

**SPEEDY ZX4T** is the Micro-PLC for maximum performance with minimum dimension. The heart of the control is not a micro-controller, rather an FPGA-chip. This means that **SPEEDY** internally runs your program absolutely in parallel and in real-time – with no cycle times. Further advantages: no system crashes by software errors because your program is not saved as code but is "wired" in the FPGA-chip according to the desired function.

- **High-speed – no cycle times**
- **Extremely compact - only 22,5mm/45mm wide**
- **4 inputs / 4 outputs (ZX4T) or**
- **9 inputs / 2 fast counter inputs / 8 outputs (ZX4TE)**
- **2 long-distance potentiometer connections for external time adjustments**
- **Absolutely power fail safe**
- **Modular pluggable mechanical structure**
- **Plug-in terminals**
- **Customized versions**



**SPEEDY ZX4T**

## SPEEDY– fast, compact and universal

The basic version of **SPEEDY ZX4T** already is equipped with 4 inputs, 4 short-circuit proof transistor outputs and 2 programmable timers with only 22,5mm wide housing. Each timer has got a long-distance potentiometer connection.

**SPEEDY ZX4TE** contains an extra plug-in-module in a 45mm housing which provides 5 more inputs, 2 fast counter inputs and 4 extra outputs.

The extension module can be adapted to your individual application

## Functions

Apart from timer and counter functions, random logic operations between inputs and outputs can be programmed.

Since the control works in parallel without internal cycle times the outputs react to changes of the input signals **without** a delay, apart from the switching times of the input and output stages.

Also the reaction time is **independent** of the complexity and the length of the program.

The ranges of the timers are programmable and cover a scope from 100ms to 10min.

## Installation

**SPEEDY ZX4T** can be snapped onto 35mm DIN rails. The control requires an unstaibilized DC 24V power supply. Mains filter and over-voltage protection are integrated. The connection is carried out with pluggable screw terminals or spring cage terminals. Our power supply unit NTC1 in the same housing is suitable for connection to AC 110V to 230V.

Each input is provided with a signal delay of approx. 100µs on the hardware side to ensure a high interference protection.

## Programming

**SPEEDY** can be programmed easily with our PC program **EX\_PRESS** for Windows. Connect the integrated programming socket to the printer port of your PC or notebook, start the PC program **EX\_PRESS** and away you go.

With **function block diagrams** or **structured text according to IEC61131** it is possible to formulate your applications comfortably and quickly. Then load the program from the PC into the control – that's all there is to do. Naturally, you can also delete loaded programs with your PC. And it doesn't matter how and in which sequence you have written your programs, everything runs in parallel and real-time in **SPEEDY**.



**SPEEDY ZX4TE**

## Safety Warnings

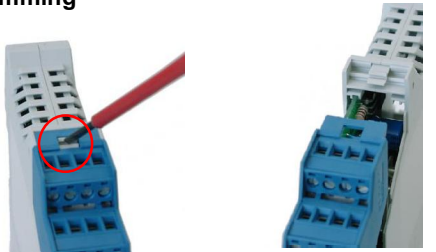
- **Installation and operation must be carried out by qualified personnel only**
- **The electrical installation must be performed after disconnecting the device and the machine from the mains supply**
- **All relevant safety regulations and standards must be attended to**



Fast Installation with pluggable terminals blocks, by choice with:  
Order-NO. 472592: screw terminals (4 pieces)  
Order-NO.472593: spring cage terminals (4 pieces)

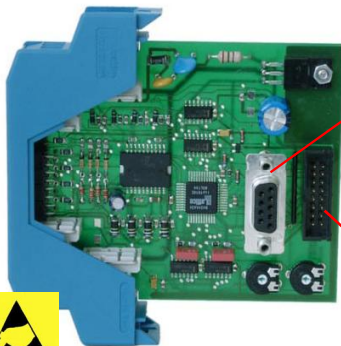
The terminals can be coded unmistakably with the enclosed coding elements  
**Please order the terminal sets separately.**

## Programming



1. Open device cover

2. Slide the unit to front



3. Connect device with DC24V and plug in programming cable to the connector.

Download program with EX\_PRESS, for more information consult the programming system EX\_PRESS

Extension connector



4. Disconnect 24VDC-supply and close the box. Attention! You have to control the fitting in the rails



4a. At ZX4TE insert both units simultaneously. Both printed circuit boards are connected with a flat cable at the reverse side.

