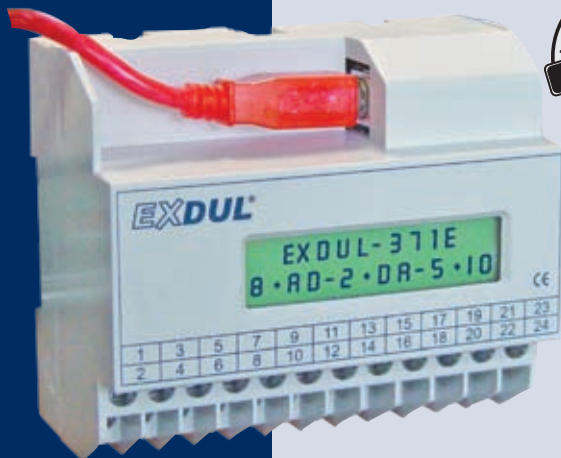


# EXDUL-371E

USB Module with 8 Analog Inputs, 2 Analog Outputs, 3 Optocoupler Inputs, 2 Optocoupler Outputs, Counter and LCD Display



**8 A/D inputs 12 bit**

8 A/D inputs single-ended  
or  
4 A/D inputs differential

**2 D/A outputs 12 bit**

**3 optocoupler inputs**

**2 optocoupler outputs**

**1 counter 16 bit**

**LCD display**

EXDUL-371E provides either eight single ended or four differential 12bit A/D input channels. You can adjust the input voltage ranges to be unipolar (0-5 V, 0-10 V) as well as bipolar (+/-2.5 V, +/-5 V, +/-10 V). The conversion process including configuration of the A/D components (selection of range and channel) is triggered by software commands. It is also possible to select output voltage ranges of both of the two 12-bit D/A outputs either unipolar (0-5 V, 0-10 V) or bipolar (+/-5 V, +/-10 V) via software.

Additionally the module provides three digital inputs and two digital outputs, each of which is galvanically isolated by high-quality optocouplers and equipped with additional protection diodes. One of the digital inputs can be used as a 16-bit counter. All input optocouplers are fitted with integrated schmitt trigger function. Special high power output optocouplers manage a maximum switching current up to 150 mA. The programmable LCD display presents either digital I/O status information or programmable user-specific data. An external power supply powers the module with the required operating voltage. The module provides a 24-pin screw terminal block for connecting the external power supply as well as the analog/digital inputs and outputs.

## SPECIFICATIONS

### A/D inputs

8 inputs single-ended (se)  
or 4 inputs differential (diff)  
or combined se/diff selectable via software  
Resolution: 12 bit  
Input voltage range:  
unipolar: 0..5 Volt, 0..10 Volt  
bipolar: +/-5 Volt, +/-10 Volt  
Absolute Accuracy: typ 0.1 % +/- 1 LSB  
Input resistor: unipolar 42 kΩ  
bipolar 31 kΩ  
Over voltage protection: 20V  
Measuring cycle: max. 1 ms

### D/A outputs

2 outputs  
Resolution: 12 bit  
AA: typ 0.1 % +/- 1 LSB  
Output voltage range  
unipolar: 0..5 Volt, 0..10 Volt  
bipolar: +/-2.5 Volt, +/-5 Volt, +/-10 Volt  
Output current: max +/-5 mA

### Optocoupler inputs

3 channels, galvanically isolated  
programmable to be counter input  
Optocouplers with integrated schmitt trigger function  
Over voltage protection diodes  
Input voltage range  
high = 10..30 Volt  
low = 0..3 Volt  
Input frequency: max. 10 kHz

### Optocoupler outputs

2 channels, galvanically isolated  
High capacity optocouplers  
Reverse polarity protection  
Output current: max. 150 mA  
Switching voltage: max. 50 V

### Counter

1 programmable digital 16-bit counter (allocated to the first optocoupler input)  
counting frequency: max. 5 kHz

### LCD Display

Matrix display with 2 lines and 16 columns  
presenting 16 characters each line  
Programmable to display user specific data or I/O status

### Operation voltage

+18 V...+36 V (external power supply)

### USB Interface

Compatible with USB 2.0  
USB Connection Plug and Play (hot-pluggable, connectable at operating system)

