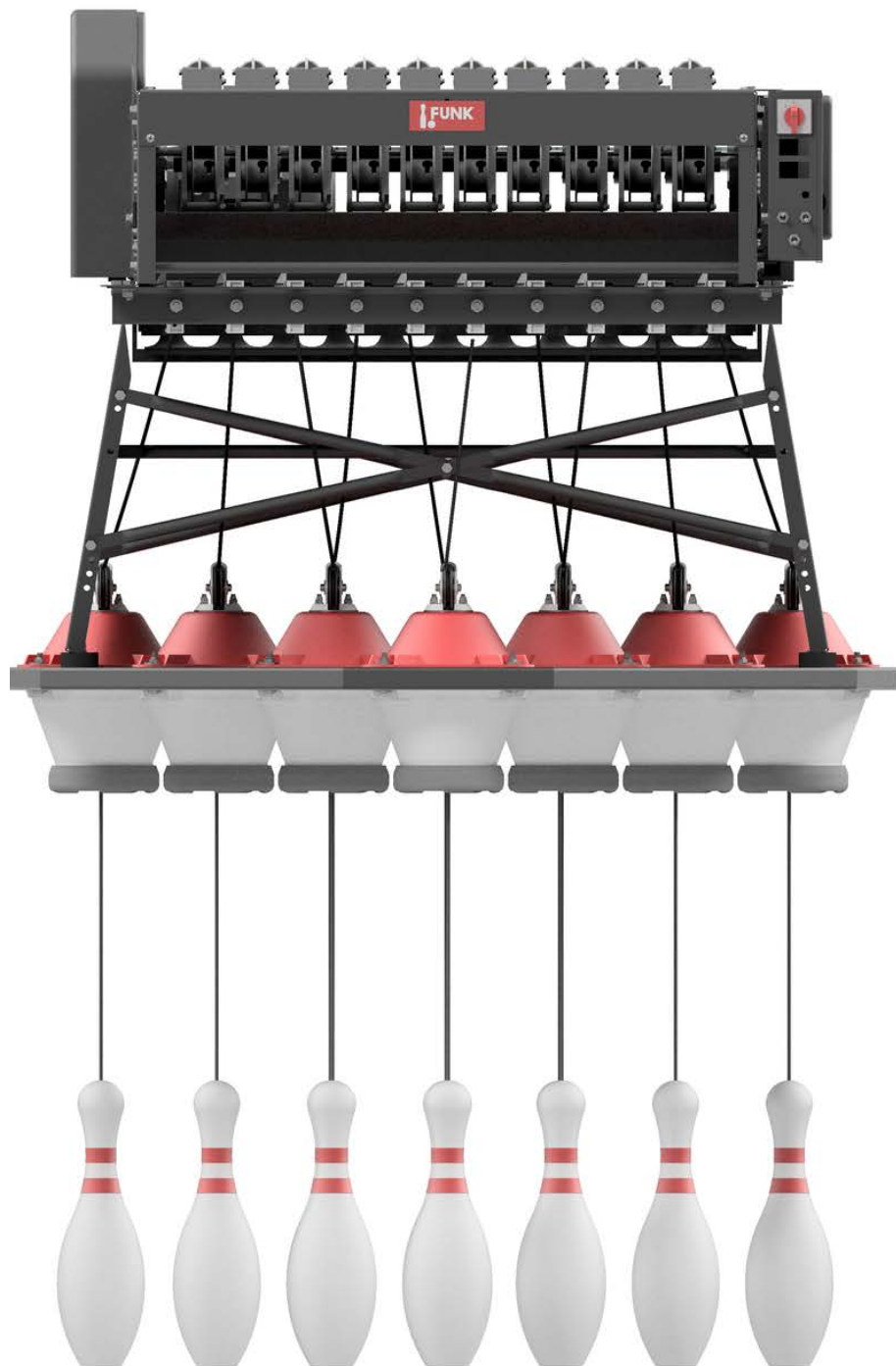




PINSETTER & CONTROL UNIT



FUNK
Bowling



SERVICE MANUAL

VERSION 07.22

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PINSETTER & CONTROL UNIT

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MODULTECH CONTROL

SERVICE MANUAL

VERSION 07.22



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MODULTECH CONTROL

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SECURITY REGULATIONS

The pinsetter is built to be operationally reliable according to the state of the art. Nevertheless, the machine poses dangers that can be avoided through professional use. In addition to the general accident prevention regulations, specific hazards must be considered. They are special in the wording of the standards:

Mechanical risk

- Crushing and shearing in the work zones.
- Diapering, pulling in clothes.

Danger from electricity

- Touching live parts due to improper installation or improper maintenance.

Danger from neglecting ergonomic principles

- Inappropriate or insufficient lighting.

Failure of important functions of the machine

- Neglect of maintenance and service work, unsuitable repairs.

The operator is obliged to take into account all safety features specified by the manufacturer. The safety devices specified in the design must not be manipulated or rendered unusable.

SAFETY INSTRUCTIONS FOR THE USER

Protective measures and safety devices are not harassment, but they protect people from danger. The user of the pinsetter avoids danger and injuries if he observes the following safety instructions:

Operation only by trained personnel

- No other lanes may be crossed to rectify the fault
- in the case of string tangles that cannot be eliminated automatically, shut down the pinsetter with the stop switch

Maintenance by experts – only when the system is switched off

- If there is a risk of injury (including neighboring systems), shut down the entire system
- Do not put the system back into operation until no one is in the danger zone

Safety of the pinsetter

- The pinsetter may only be operated if it is in perfect condition.
- In principle, no protective devices on the system may be dismantled or put out of operation.

Repairs and maintenance

- Work on electrical systems may only be carried out by authorized specialists.
- If safety devices and protective devices have to be removed, they must be completely and functionally reinstalled for operation.

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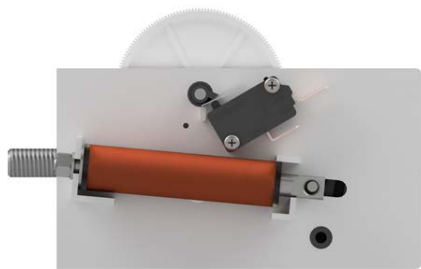
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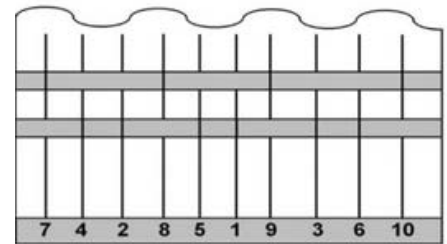
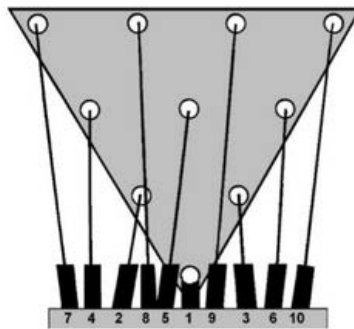
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STRING ADJUSTMENT

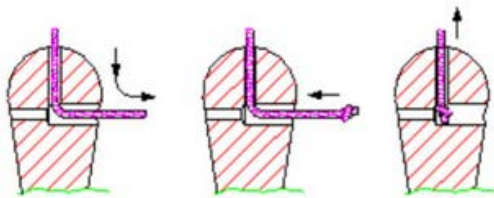
Pinsetter String Adjustment (Duck Pin)



Magnet for String Brake



String shortening for Standard Pinsetter



Attach Pin

- Push the string through the hole on the pin through the large hole from above.
- Knot the string.
- Pull the string back tightly into the pin.

Care and Maintenance

The pin string run over the string switches. The fallen pin is registered here by mechanical contact.

- Sluggish string switches and strings that are too thick or damaged increase the string resistance and have a negative effect on the pinfall result.
- Likewise, heavily soiled cable switches can have a negative effect on the pin fall.
- It is therefore necessary to regularly check the string switches for ease of movement and the strings for damage.

The cable switches can be easily cleaned with a vacuum cleaner. Cleaning agents and lubricants should not be used on the string switch. Damaged pin string must be tightened or replaced.

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STRING ADJUSTMENT (CONTINUED...)

The correct setting of the pin strings is of great importance for the proper functioning of the bowling machine. This setting must be checked at least weekly. When the system is newly installed or when a new string is pulled in, a daily check is recommended at the beginning (usually in the first week). Because of the new string stretch.

If the string length is set correctly, the spring-loaded levers must be in the position during the adjustment process - Pins up - rest against the stop bar (picture 1), and the pins have a slight play vertically approx. 2 to 3 cm in the centering bell. This can be checked by pulling on the pin strings. (Picture 2)

Picture 1



Picture 2



If the pin strings are set too long, the centering of the pin is not sufficient and the pin can tip over during the setting process.

If the pin strings are set too short, the drive is unnecessarily loaded. This can lead to damage to the machine.

The correct setting of the pin strings is of great importance for the proper functioning of the bowling machine. This setting must be checked at least weekly. When the system is newly installed or when a new string is pulled in, a daily check is recommended at the beginning (usually in the first week). Because of the new string stretch.

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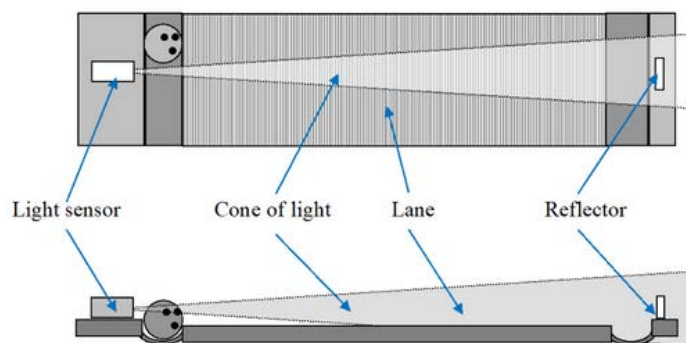
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LIGHT SENSOR ADJUSTMENT

To ensure that the pinsetter works correctly, the light barrier must be correctly adjusted. The light barrier function can be checked on the LED display on the back of the light barrier itself.

The cone of light (not visible) that the light barrier emits must be centered over the reflector. The size of the light cone can vary from light barrier to light barrier.

Figure 1

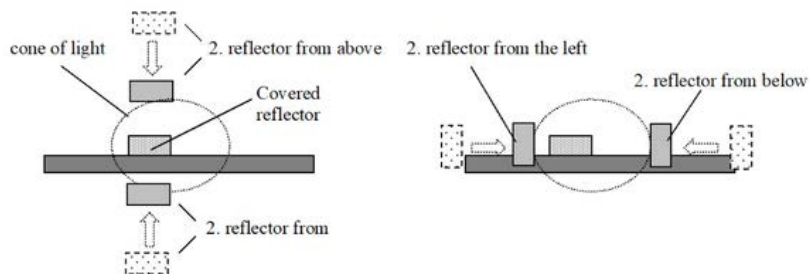


Adjustment of the light barrier

- Roughly align the light barrier to the reflector. (LED off)
- Cover the reflector of the light barrier. (LED on)
- The edges of the light beam of the light barrier are now searched for with a second reflector.

The 2nd reflector is guided near the covered reflector from left, right, up, and down to the center. The edge of the light cone is at the point at which the control diode (LED) of the light barrier changes its state.

Figure 2



When the outer edge of the light cone has been determined, the light barrier is aligned so that the reflector is in the center of the light cone. After attaching the light barrier, check the position of the light cone again. If necessary, repeat the adjustment.



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MAINTENANCE WORK ON THE MECHANICS

The pinsetter, the ball accelerator or ball elevator, and the ball lifter are designed to be low-maintenance.

Regular maintenance work includes the following activities:

1. Retention and grease the pinsetter chain.
2. Checking the V-belts and the flat belts.
3. Pin centering check.
4. Check suspension pin centering.
5. Functional test of the string switches and the untangling switch.
6. Checking the pins and the pin strings for wear.
7. Checking of all machine and attachment functions.

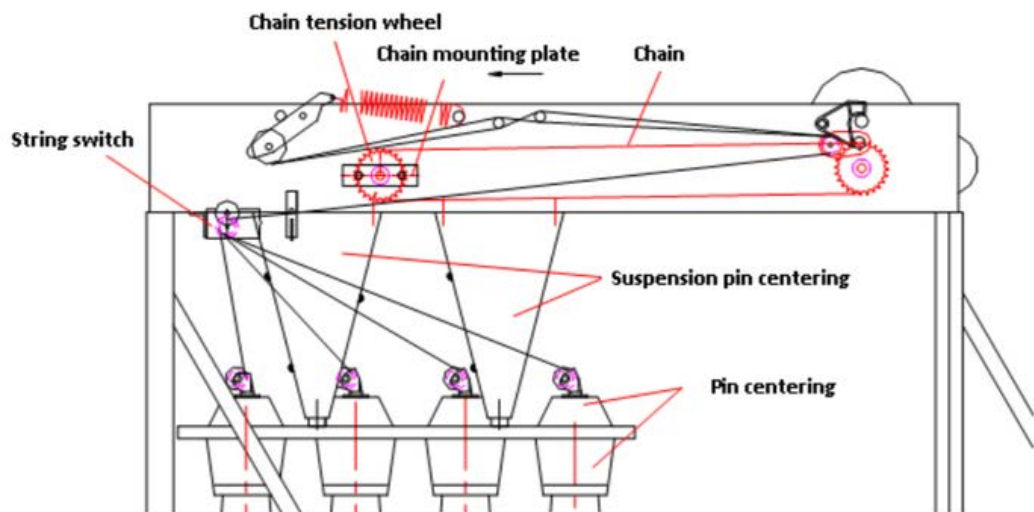


The maintenance intervals depend on the operating hours of the system.