## Specifications

Operating voltage	DC 24V, +/-20%. A transformer according to VDE0570-1:1998-07 and VDE0570-2-4:1998-07 with electrical isolation must be used.
Residual ripple	max. 5%
Current consumption	approx. 50mA zzgl. 10mA per activated output
Inputs In1..In9 (E1..E9)	DC 10-30V, approx. 10kHz
Inputs C1, C2	DC 10-30VDC, approx. 50kHz
Outputs O1..O8 (A1..A8)	Transistor, DC 10..30V; 0,5A permanently short circuit proof
Timer	2 integrated programmable timer Extern potentiometer or resistor to T1-T1 or T2-T2
Time base	100ms fixed; 0,1-2,5s; 0,3-10s; 2-80s; 0,3-10min variable setting via external potentiometers, other times also possible through software
Available internal flags	44 Bit-Registers add. 1 register per output
Time Delay Input/Output	approx. 100µs
Capacity of logical combinations	approx. 5000 AND / 300 OR
LED-Display	Inputs In1..In9; Outputs O1..O8, Pwr
Temperature range	0 -+50°C
Weight	ZX4T: approx. 100g, ZX4TE: approx. 200g

## Timer function

The ranges of the timers have to be adjusted by the internal outputs T1A and T1B or T2A and T2B according to the following table. The times are valid for an external linear potentiometer (connected to T1-T1 or T2-T2) or a fixed resistor of 100kΩ. Other resistor values are possible and result in corresponding different times.

Left-hand-stop of the potentiometers or a jumper result in a **calibrated time base of 100ms.**

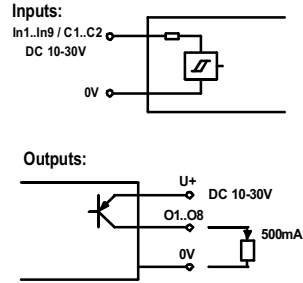
Timer 1	Timer 2	Timer range
T1A=1; T1B=0	T2A=1; T2B=0	0,1-2,5s
T1A=0; T1B=1	T2A=0; T2B=1	0,3-10s
T1A=0; T1B=0	T2A=0; T2B=0	2-80s
T1A=1; T1B=1	T2A=1; T2B=1	0,3-10min

## Fast counter inputs

All inputs can be used as logical or counter inputs. The only difference is the maximum signal frequency. The Inputs In1..In9 (in EX\_PRESS up to V4.0b marked with E1..E9) have a standard limit of 10kHz. For fast signals **SPEEDY ZX4TE** has two fast clock inputs C1,C2 with a limit frequency of 50kHz.

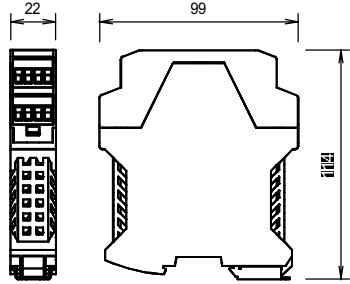
## Installation

Connection	Signal
L+	24VDC supply
+U	10..30VDC outputs
0V	0V supply
In1..In9	inputs 10kHz
C1..C2	inputs 50kHz
O1..O8	outputs (PNP)



### Note

Up to software-version EX\_PRESS V4.0b the inputs are marked with E1..E9, this corresponds to In1..In9; EA10 and EA11 correspond to C1 and C2, the outputs are marked with A1..A8 and correspond to O1..O8. All 0V terminals are internally connected.



Order-No	Type
588400	SPEEDY ZX4T, DC24V, 4 Input 4 Output, without pluggable terminal blocks
588413	SPEEDY ZX4TE, DC24V, 11 Input, 8 Output, without pluggable terminal blocks
588420	Long-distance potentiometer DFP1, 100kOhm linear, incl. mounting set.
472592	A set of screw terminals, 4 pieces incl. coding elements. 1 set necessary for ZX4T, 2 sets necessary for ZX4TE
472593	A set of spring cage terminals, 4 pieces incl. coding elements. 1 set necessary for ZX4T, 2 sets necessary for ZX4TE
471250	NTC1, power supply unit 85-264VAC/24VDC 450mA
588290	EX_PRESS for Windows 9x/NT/2000/XP Programming software with cable