### Connection Terminals

1 \* 24-pin screw terminal block  
1 \* USB socket Type B

### USB connection lines

1 \* USB plug Type A  
1 \* USB plug Type B

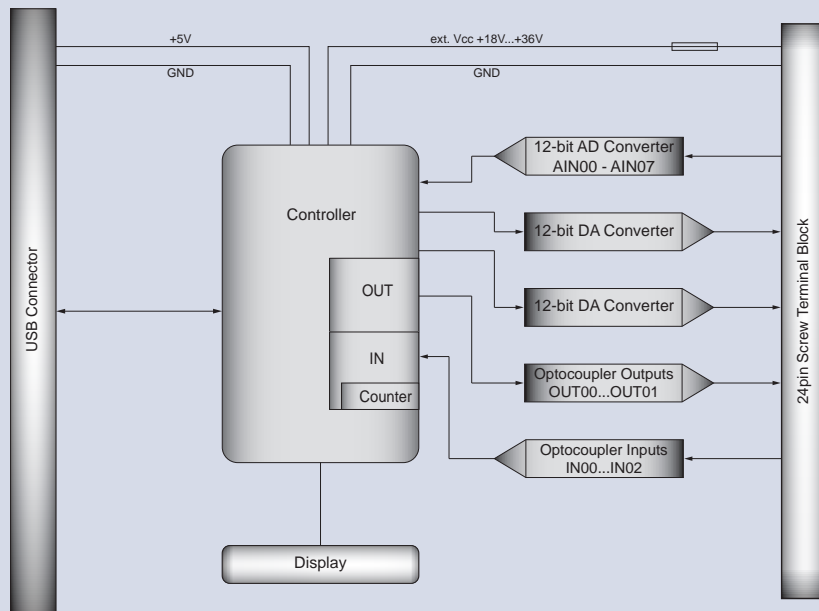
### Dimensions

105 mm x 89 mm x 59 mm (l x b x h)

### Casing

Insulating plastic casing with integrated snap-on technology for DIN EN rail mounting. Suitable for control and engineering technology mounted to control and distribution boxes, surface mounting or mobile use on a desk.

## BLOCK DIAGRAM



## PIN ASSIGNMENT

Terminals Vcc\_EXT und GND\_EXT are provided for an application of 18 ... 36 V external voltage supply.

### Screw-Terminal CN1

AIN01+	2	1	AIN00+
AIN03+	4	3	AIN02+
AIN05+	6	5	AIN04+
AIN07+	8	7	AIN06+
DAGND	10	9	ADGND
AOUT01+	12	11	AOUT00+
OUT00-	14	13	OUT00+
OUT01-	16	15	OUT01+
IN00-	18	17	IN00+ / counter
IN01-	20	19	IN01+
IN02-	22	21	IN02+
GND_EXT	24	23	Vcc_EXT

## ASSEMBLY AND APPLICATION OPTIONS



Top-hat Rail Mounting



Wall Mounting



Mobile Use on a Desk

The compact chassis enables the module to be used as a portable device with a notebook. For mechanical or control engineering it can also be easily wall mounted or attached to DIN mounting rail.

## PROGRAMMING

Driver installation from the enclosed CD. Information about the supported Windows versions is available in section support of [www.wasco.de](http://www.wasco.de).

Sample programs for Microsoft Visual C++, Microsoft Visual Basic 2010 and Microsoft Visual C# 2005 are included on CD.

## SCOPE OF DELIVERY

USB Module EXDUL-371E  
USB connection cable (Typ A-B) 3m long  
German Description (English on request)  
installation and program examples

## ORDER INFORMATION

EXDUL-371E EDP-No. A-381715  
USB Optocoupler I/O Module

## SUITABLE ACCESSORIES

### DR-60-24

EDP-No. A-3425

Switching power supply providing one output 24 V / 2,5A, closed design, contact-protected screw terminals, overload protection by current limitation, Power-On-LED



### F4652-24-Set

EDP-No. A-351024

Industrial high-power relay combination with two change-over contacts 250 V / 8 A and free-wheeling diode, snap-in technology for DIN EN top-hat mounting



For more detailed information about the here listed and other accessories we refer to the corresponding data sheets