Tighten the pinsetter chain:

The pinsetter chain can be adjusted using the chain tensioning wheel to do this, the screws on the chain tensioning plate (both sides) must be loosened, the chain tensioned and the screws tightened again.

Figure 3



MODULTECH CONTROL

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TROUBLESHOOTING

Electronics

The machine control is installed behind the masking unit. Main power is supplied via the black power box, which is mounted on the pinsetter.

The power box contains the control relays for the drive motor, ball lifter or ball accelerator, and power supply for the control.

Troubleshooting



The main switch must be set to "0" for all maintenance work and repairs. When repairing the high voltage box, the high voltage main plug must be disconnected from the mains. (The stop switch is only used to clear tangled strings). Only use ORIGINAL SPARE PARTS

Fault	Possible Cause	Solution
After switching on, the pins are not set, the control lamp on the power box lights up.	- Stop switch at the power box. - Strings on top switch. activated. - String tangle activated.	- Set stop switch to ON. - Switch off function. - Check tension of the pins. - Check tangle switch.
After switching on, the pins are not set, the control lamp on the power box does not lights up.	- Main power supply has failed. Main switch off. - Switch-on relay in power box faulty. - Fuse in the power box or control malfunction.	- Check and restore main power Switch on. - Replace relay or call customer service. - Replace fuse or call customer service.
Ball played, pins fall, pinsetter not responding.	- Main power supply has failed. - Fuse in power box or control box defective.	- Check and restore main power. - Replace fuse or call customer service.
Pinsetter resets without a ball being played.	String switch faulty or wrong adjustment.	Adjust string switch or replace.
Pins fall over when placed on the pin deck.	- String too long. - Pin faulty Damage of pin center.	- Adjust string tension - Replace faulty parts. (pins/center)

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TROUBLESHOOTING C

Troubleshooting



The main switch behind the masking unit must be set to "0" for all maintenance work and repairs. When repairing the high voltage box, the high voltage main plug must be disconnected from the mains.

Fault	Possible Cause	Solution
Pinsetter runs continuously with slow speed.	- Pin switch closed or faulty. - CPU board faulty.	- Adjust faulty pin switch or replace. - Replace CPU board.
Pinsetter runs continuously without slow speed.	- Position switch faulty. - CPU board or pinsetter interface faulty.	- Adjust faulty switch or replace. - Replace faulty board or call customer service.
Pins do not stay up when turning pinsetter off.	- Pin string too tight. - Adjustment of top switch.	- Adjust the tension of the pin strings. - Adjustment of top switch.
Fallen pins slip through on the 2nd throw.	- Strings too thin or damaged. - String brake in the string switch is jammed. - Magnet defective or jammed electrical. - Connection interrupted or no control available.	- Check strings and replace faulty one. - Check string switch. - Check electrical connection. - Call customer service.
Balls does not come back.	- Ball acceleration has stopped. - Ball lifter has stopped. - Ball or pin stuck in accelerator. - Flat belts or V-belts off or the tension is too low. - Ball lifter or ball passage at the ball rack is off. - Ball transport wheel faulty. - Electric connection interruption. - Several balls on the ball return. - Circuit breaker tripped.	- Remove the ball or pin from the accelerator. - Replace or tension belt. - Replace ball transport wheel. - Check electrical connection. - Remove balls from return track. - Reset circuit breaker on power box. - Call customer service.

MODULTECH CONTROL

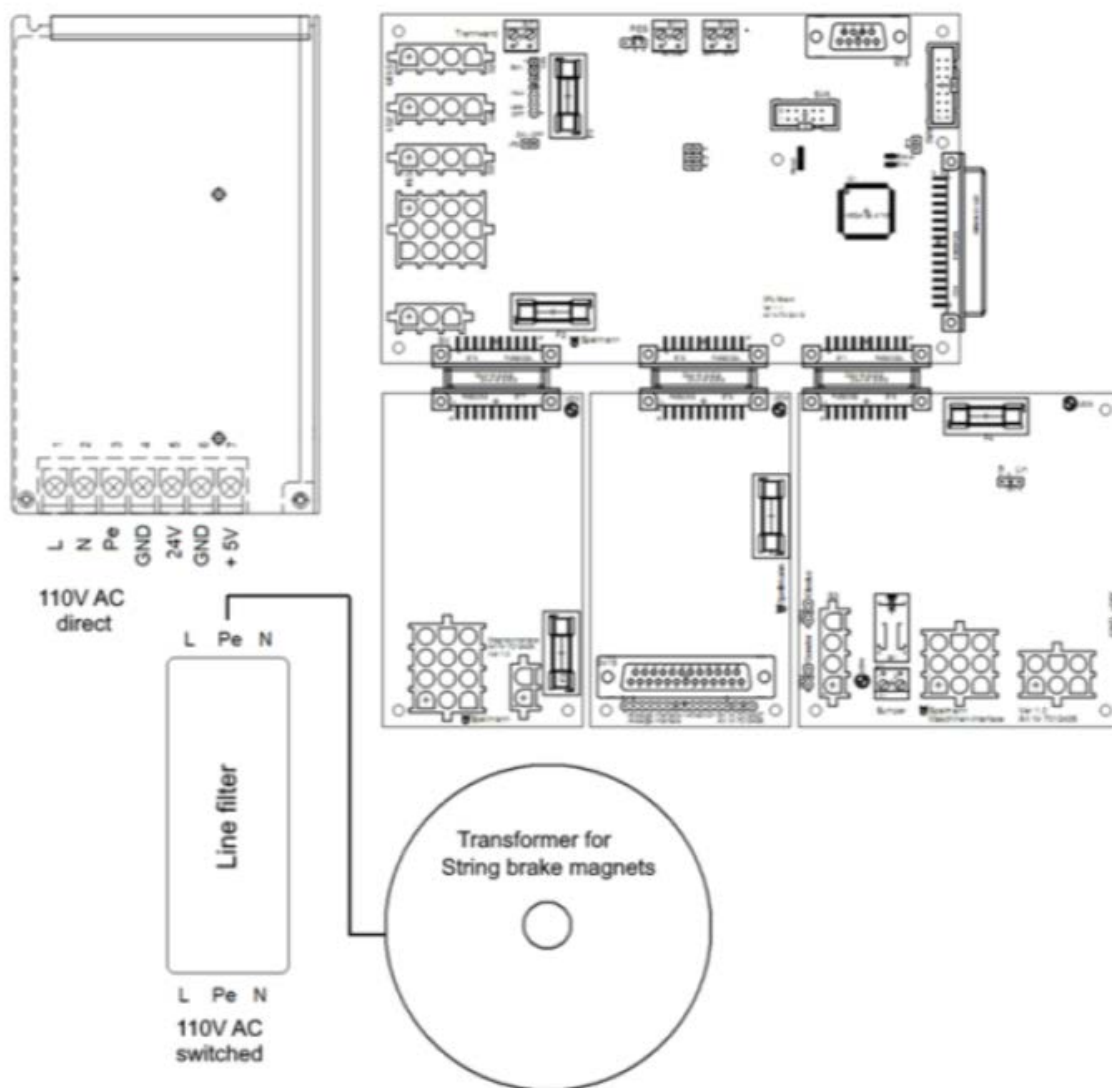
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CONTROL UNIT



TURN OFF MODE



Reset :

The control box switches to RESET after switching off.
Activation is only possible by Key switch.



Standby :

The control box remains active after switching off.
Settings and diagnoses can be made.

CONTROL CODING



Coding :

1 = Bowling

INPUT LIGHT SENSOR & PINS



JP2 Input Signals :

Closed : Bowling

MODULTECH CONTROL

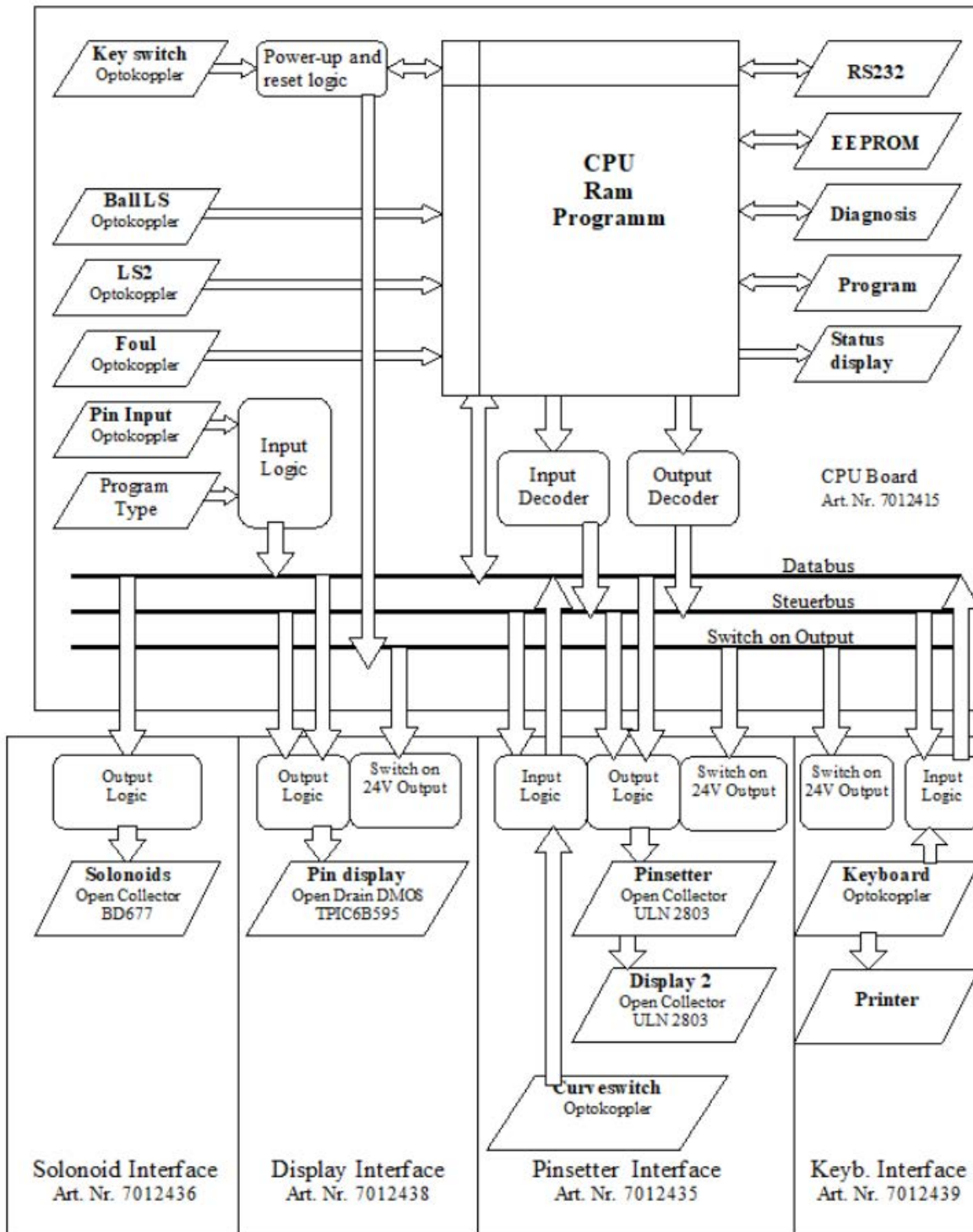
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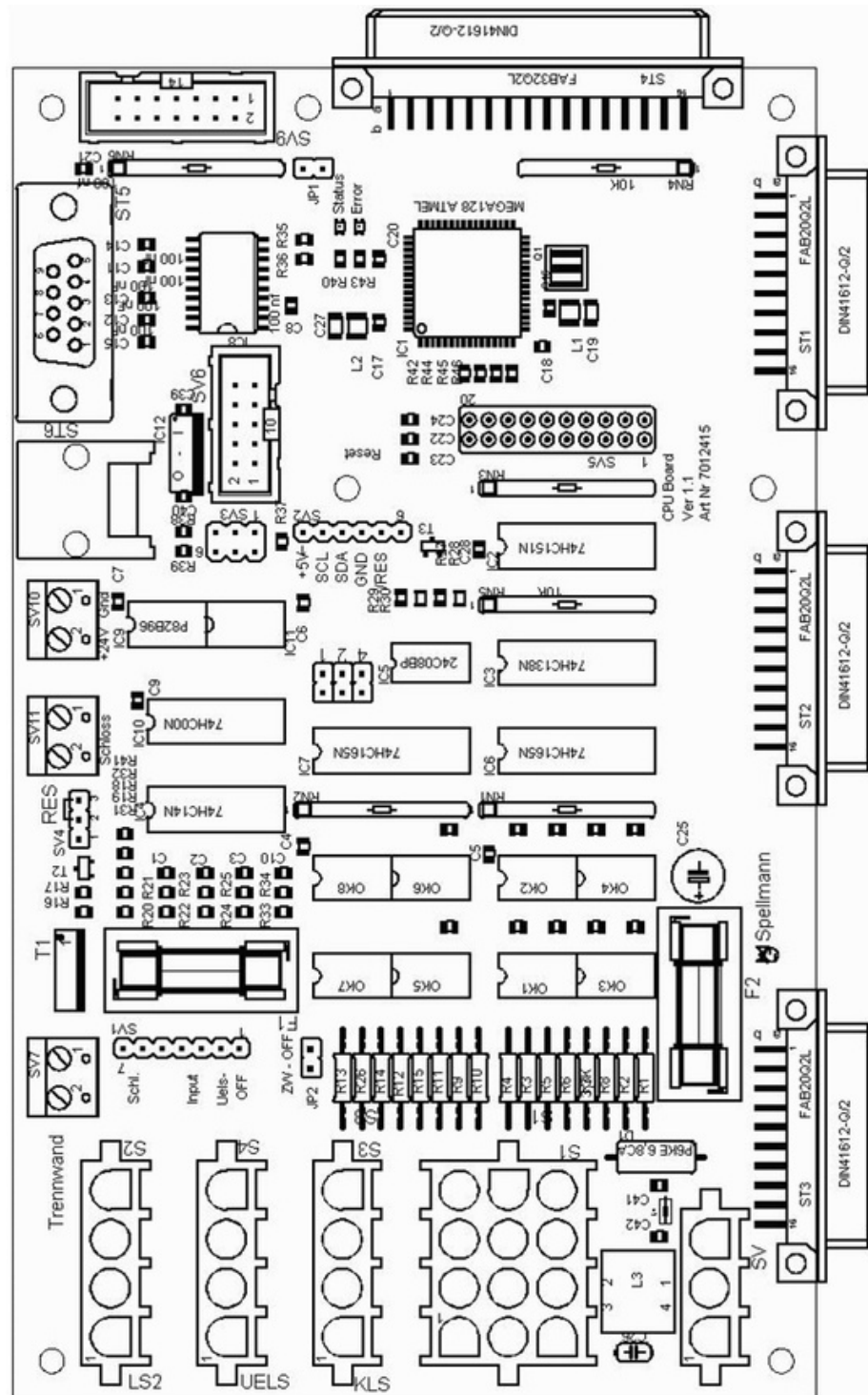
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BLOCK DIAGRAM CONTROL UNIT



