High-SPEED-Mikro-SPS SPEEDY ZX8T

User Information

English translation

Correct Use

SPEEDY ZX8T is the micro-PLC for maximum performance with minimum dimensions. The heart of the control is not a micro-controller, rather an CPLD-chip. This means that SPEEDY runs your program internally absolutely parallel and in real-time – with no cycle times.

SPEEDY ZX8T is used for controlling of the application flow at machinery and equipment. It may not be used for controlling of safety circuits. The compliance to the relevant requirements for installation and operation, especially EN 60204-1, “Electrical equipment of machines“, is part of the normal use.

Features

- ***High-speed – no cycle times***
- *9 digital inputs*
- *8 digital transistor outputs*
- *1 counter input, optionally also as digital input*
- *2 potentiometers for adjustable time functions*
- *High interference protection, mains filter, overvoltage protection*
- *Simple programming*
- *Power fail safe*
- *Modular extension facility*
- *Plug-in terminals*

Scope of Applications

Due to the CPLD technology controlling without any cycle time is provided, because all signals are operated parallelly. So the reaction time will remain constant - regardless of the complexity of the application.

Any problems with different cycle times and corresponding reaction times are things of the past. No matter how fast a packaging machine runs - the cutting will be controlled in an accurately fitting manner and the gluing will be placed at the right position.

For this reason SPEEDY ZX8T is the ideal controller for fast processes at packaging machines, cutting facilities, printing stations, bottling plants, gluing stations, plastic injection moulding machines.

Safety Precautions

- The installation and operation must be carried out by qualified personnel only,
  - who is familiar with the professional handling of machine equipment,
  - who is familiar with the valid rules of industrial safety and accident prevention,
  - who read and understood the operating instructions and the system manual.
- The safe function of the device during machine operation cannot be guaranteed in case of wrong connection or improper operation. This may lead to fatal injuries.
- Pay attention to country specific regulations.
- The electrical installation must be performed after disconnecting the device and the machine from the mains supply.
- The wiring must be carried out according to the instructions of this operating manual.
- The person who programs the device must be protected against electrostatic discharge (ESD protection).
- Opening the device, any manipulation of the device and the avoidance of the safety facilities are not permitted.
- All relevant safety regulations and standards must be attended to.
- Non-observance of the safety regulations may cause death, severe injuries or substantial damage to property.
- Before use, please, read the operating instructions and keep it in a safe place. Make sure that the operating instructions are always available for installation, initial operation and maintenance.

Non-observance of the instructions above will cause the loss of warranty.

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User Information

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Function

SPEEDY ZX8T controls functions at machines and plants. The functionality will be determined by the loaded program.

SPEEDY can be programmed easily with our PC program EX_PRESS. The software EX_PRESS is further described in its help system.

In addition to timer and counter functions any logical combinations are programmable between inputs and outputs.

Two integrated potentiometers allow time adjustments during running processes. Four time areas cover a range from 100ms to 10min. Additionally division factors can be programmed with the software. If the potentiometers are set to the left limit you get an internal calibrated time base of 100ms.

The clock input CK can also be used as a logical digital input, too.

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

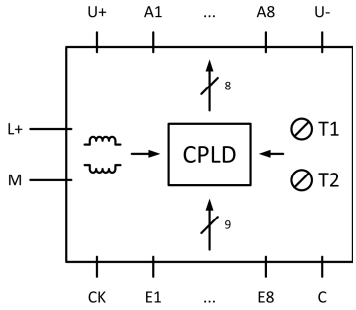

Fig. 1 Block Diagram

Installation

According to EN 60204-1 the unit is designed to be used in switch cabinets with a minimum environmental protection of IP54. The housing is designed to be mounted on a 35mm DIN-rail according to DIN EN 60715 TH35.

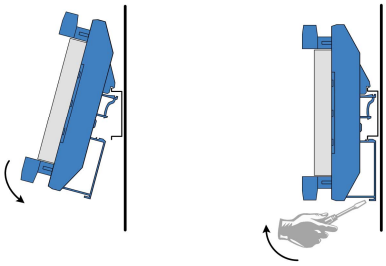

Fig. 2 Mounting / Demounting

Electrical Connection

Please, read the section „Safety Precautions“ before installation and initial operation.

- The operating voltage and the voltage for the digital inputs must be generated by a power supply which complies to the regulations of separated extra low voltage (SELV).
- The cable cross-sections may not exceed 2.5 mm^2. Make sure that power is turned off for installation.
- A maximum cable length of the input connections of 1000 m at a cable cross-section of 0.75 mm² may not be exceeded.
- If the device does not operate after initial start, it must be sent back to the manufacturer unopened. If the device was opened the guarantee claim is void.
- All inductive loads connected to the outputs must be equipped with an effective protection circuit.
- Please consider the information in the section “Technical Data”

Terminal	***Signal***
L+	*DC 24V Power supply*
M	*0V Power supply*
PE	*Protective Earth*
E1..E8	*Input 1..8*
CK	*Clock input or input 9*
C	*0V of Inputs, (common)*
A1..A8	*Output 1..8*
U+, U-	*Power supply of the output circuit*

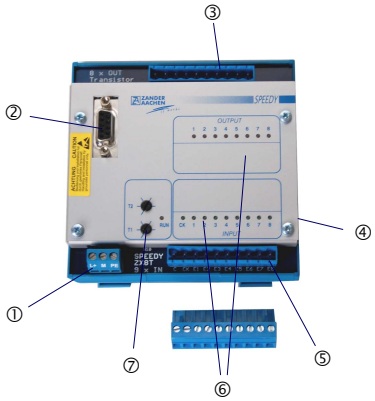

Fig. 3 Front View of ZX8T

① *L+, M, PE: Power supply*
② *Programming port*
③ *Plug-in terminal 8 outputs*
④ *Extension socket*
⑤ *Plug-in terminal 9 inputs*
⑥ *LEDs with text field*
⑦ *2 Potentiometers, adjustable timers*

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Commissioning Procedure

The inputs and outputs must be connected according to the application/circuit diagram. Connection is made via a plug-in screw terminal.

