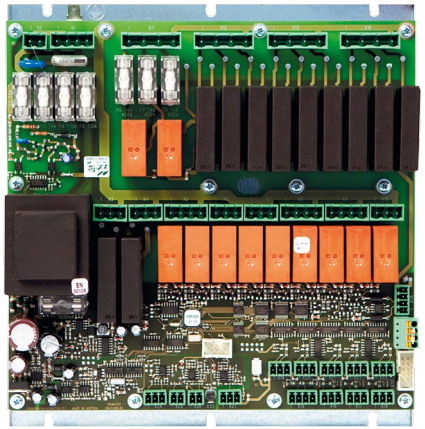
Woodchip Expansion
HZS 525



The HZS 525 woodchip expansion board is used to control a woodchip heater in a modular heating system. Communication with the CPU is established over CAN bus. The HZS 525 forms the CAN bus neutral point for connecting the HZS 521 function module and HZS 532 expansion controller.
The woodchip expansion module is supplied with 230 V AC and thereby generates the internal +24 V supply voltage. The +24 V supply for the CPU (e.g. ETV 0501) and the expansion controller is provided by the HZS 524.

The function module is mechanically mounted on a mounting plate.

Performance Data	
Controller	AT90CAN32
Controller frequency	16.0 MHz
Command execution time	ca. 70 ns
Interfaces	1x CAN
Internal program memory	32-kbytes (Flash)
Internal data and/or program buffering (internal EEPROM)	1-kbyte (Flash) no battery buffering required

Power Supply		
Supply voltage 230 V	230 V AC ±10 % (transformers in function module)	
Supply frequency	50-60 Hz	
Current consumption electronics	typically 45 mA	maximum 90 mA
Current consumption of electronics and connected loads	maximum 12 A	
Fuses	T630 mA transformer fuse (secondary) T10 A relay output 230 V AC with supply over STB and Emergency Stop T10 A relay output 230 V AC without supply over STB and Emergency Stop 2x T4 A Triac output 230 V AC with supply over STB and Emergency Stop	

Supply voltage 400 V	3x 230 V AC ±10 %
Supply frequency	50-60 Hz
Current consumption of electronics and connected loads	maximum 4 A/Phase
Fuses	3x T4 A Triac outputs 400 V AC

+24 V Supply Specifications	
Minimum current available for external sensors and initiators	minimum 200 mA at 24 V DC
Applicable connectors	X15, X16, X17, X18, X19, X20, X21, X22, X23, X27

Terminal Requirements	
Connection technology	The following sprint terminals are required: 2x FK-MCP1.5/2-ST-3.5 Phoenix Contact spring terminal connector 10x FK-MCP1.5/3-ST-3.5 Phoenix Contact spring terminal connector 3x FK-MCP1.5/4-ST-3.5 Phoenix Contact spring contact connector 1x FKC2.5/2-ST-5.08 Phoenix Contact Spring terminal connector 5x FKC2.5/3-ST-5.08 Phoenix Contact spring terminal connector 4x FKC.5/4-ST-5.08 Phoenix Contact spring terminal connector 4x GFKC2.5/4-ST-7.62 Phoenix Contact spring terminal connector

230 V AC Digital Output Specifications	
Number of relays	9
Relay Types	normally open
Relays	RT 314024
Switching range	16.8-30 V DC
Switching current	typically 16.7 mA at +24 V
Switching time	< 10 ms
Switching power	see data sheet: Tyco Schrack RT1 series
Fuse	2x T10 A
Connection technology	1x 2-pin Phoenix RM5.08 mm 2x 3-pin Phoenix RM5.08 mm 3x 4-pin Phoenix RM5.08 mm

400 V AC Phase Inverter Relay Specifications

Number of relays	2
Relay types	changeover contact
Relays	RT 314024
Switching range	16.8-30 V DC
Switching current	typically 16.7 mA at +24 V
Switching time	< 10 ms
Switching power	see data sheet: Tyco Schrack RT1 series
Fuse	2x T4 A/400 V
Connection technology	-

Specifications for the 400 V AC Digital Triac Outputs (zero-cross switching)

Number of relays	9
Relays	Celduc SKA20440
Switching range	3-30 V
Switching current	3 mA at +5 V typically
Switching time	≤ 10 ms
Switching power	400 V/5.0 A at 0 °C/ambient temperature 400 V/4.0 A at 30 °C/ambient temperature 400 V/2.6 A at 60 °C/ambient temperature details can be found in the SKA20440 data sheet
Zero-point switching	yes
Protective circuit	yes (Varistor on output)
Fuse	3x T4 A/400 V
Connection technology	3x 4-pin Phoenix RM7.62 mm