CPU BOARD VERSION 1

Item No. 7012415



MODULTECH CONTROL

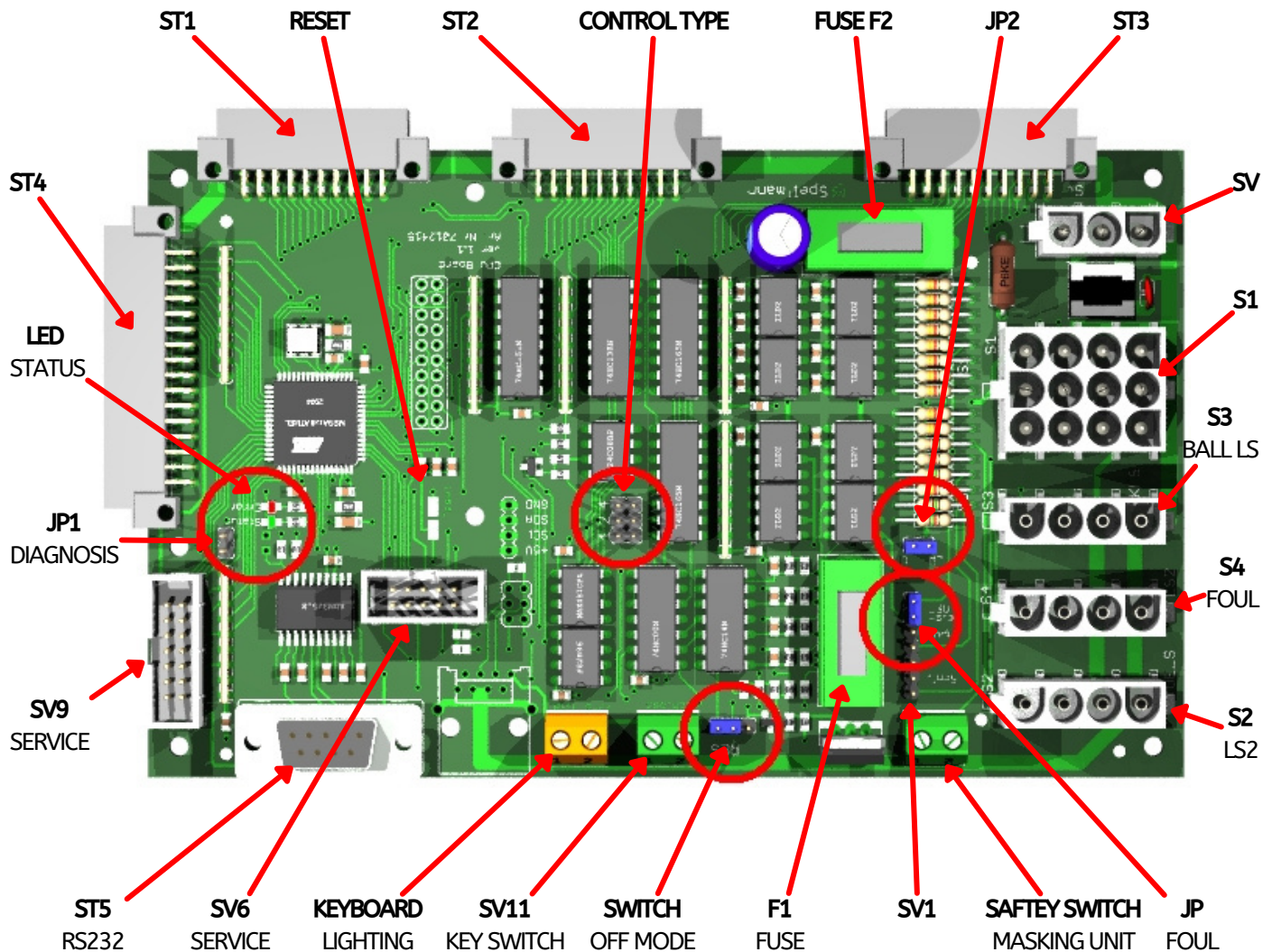
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CONNECTOR ASSIGNMENT AND JUMPER



F1	01,6A Slow	Protection for 24V power supply
F2	0,63A Slow	Protection for 05V power supply

Warning: the printed circuit board LS2 and UELS are reversed in board version 1.

MODULTECH CONTROL

SERVICE MANUAL

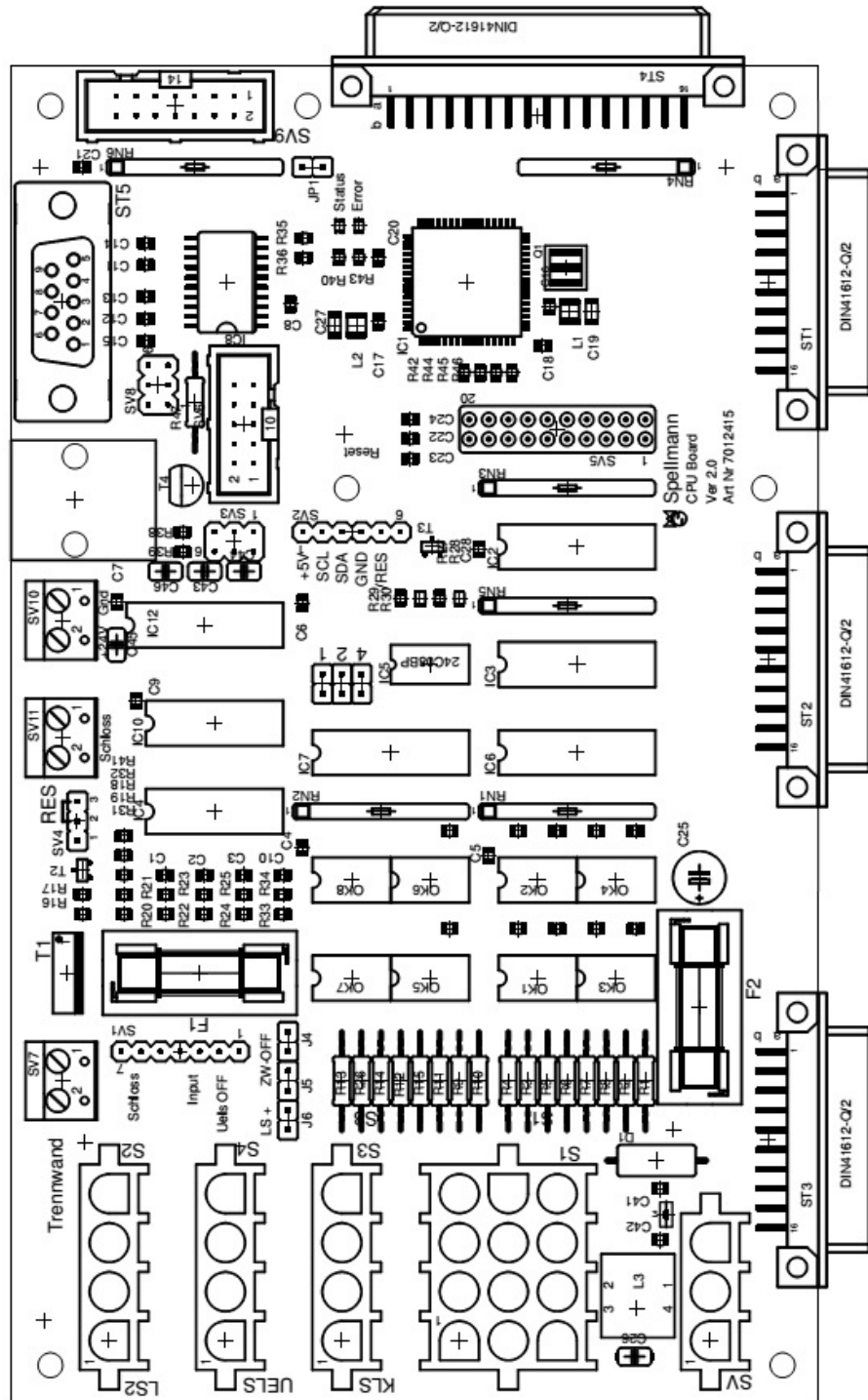
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CPU BOARD VERSION 2

Item No. 7012415



MODULTECH CONTROL

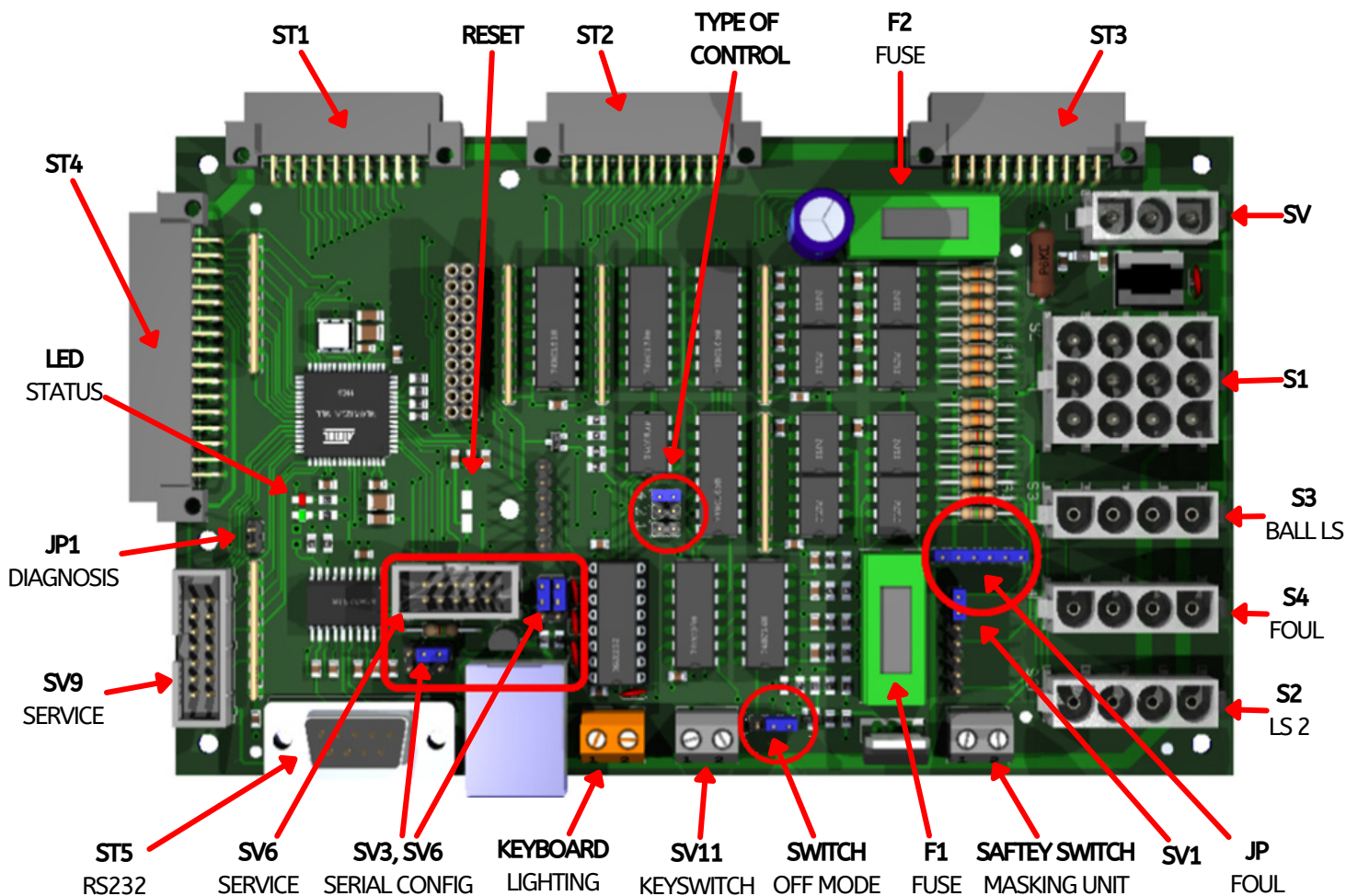
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CONNECTOR ASSIGNMENT AND JUMPER



F1	01,6A Slow	Protection for 24V power supply
F2	0,63A Slow	Protection for 05V power supply

CONTROL CODING



Coding :

1 = Bowling



Reset :

The control box switches to RESET after switching off.
Activation is only possible by Key switch.