The switching state is indicated by LEDs at the front of the device.

Additional information: see section „Technical Data“

Connection of the operating voltage:

- +24V DC at terminal L+
- 0V at terminal M
- Protective Earth at terminal PE

The connectors M and C may be bridged. If the terminals M and 0V of the outputs are bridged, the ground path of the internal power line filter will be shortened and it will become effectless. If EMC problems occur, a mains filter (order No. 585998) may be inserted.

Caution:

If a program is loaded, SPEEDY ZX8T will immediately execute the programmed functions after turning on the operating voltage.

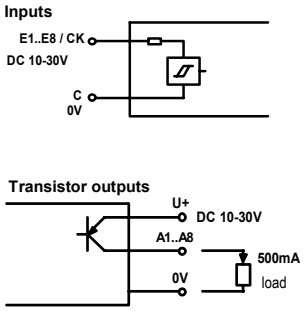

Fig. 4 Inputs / outputs

Download of a Program

The program is created on a PC with the development system EX_PRESS (see help system of EX_PRESS) and it is transferred into the controller. To do this:

- Connect the Programmer-USB-cable to the PC
- Plug the programming cable of the programmer into the programming interface of the controller.
- Connect the operating voltage to the SPEEDY ZX8T (see „Commissioning Procedure“).
- In EX_PRESS click on “Download to EX16/ZX8T…” in the menu “Program”
- Wait until the message of the correct download appears at the Log-Window on the PC

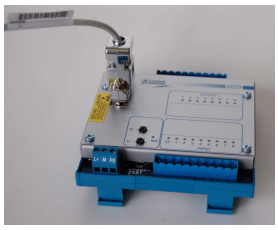

Fig 5 Download of a program

Extension Modules

SPEEDY has got an expansion socket as a standard feature. Extension modules can be connected to this, e.g. 16 additional I/O's, analogue I/O's as well as a bus interface module. Please, see our separate data sheets.

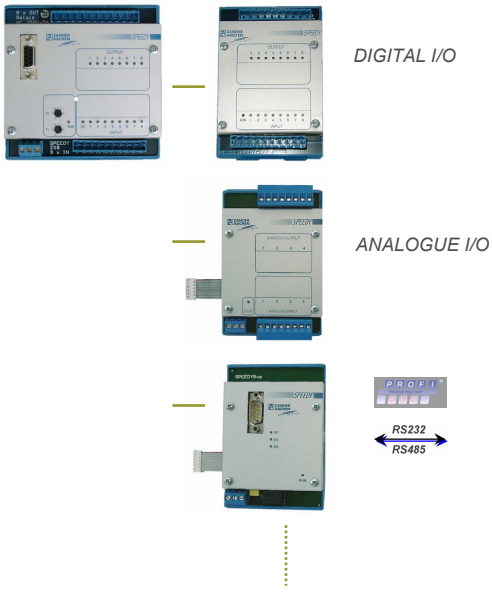

Fig. 6 Extension modules

E11

E61-210-00

Maintenance

No servicing is required. Repairs of the device are only allowed to be made by the manufacturer.

What to do in Case of a Fault?

The device does not execute any function:

- Check the wiring in accordance with the connection diagram.
- Did you download the planned program?

If the fault persists, please, follow the steps which are described in the section “Commissioning Procedure”.

If the fault still persists, the related device must be replaced. The replacement of individual parts of a device is not permitted.

Techn. Data

Operating Voltage	DC 24V, +/-20%
Residual ripple	max. 5%
Current consumption	approx.. 50mA plus 10mA per activated output
Inputs	8, each DC 12-30V, also as clock inputs
Clock Input	1, DC 12-30V, also as digital input
Outputs	8 transistors, PNP
Switching capacity	DC 10..30V; 500mA short circuit proof
Timer	2 integrated programmable timer
Time base	100ms fixed, 0.1-2.5s; 0.3-10s ; 2-80s; 0.3-10min
	variable setting via front potentiometers,
	other times also possible through software
Available internal flags	44 Bit-registers, additional 1 register per output
Time Delay Input/Output	approx. 100µs
Max. input frequency	ca. 10kHz each input
Capacity of logical combinations	approx. 5000 AND / 300 OR
LEDs	Inputs, outputs, RUN
Wire width	Max. 2.5mm^2
Protection	IP20
Temperature range	0^0 C to +50^0 C
Weight	approx. 300g

Dimension Drawing

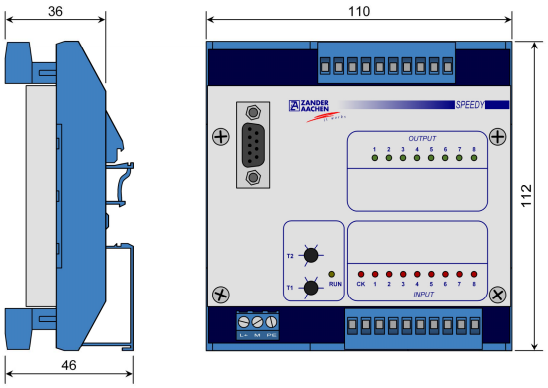

Fig 7 Dimension

Variants

Order-No. 588315	SPEEDY ZX8T, 9 inputs DC24V, 8 transistor outputs
Order-No. 588292	EX_PRESS Software for Windows 7 / XP, programmer with USB cable

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