Specification for the 230 V AC Digital Triac Outputs (phase angle control)

Number of relays	2
Relays	Celduc SKA20421
Switching range	3-30 V
Switching current	3 mA at +5 V typically
Switching time	<= 0.1 ms
Switching power	230 V/5.0 A at 0 °C/ambient temperature 230 V/4.0 A at 30 °C/ambient temperature 230 V/2.6 A at 60 °C/ambient temperature details can be found in the SKA20421 data sheet
Zero-point switching	no
Protective circuit	yes (varistor on output)
Fuse	2x T4 A
Connection technology	2x 3-pin Phoenix RM5.08 mm

230 V AC Digital Output Emergency Stop and STB Specifications

Number	2
Input delay	100 ms
Connection technology	1x 2-pin Phoenix RM5.08 mm 1x 4-pin Phoenix RM5.08 mm

+24 V DC Digital Input Specifications

Input voltage	typically +24 V	maximum +30 V
Signal level	low: < +8 V	high: > +14 V
Switching threshold	typically +11 V	
Input current	5 mA at +24 V	
Input delay	typically 5 ms	
Number	5	
Connection technology	3x 3-pin Phoenix RM3.5 mm 1x 4-pin Phoenix RM3.5 mm	

+24 V DC Digital Frequency Measurement Input Specifications

Number	1
Input signal	+24 V
Input frequency	maximum 1 kHz
Signal evaluation	1X
Counter analysis	8-bit
Input current	5 mA at +24 V
Input delay	0.1 ms
Number	5
Connection technology	5x 3-pin Phoenix RM3.5 mm

0-5 kOhm Analog Input Specifications

Number of channels	1
Measurement range	0-5 kOhms
Measurement value	0-5000
Resolution	1 Ohm
Measurement precision	±25 Ohms
Input resistance	100 kOhm
Short circuit and open sensor detection	sensor break detection only
Connection technology	1x 3-pin Phoenix RM3.5 mm

0-10 V Analog Input Specifications

Number of channels	1
Measurement range	0-10 V
Measurement value	0-10000
Resolution	1 mV
Measurement precision	±50 mV
Input resistance	100 kOhm
Short circuit and open sensor detection	sensor break detection only
Connection technology	1x 3-pin Phoenix RM3.5 mm

PT 1000 Analog Input Specifications

Number of channels	1
Sensor type	PT1000
Measurement range	0 ... +250 °C
Sensor range	1000.0-1941.0 Ohm
Measurement value	0-2500
Resolution	0.1 °C
Measurement precision	±1.0 °C
Typical current measurement	1.0 mA
Input resistance	8.2 kOhm
Short circuit and open sensor detection	yes
Connection technology	1x 2-pin Phoenix RM3.5 mm

NiCr-Ni (Type K, optional) Analog Input Specifications

Number of channels	1
Sensor type	NiCr-Ni (type K thermo element)
Measurement range	0 ... +1200 °C
Sensor range	0-48.838 mV
Measurement value	0-12000
Resolution	0.1 °C
Measurement precision	±5 °C
Input resistance	41.2 kOhm
Short circuit and open sensor detection	sensor break detection only
Connection technology	1x 2-pin Phoenix RM3.5 mm

KTY10-62 (thermal couple compensation, optional) Analog Input Specifications

Number of channels	1
Sensor type	KTY10-62 (ohmic temperature sensor)
Measurement range	-50 ... +100 °C
Sensor range	1035.9-3399.9 Ohm
Measurement value	-500 ... +1000
Resolution	0.1 °C
Measurement precision	±1.0 °C
Typical current measurement	0.8 mA
Input resistance	10 kOhm
Connection technology	- (intern)

Mechanics

Mechanical Dimensions	220 mm x 210 mm x 50 mm (L x W x H, the maximum height is based on the height of the transformer)

Article Number and Miscellaneous

Article number	05-895-525
HW version	1.x

Environmental Conditions

Storage temperature	-20 ... +70 °C	
Operating temperature	0 ... +60 °C	
Humidity	10-90 %, non-condensing	
EMC stability	in accordance with EN 61000-6-2 (industrial area)	
EMC - noise generation	according to EN 61000-6-3 (living area)	
Shock resistance	EN 60068-2-27	150 m/s²