Standby :

The control box remains active after switching off.
Settings and diagnoses can be made.

MODULTECH CONTROL

SERVICE MANUAL

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CONNECTOR ASSIGNMENT CPU BOARD

String switches (S 1)	
1	+24V
2	PIN 1
3	PIN 2
4	PIN 3
5	PIN 4
6	PIN 5
7	PIN 6
8	PIN 7
9	PIN 8
10	PIN 9
11	PIN 10
12	

Power supply (SV)	
1	+24V
2	GND
3	+5V

Lightsensor (S2 S3 S4)	
1	GND
2	+24V switched
3	+24V switched
4	Input

RS232 (ST5)	
1	-
2	TXD
3	RXD
4	-
5	GND
6	-
7	-
8	-
9	-

Control (SV1)	
1	Foul line (Input)
2	Foul line signal
3	Kodierung
4	Reset pins
5	+24V
6	+24V
7	Key switch

Board connections ST1 ST2 ST3 ST4		
ST1 – ST3	Connection for Pinsetter Interface	Art. Nr. 7012435
	Connection for Magnet Interface	Art. Nr. 7012436
	Connection for Display Interface	Art. Nr. 7012437
ST4	Connection for Keyboard Interface	Art. Nr. 7012439

Safety switch masking unit (SV12)

If the input is open, the control software switches off the light barrier inputs. In addition, the pinsetter motor and the ball lifter of the lane are switched off.

MODULTECH CONTROL

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LED ERROR-CODE

Status LED Green		
Display	Flash code	description
00	Short ON - break	No error
	Long ON - break	Control error
00	Short ON - break long	Standby
99	Flash fast	Service
Error LED Red		
Standby	The green statusLED lights up briefly at the beginning of the flashing sequence	
Operation	The green statusLED goes on at the beginning of the flashing sequence and stays lit during the entire error code flash sequence	
3A	S-S-S	Pinsetter Interface
3B	L-S-S	Pin Input
3C	S-S-L	Keyboard Interface
3D	S-L-S	RAM
3E	L-S-L	EEPROM
3F	S-S	5V power supply
40	S-L	Watchdog
30	S-S-S-S	Pin 1
31	L-S-S-S	Pin 2
32	S-L-S-S	Pin 3
33	L-L-S-S	Pin 4
34	S-S-L-S	Pin 5
35	L-S-L-S	Pin 6
36	S-L-L-S	Pin 7
37	L-L-L-S	Pin 8
38	S-S-S-L	Pin 9
4B	L-L-S-L	Lightsensor (Ball) active at TOP switch
4C	S-S-L-L	Lightsensor (LS2) active at TOP switch
4D	L-S-L-L	Foul active at TOP switch
4E	S-L-L-L	Lightsensor 2
4F	S-L-L-L	Lightsensor (Ball)
50	S-S-S-S-L	Pin 1 without lightsensor signal
51	S-S-S-L-L	Pin 2 without lightsensor signal
52	S-S-L-S-L	Pin 3 without lightsensor signal
53	S-S-L-L-L	Pin 4 without lightsensor signal
54	S-L-S-S-L	Pin 5 without lightsensor signal
55	S-L-S-L-L	Pin 6 without lightsensor signal
56	S-L-L-S-L	Pin 7 without lightsensor signal
57	S-L-L-L-L	Pin 8 without lightsensor signal
58	L-S-S-S-L	Pin 9 without lightsensor signal
59	L-S-S-L-L	Pin 10 without lightsensor signal
41	S-S-S-S-S	BOTTON switch closed
42	L-S-S-S-S	TOP switch closed
43	S-L-S-S-S	STRING-BRAKE switch closed
44	L-L-S-S-S	MOTOR-SLOW switch closed
45	S-S-L-S-S	TANGLE switch
46	L-S-L-S-S	BOTTON switch
47	L-L-L-S-S	TOP switch
48	S-S-S-L-S	STRING-BRAKE switch
49	L-S-S-L-S	MOTOR-SLOW switch
4A	L-L-S-L-S	TANGLE switch hardware safety
5A	Red constantly	Unknown program

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PINSETTER INTERFACE

CONTROL CODING

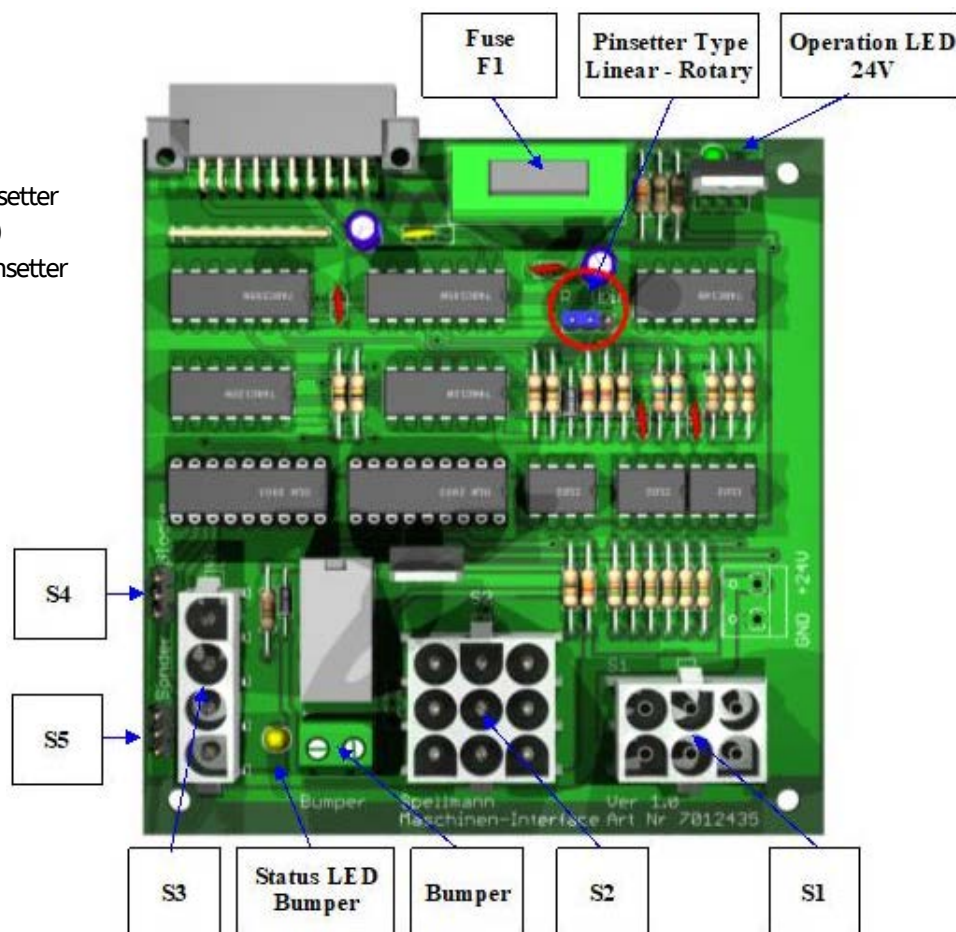


Coding :

R = Rotary pinsetter
(Standard)

Lin = Linear pinsetter

Item No. 7012435



F1	1A Slow	Protection for 24V power supply (switched)
-----------	---------	--

Display (S3)		Pinsetter Position switch (S1)		Power Box (S2)	
1	+ 24V switched	1	+ 24V switched	1	Switch on relais
2	Special Output	2	STRING BRAKE	2	+ 24 V switched
3	GREEN	3	MOTOR-SLOW switch	3	Motor SLOW
4	RED	4	BOTTOM switch	4	+ 24 V
		5	TOP switch	5	Pins on top switch
		6	TANGLE switch	6	Motor DOWN
				7	Ball Lifter
				8	GND
				9	Motor UP

MODULTECH CONTROL

SERVICE MANUAL

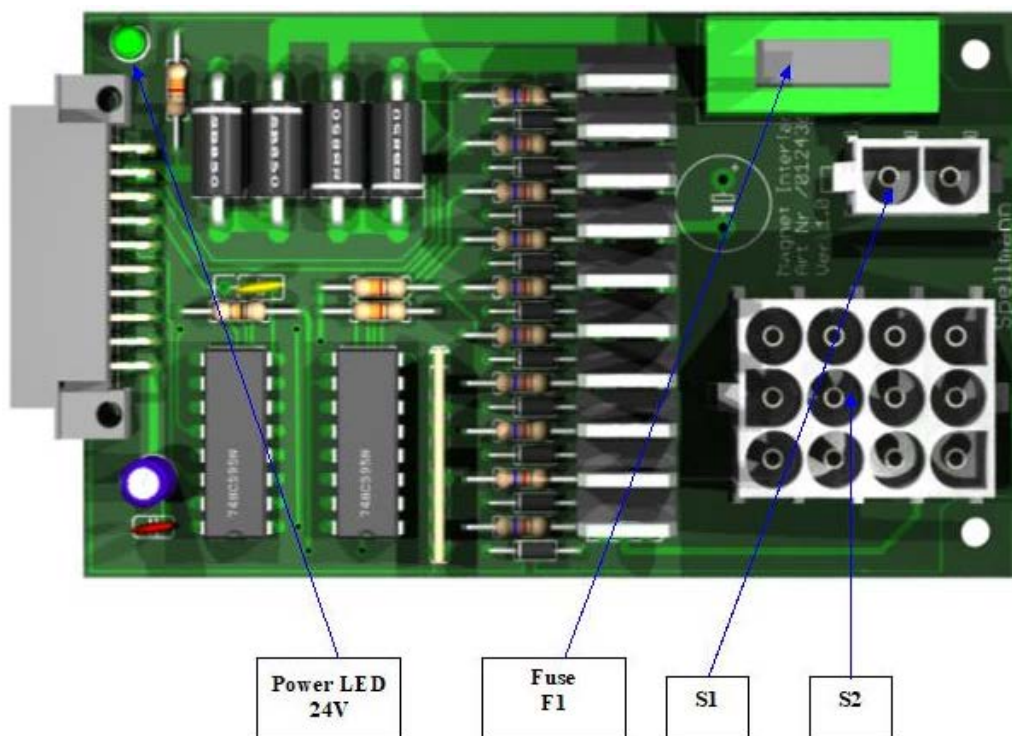
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MAGNET INTERFACE

Item No. 7012436



F1	3.15A slow	Protection for 24V power supply
-----------	------------	---------------------------------

String magnets (S2)	
1	+24V
2	PIN 1
3	PIN 2
4	PIN 3
5	PIN 4
6	PIN 5
7	PIN 6
8	PIN 7
9	PIN 8
10	PIN 9
11	PIN 10
12	

Power supply (S2)	
1	24V AC
2	24V AC

MODULTECH CONTROL

SERVICE MANUAL

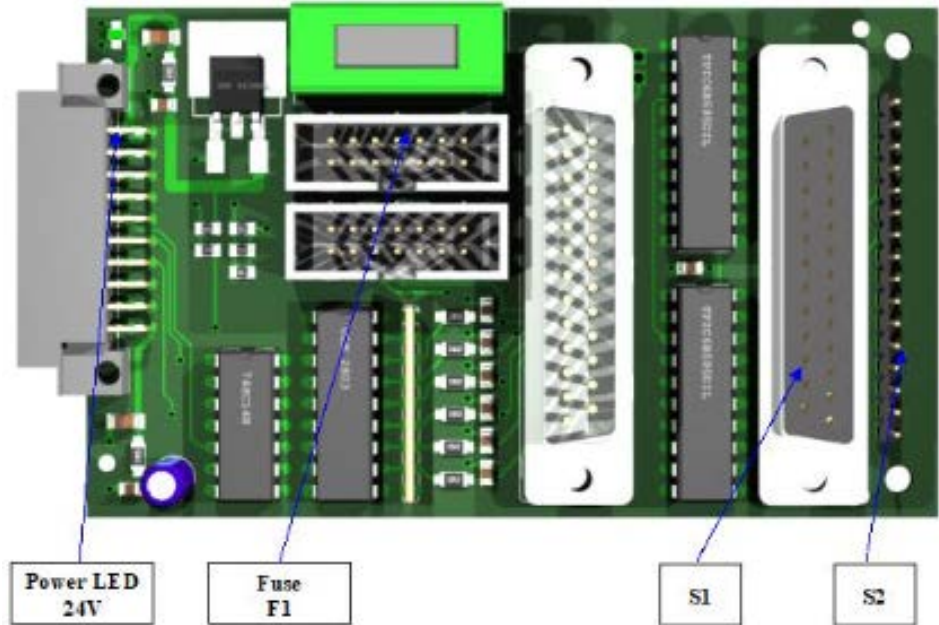
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DISPLAY INTERFACE

