configuration; 2) min. pulse length -tp- for high or low is equal to tp(1) = 1/(2 × fmax) or tp(2) = 1/(2 × fmax) 3) between pos/neg. of differential input 4) with option ADwin-G-CAN or ADwin-G-CAN-LS; INL - Integral Non-Linearity; DNL - Differential Non-Linearity; FSR - Full Scale Range;