Item No. 7012438



F1	2A slow	Protection for 24V power supply
-----------	---------	---------------------------------

Display output (S1)	
1	PIN 4
2	PIN 3
3	PIN 9
4	PIN 7
5	PIN 8
6	Foul
7	
8	PIN 10
9	Green
10	Red
11	
12	+24V switched
13	GND
14	PIN 5
15	PIN 6
16	PIN 2
17	PIN 1
18	
19	LS - Steltronic
20	
21	Ball 2

Display output (S2)	
1	+24V switched
2	+ 24 V switched
3	-
4	LS - Steltronic
5	Ball 2
6	Foul
7	PIN 10
8	PIN 8
9	PIN 1
10	PIN 7
11	PIN 2
12	PIN 9
13	PIN 6
14	PIN 3
15	PIN 5
16	PIN 4
22	Bell
23	
24	+24V switched
25	GND

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CONNECTOR ASSIGNMENT

Pin display S 1 - Bowling					
Pinout	S3 Mod 2	DSUB 25 female	Pinout	S3 Mod 2	DSUB 25 female
PIN 4	16	1	PIN 5	15	14
PIN 3	14	2	PIN 6	13	15
PIN 9	12	3	PIN 2	11	16
PIN 7	10	4	PIN 1	9	17
PIN 8	8	5			20
Foul	6	6	LS - Steltronic	4	19
		7			20
PIN 10	7	8	Ball 2	5	21
Green		9	Bell		22
Red		10			23
		11	+24V switched	1	24
+24V switched	2	12	GND		25
GND		13			

Display 1/2			
Pinout	14 Pin male	Pinout	14 Pin male
+5V	1	GND	8
+5V	2	MOSI	9
GND	3	GND	10
GND	4	+24V switched	11
Chipselect	5	+24V switched	12
GND	6	+24V switched	13
SCK	7	+24V switched	14

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CONNECTION CABLE STELTRONIC

Item No. 7012498

Display Interface			Steltronic API
+24V Switched	1		10
+24V Switched	2		12
Coding	3		
LS - Steltronic	4		9
Wurf 2	5		8
Foul	6		15
PIN 10	7		18
PIN 8	8		8
PIN 1	9		1
PIN 7	10		7
PIN 2	11		2
PIN 9	12		17
PIN 6	13		6
PIN 3	14		3
PIN 5	15		5
PIN 4	16		4
GND			25

CPU Board			
Coding	3		
Reset	4		21
+24V	5		23
+24V	6		22
Key lock	7		24

MODULTECH CONTROL

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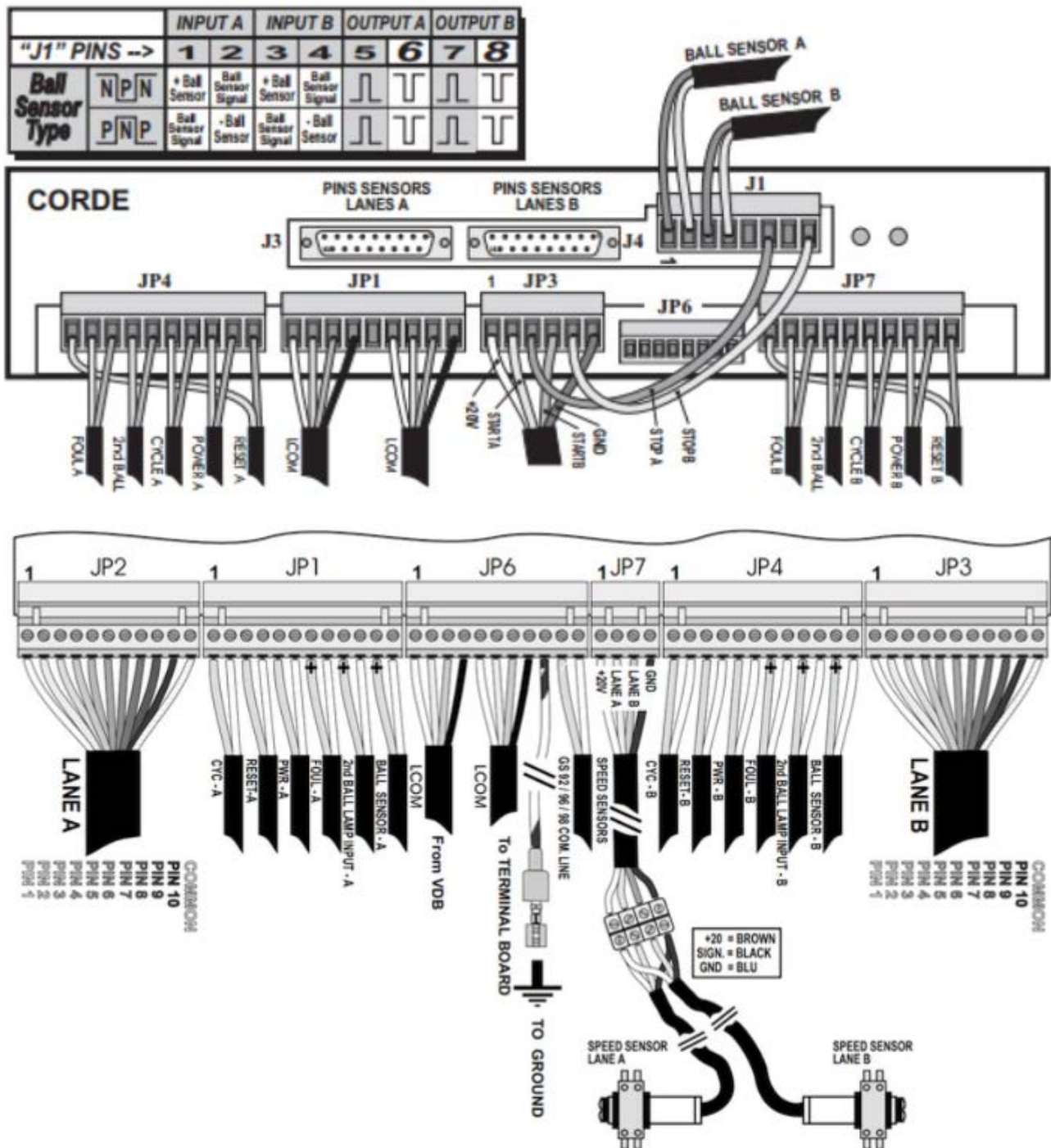
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CONNECTION CABLE QUBICA

Item No. 7012764



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CONNECTION CABLE QUBICA (CONTINUED...)

		Mod 2 S3	Mod 2 SV1	DSUB 15 J1 /J4	J1	JP4/ JP7
	Display Interface	CPU		Interface		
+24V switched	pink	1		15		
+24V switched	black	2			1(3)	2/4
Coding	-	3				
Lightsensor	white	4			2(4)	
Ball 2	green	5				5
Foul	blue	6				3
PIN 10	pink/ brown	7		10		
PIN 8	grey	8		8		
PIN 1	brown	9		1		
PIN 7	purple	10		7		
PIN 2	red	11		2		
PIN 9	yellow	12		9		
PIN 6	white/pink	13		6		
PIN 3	white/green	14		3		
PIN 5	grau/ brown	15		5		
PIN 4	gelb/brown	16		4		
Green						
Red						
Bell						
GND						
GND						
Bumper	weiß/gelb					
Bumper	grau/rosa					
Foul enable	Jumper		1			
Foul enable	Jumper		2			
Coding	-		3			
Reset (BW)	braun/grün		4			1
+24V	rot/blau		5			10
+24V	weiß/blau		6			8
Key switch	weiß/grau		7			9

MODULTECH CONTROL

SERVICE MANUAL

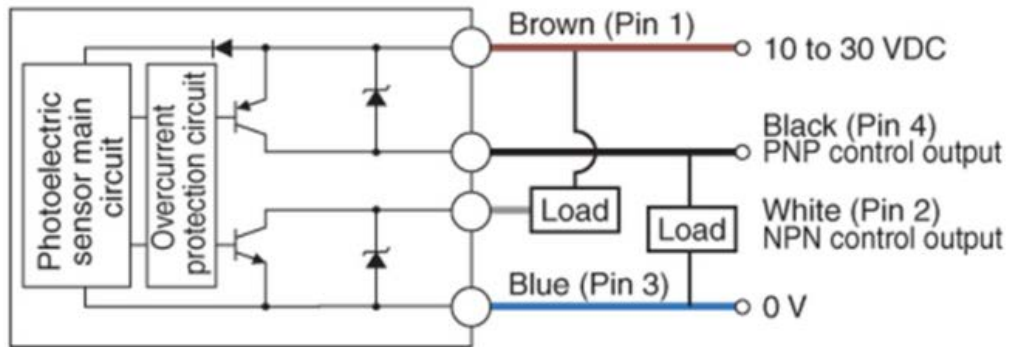
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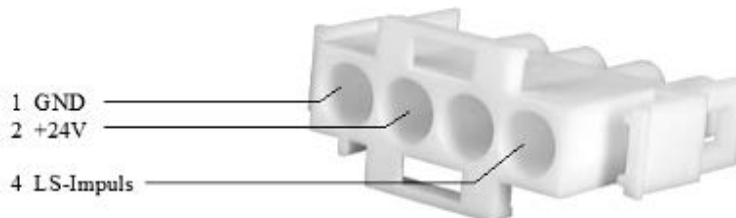
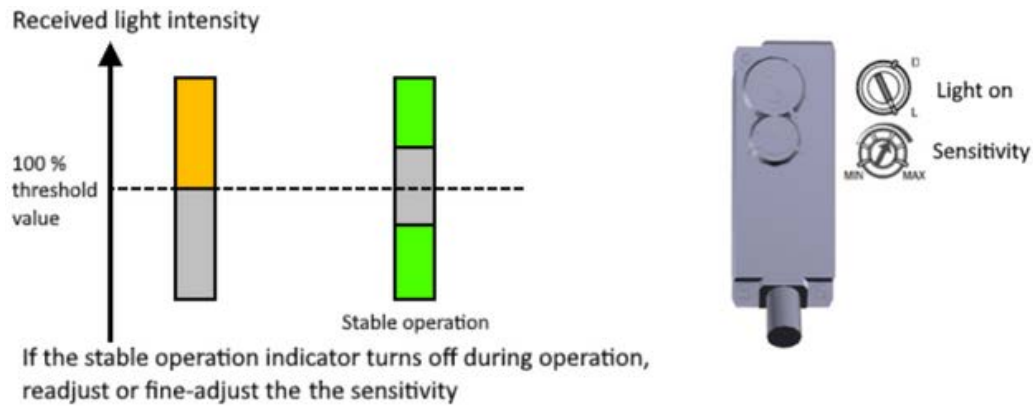
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LIGHTSENSOR KEYENCE PZ - 61B

Item No. 7013218



The following describes each ON/OFF condition of the indicator when LIGHT-ON (L). When DARK-ON (D) is set, the output ON/OFF will reverse (Wrong)



Lightsensor		
Pinout	color	Pin
GND	blue	1
+24V geschaltet	brown	2
Impulse NPN	wite	NC
Impulse PNP	Black	4

MODULTECH CONTROL

SERVICE MANUAL

VERSION 07.22



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TRANSFORMER 120VA

Item No. 7001271

Planung, Beratung,

Entwicklung und Produktion

induktiver Bauelemente

Induktor GmbH, Bodenseestr. 228, D-81243 München, GERMANY
Tel.: +49 89 897603 - 0 Fax: +49 89 897603 - 33



Belegungsplan/ Technische Spezifikation/ Pflichtenheft (Blatt 1 / 2)

Artikelnr.: 7001271

Kunde: SPELLMAN K + B GmbH

BV: U2149836 / 120VA

Benennung:
Versorgungsspannung
Benennungsfrequenz

240V ±10%

50/60Hz

braun

110V

blau

0V

schwarz

Benennung:
Ausgangsspannung/-strom
(Leerlaufspannung (U₀))

19V / 6,32A

U₀=20,6V

0V

Anschlüsse:

PRI : Litzen AWG 22; l=200±10mm; Enden 7.6mm abisoliert

SEC : Litze AWG 18; l=200±10mm; Enden mit Flachsteckhülsen 6.3x0.8 nach DIN 46247 T3

Befestigung:

Kunststoffhülse, für Schraube M5, im Restloch eingegossen

Ortsfester Einbau-Gerätetransformator nach IEC 61558-1:2005 / A1:2009, Deutsche Fassung EN 61558-1:2005 / A1:2009, VDE 0570-1 / A1:2009 und IEC 61558-2-6:2009, Deutsche Fassung EN 61558-2-6:2009 Besondere Anforderungen und Prüfungen an Sicherheitstransformatoren

Klassifikation nach der Art des Schutzes gegen elektrischen Schlag: für Schutzklasse II vorbereitet 
(Einbaufestmontagen sind nicht klassifiziert; die Art des Schutzes wird durch ihre Einbauart bestimmt.)

Schutzart: IP 00 / Verschmutzungsgrad: P2 / Isolierstoffklasse: E / Bemessungs-Umgebungstemperatur (ta): max. 40°C

Umgebungsbedingung: normale Umgebung

Höchstwerte der Temperatur unter Kurzschluss- oder Überlastbedingungen: 215°C

Bemessungs-Leistungsfaktor = 1 / Betriebsart: Dauerbetrieb

Klassifikation nach der Art der Kurzschlussfestigkeit oder des Schutzes gegen nichtbestimmungsgemäßen Gebrauch: nicht kurzschlussfest. Der Transformator muss vom Anwender gegen übermäßige Temperatur durch eine Schutzvorrichtung geschützt werden; vom Hersteller festgelegte Schutzvorrichtung: siehe Kundeninformation Nr. 10-4 v. 02.10.2014.



Die Anschlussleitungen dieses Transformators können nicht ersetzt werden. Wenn die Leitung beschädigt ist, darf der Transformator nicht mehr betrieben werden.

Name: Bogdanow

Datum: 08.08.2019

MODULTECH CONTROL

SERVICE MANUAL

VERSION 07.22



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TRANSFORMER 120VA

Planung, Beratung,

Entwicklung und Produktion

induktiver Bauelemente

Induktor GmbH, Bodenseestr. 228, D-81243 München, GERMANY
 Tel.: +49 89 897803 - 0 Fax: +49 89 897803 - 33

Belegungsplan/ Technische Spezifikation/ Pflichtenheft (Blatt 2 / 2)

Artikelnr.: 7001271
 BV: U2149838 / 120VA

Kunde: SPELLMAN K + B GmbH

Es gelten die Festlegungen der IEC 61558-1 und der oben angegebenen Eingangsweite. Die in der IEC 61558-1, § 4.2, ausgenommenen Festlegungen, werden durch die jeweiligen Gerätevorschriften ersetzt. Die Verantwortung für die Einhaltung dieser Gerätevorschriften obliegt dem Anwender. Darüberhinaus gelten die Standards der Fa. Induktor GmbH.

Diese Angaben entsprechen dem heutigen Stand unserer Kenntnisse und sollen über unsere Produkte und deren Anwendungsmöglichkeiten informieren. Sie haben somit nicht die Bedeutung, bestimmte Eigenschaften der Produkte oder deren Eignung für einen konkreten Einsatzzweck zuzusichern. Eventuelle bestehende gewerbliche Schutzrechte sind zu berücksichtigen. Eine einwandfreie Qualität gewährleisten wir im Rahmen unserer Allgemeinen Verkaufsbedingungen.

Zulassungen / Kennzeichnungen:



(Detaillierte Angaben und die den Zulassungen zugrundeliegenden Vorschriften entnehmen Sie bitte den jeweiligen Zulassungsbeschreibungen.)



Name: Bogdanow

Datum: 06.08.2018

Item No. 7001271

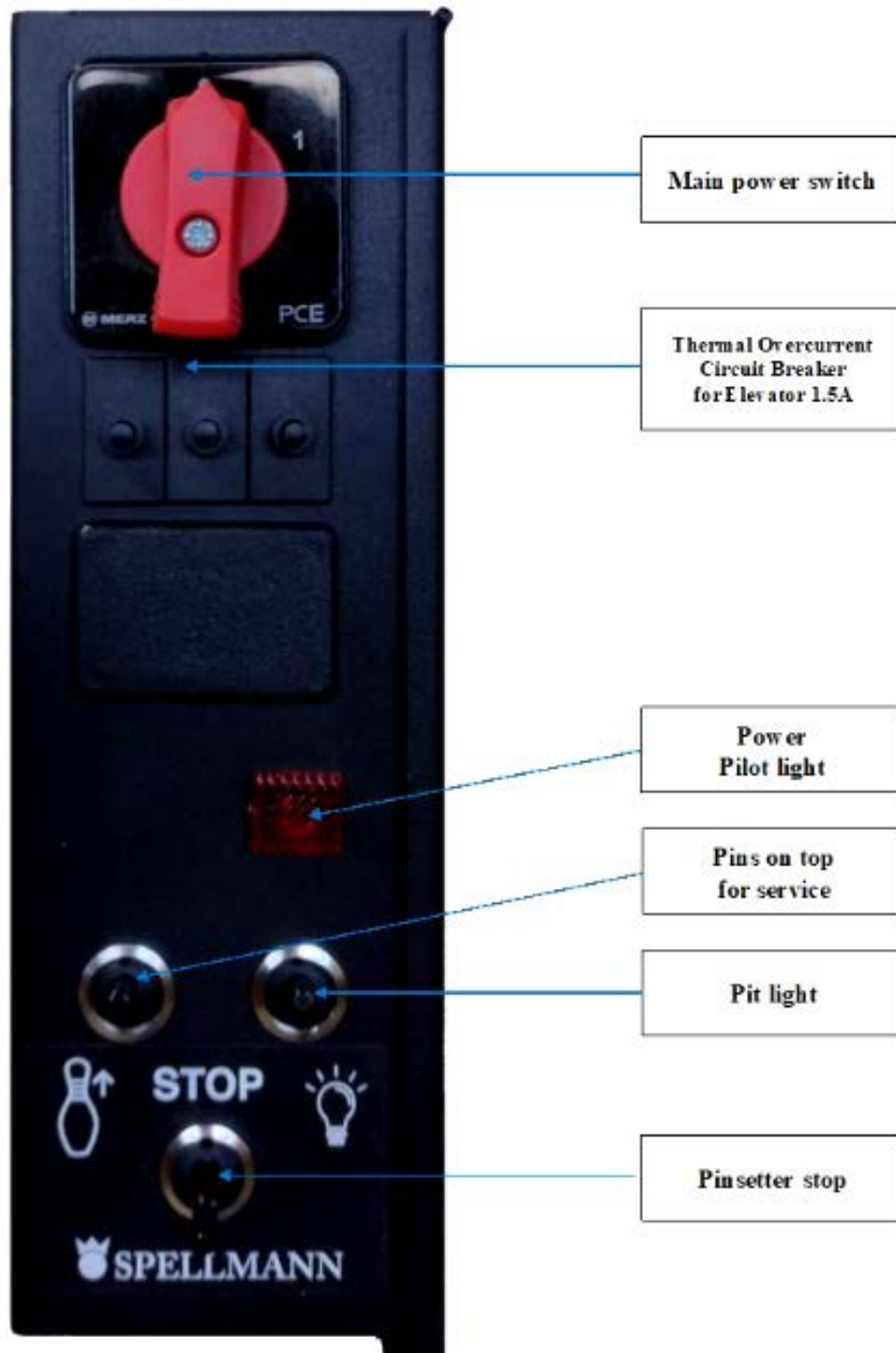
MODULTECH CONTROL

SERVICE MANUAL

VERSION 07.22



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POWERBOX

MODULTECH CONTROL

SERVICE MANUAL

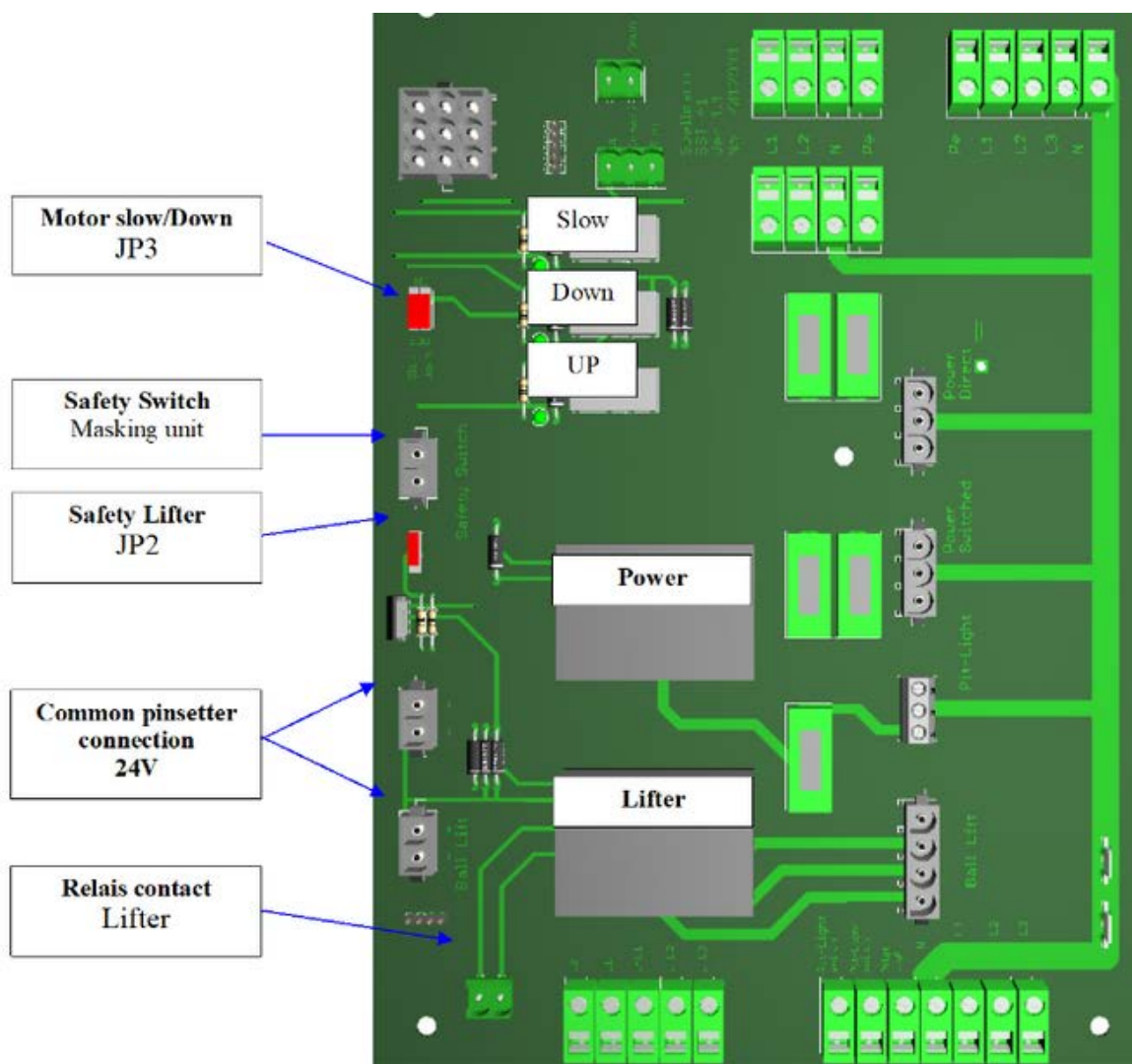
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LAYOUT DIAGRAM SST41 VERS 1.1

Item No. 7012934



Motor slow/down (JP3)		
Standard setting with inverter		Not Used
JP2		
Double lane – normal operation		Single lane – Lifter switches off by Safety and Stop switch

MODULTECH CONTROL

SERVICE MANUAL

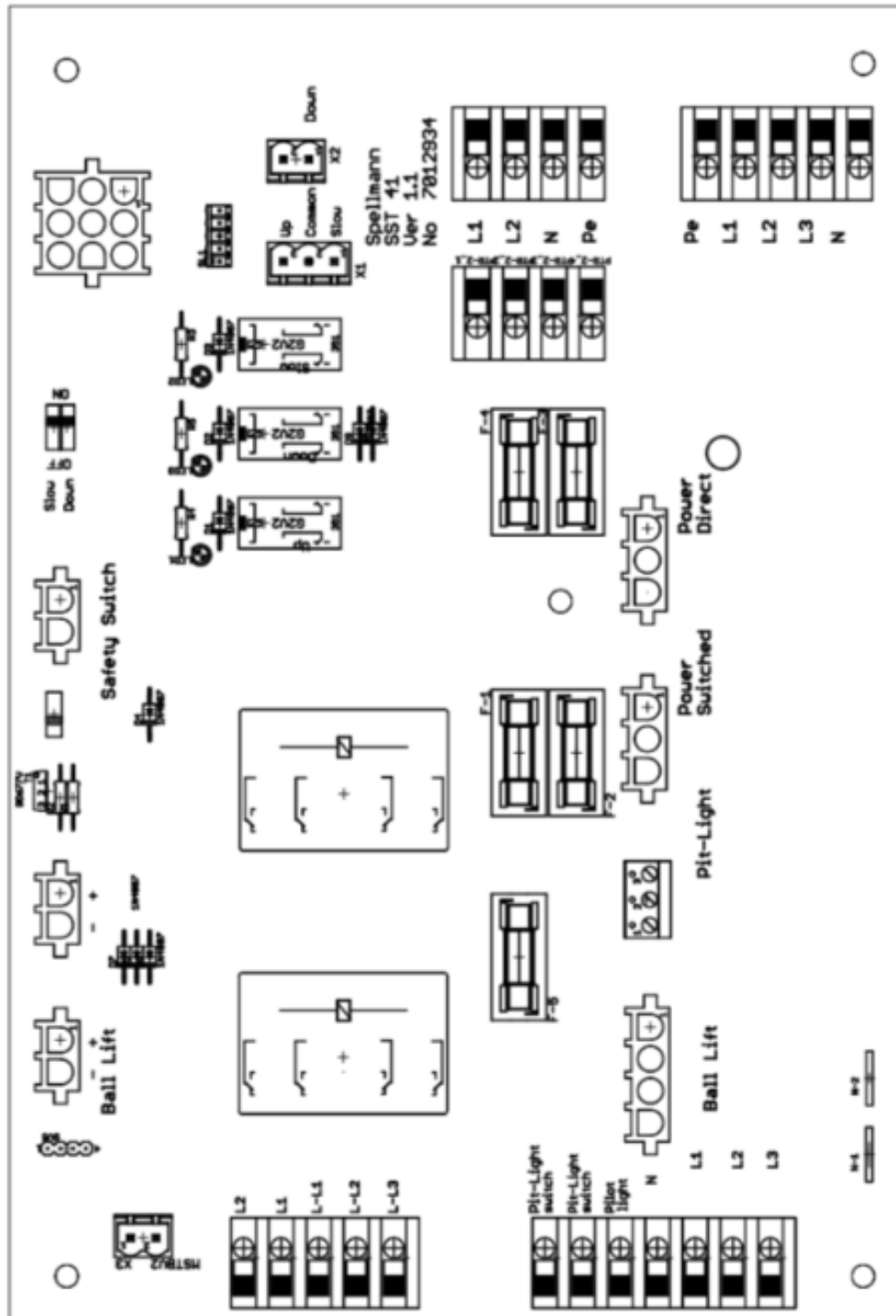
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LAYOUT DIAGRAM SST41 VERS 1.1

Item No. 7012934



MODULTECH CONTROL

SERVICE MANUAL

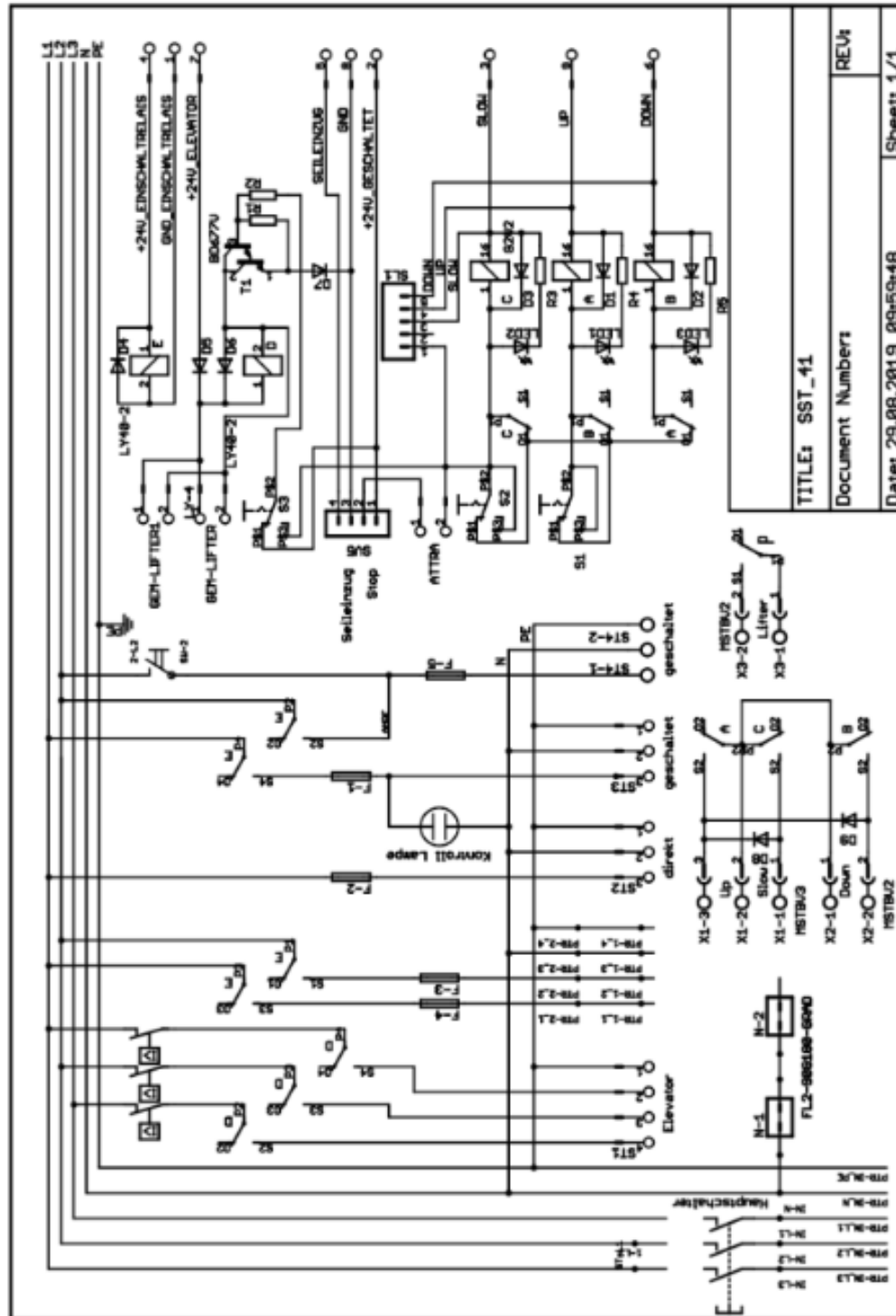
VERSION 07.22



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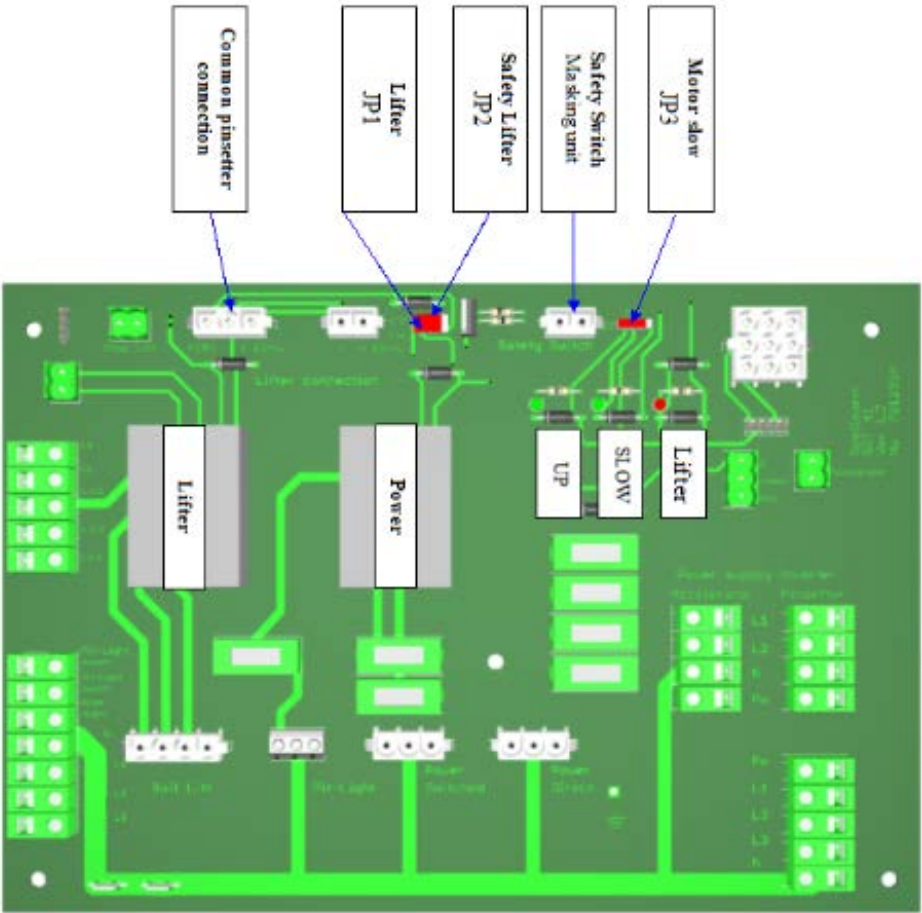
SCHEMATIC SST41 VERS 1.1

Item No. 7012934



SST41 VERS 1.2

Item No. 7012934



Motor slow (JP3)		
Slow speed priority (Motor up will turn off if slow speed is turned on)		Standard setting with inverter
Lifter Relais (JP1/JP2)		
Single lane – Lifter switches off by Safety and Stop switch		Double lane – normal operation
Accelerator – Lifter Relais always on		Ball lifter – switch-off time 1 minute

MODULTECH CONTROL

SERVICE MANUAL

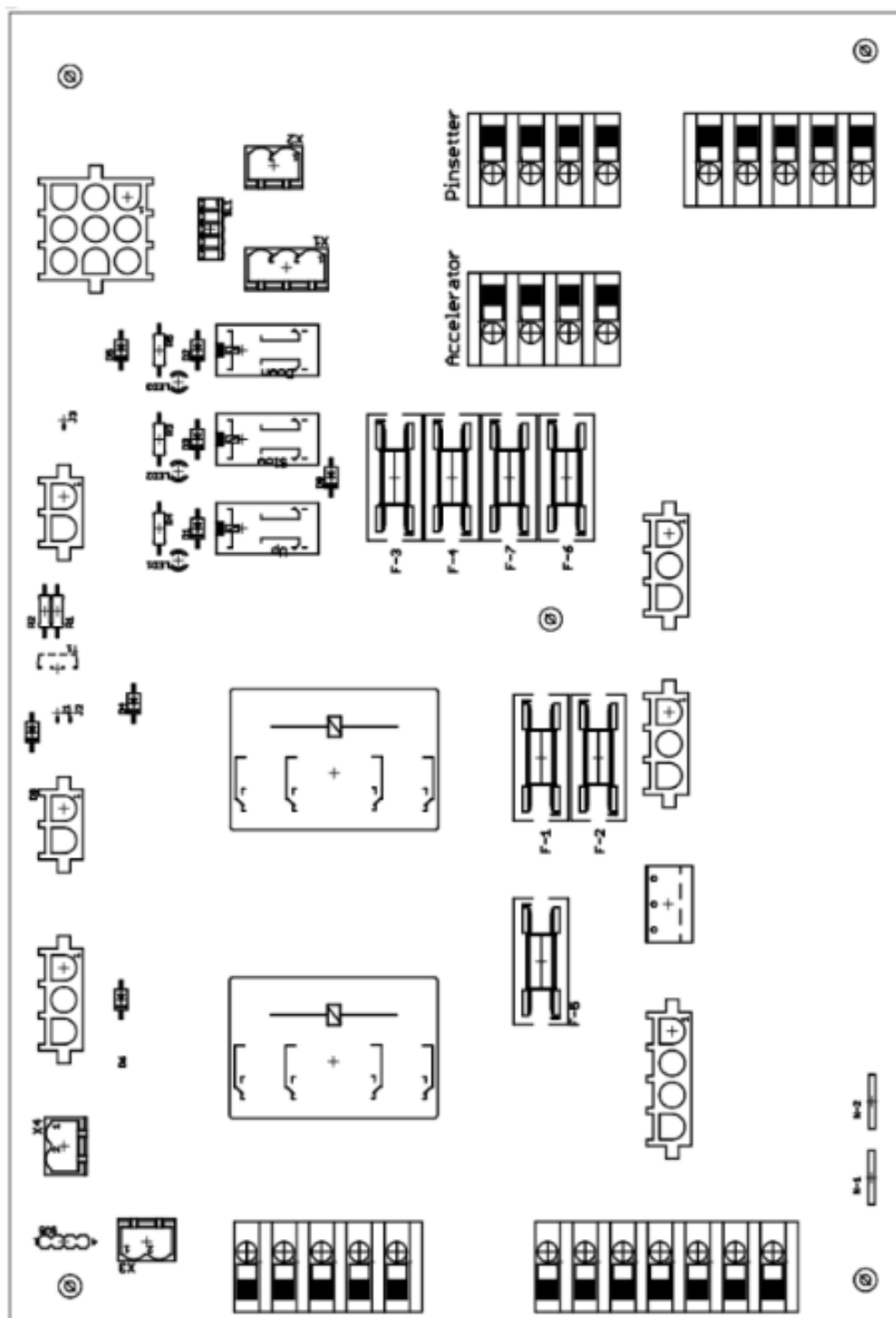
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SST41 VERS 1.2

Item No. 7012934



MODULTECH CONTROL

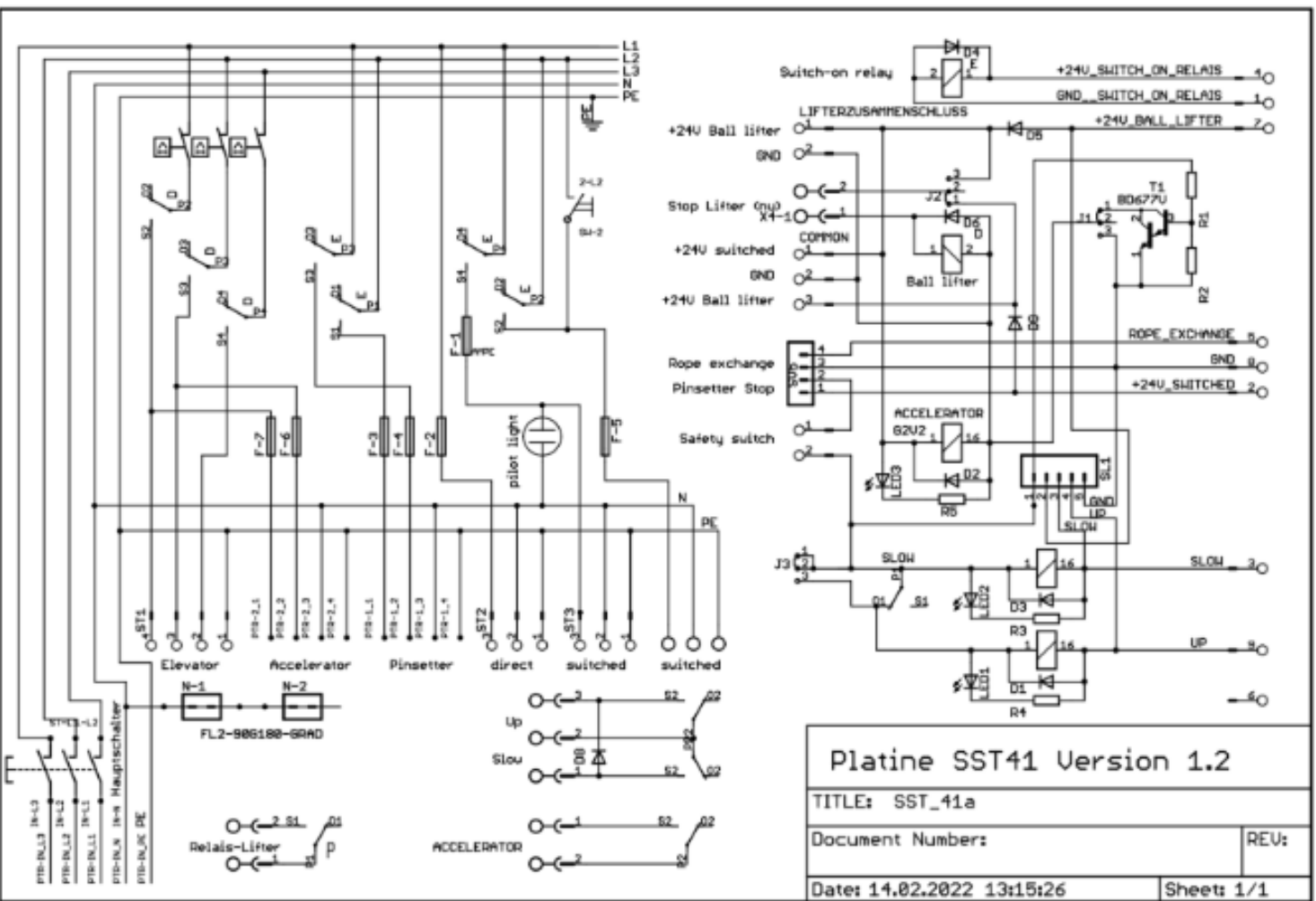
SERVICE MANUAL

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SCHEMATIC SST41 VERS 1.2



Item No. 7012934

MODULTECH CONTROL

SERVICE MANUAL

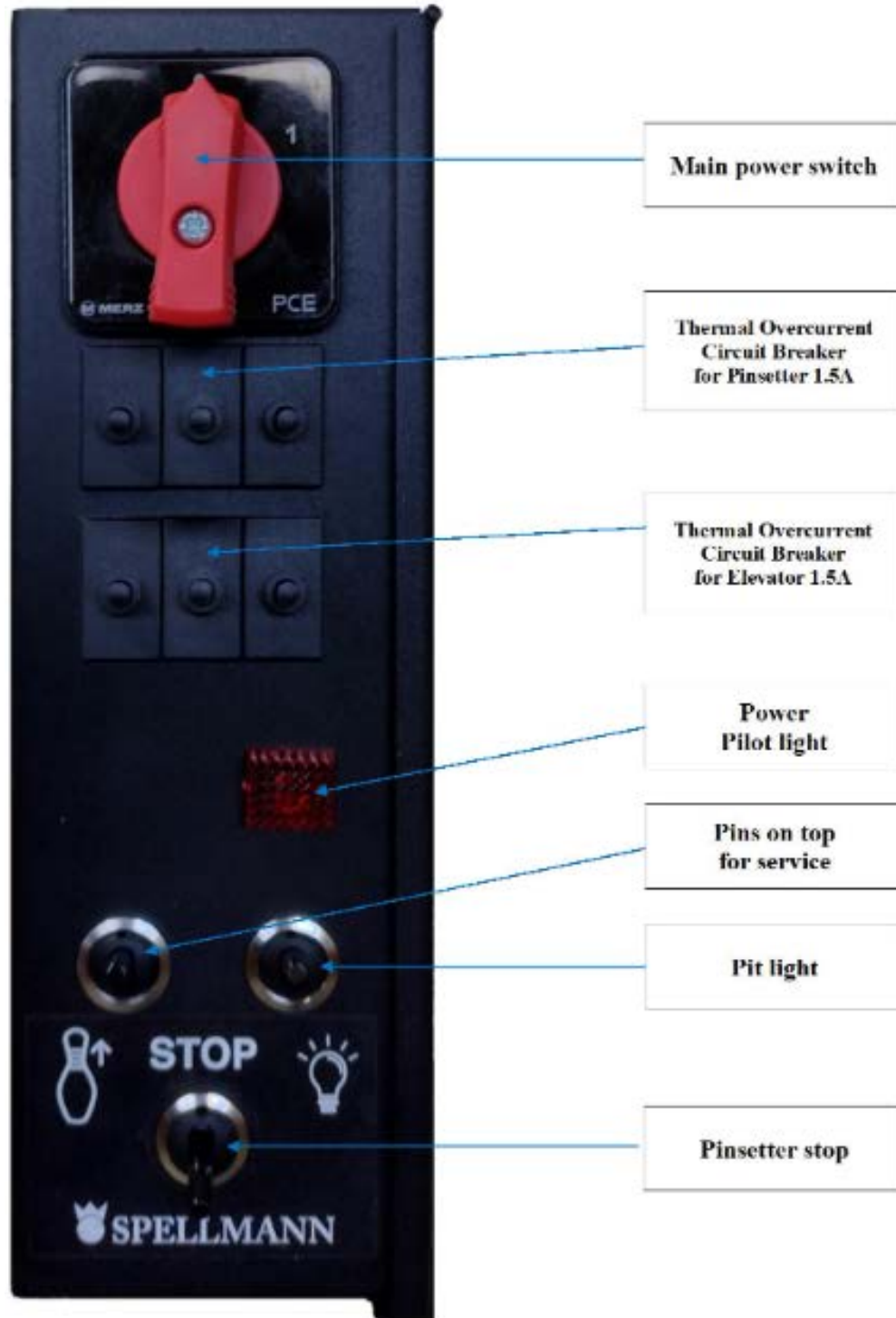
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POWERBOX 3-PHASE

Item No. 7012418



MODULTECH CONTROL

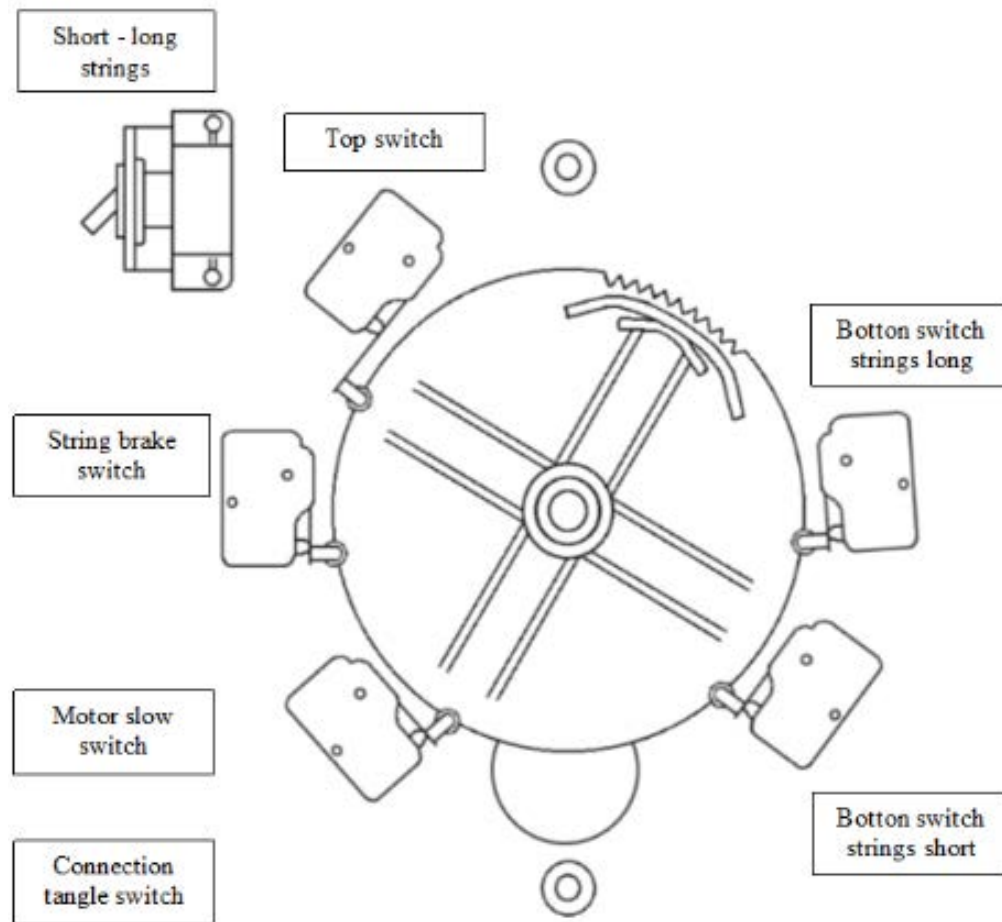
SERVICE MANUAL

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PINSETTER POSITION SWITCH BOX



The drawing symbolizes the function and position of the switches. There are three versions with different hardware. The function is identical. Only the top and bottom switches are used. The other switches are emulated by the controller.

MODULTECH CONTROL

SERVICE MANUAL

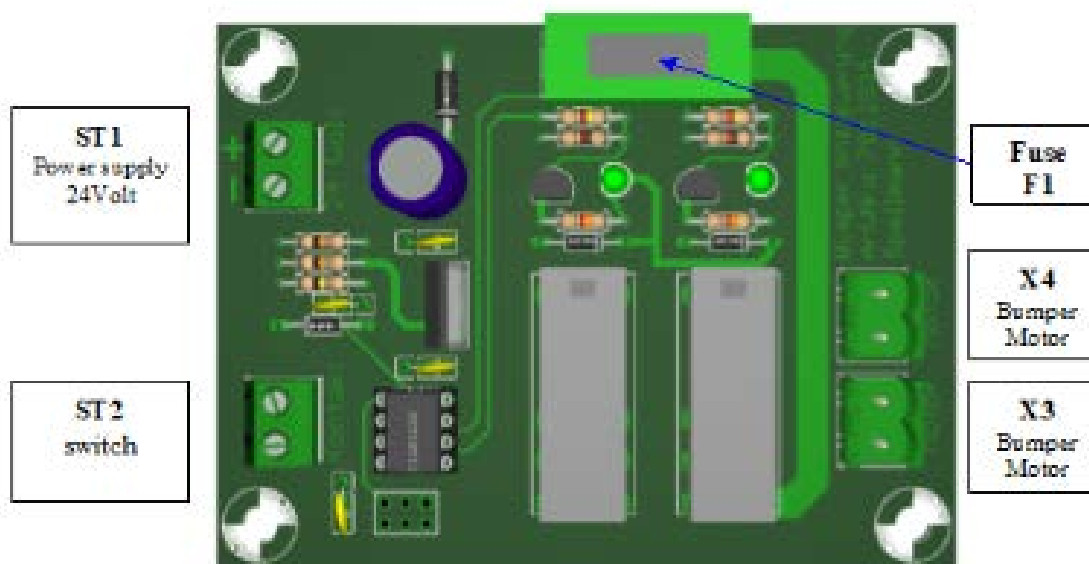
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BUMPER CONTROL

Item No. 70125315



F1	3.15A slow	Protection for 24V power supply
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ST1 Power supply 24 Volt		
Pinout	Pin	
+24 Volt	1	
GND	2	

ST2		Switch
Input for bumper control, control via relay output of the control		
Contact closed = bumpers are raised		

X3/X4		Connector Bumpermotor
Pinout	Pin	Color
Motor	1	Blue
Motor	2	Brown