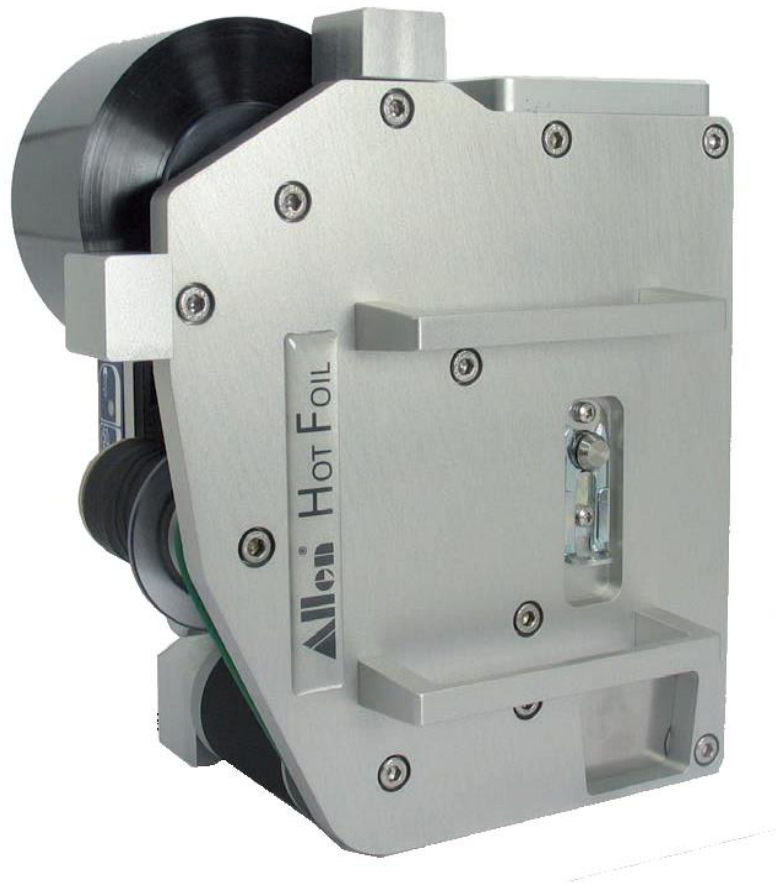


S-COMPACT 50/30

HOT FOIL-PRINTING SYSTEMS



OPERATING INSTRUCTIONS

Important Notes

Operating instructions

Description
S-Compact 50/30

Version
M00201102EN0222

The operating manual is a translation of the original operating instructions.

Applicability

The present operating instructions apply to the device with the following article number.

Device name S-Compact 50/30

Article Number	Description
0.0000.08620	S-Compact 50/30

Using this manual

- First read the Chapter on “Safety Information” before you begin work with the device.
- The operating manual enables safe working on and with the device. It is essential that you comply with all safety instructions contained therein.
- Read the complete operating manual before installing and commissioning the device.
- The operating manual is a part of the device. It has to be stored so that every person that works on and with the device has access to it at all times. The manual must be complete and in an easily readable condition.
- When the device is passed on, you have to enclose the operating manual.
- If the operating manual is lost, please ask for a replacement. Information on the current version of the operating manual may be found on our website **www.diagraph.de**.
- The information provided in these Operating Instructions relate to the devices described under “Applicability”.
- For additional technical information on the device, please refer to the service manual.

Copyright

The present document and the described devices therein belong to the company ITW Diagraph GmbH. All rights remain reserved. Reproduction of this document, in full or in part, requires prior explicit and written approval of the company ITW Diagraph GmbH.

©Copyright 2022 ITW Diagraph GmbH, all rights reserved.

Disclaimer

The company ITW Diagraph GmbH undertakes all measures to ensure that the published document is up to date at the time of publication. However no guarantee may be given that the document is error-free. The ITW Diagraph GmbH does not accept liability for possible damages that may have been caused by faulty information in this document. The company ITW Diagraph GmbH reserves the right to change the present document at any time without prior notice and to alter its content in regards to continuous product improvement.

Manufacturer

ITW Diagraph GmbH
Friedrich-Bergius-Ring 30
D-97076 Würzburg
Direct +49 931 250 76 - 0
Fax +49 931 250 76 – 50
Email: info@diagraph.de
Website: www.diagraph.de

TABLE OF CONTENTS

Table of Contents

Important Notes.....	3
Table of Contents	4
1 Product Identification	6
1.1 Characteristic data	6
1.2 Compliant Use	6
1.2.1 Ambient conditions	6
1.2.2 Designated use.....	6
1.2.3 Qualification of personnel.....	7
1.3 Technical data	8
1.3.1 Mechanical data	8
1.3.2 Electrical data.....	8
1.3.3 Pneumatic Data	8
1.4 Identification of the device	9
1.5 Compliance Information	10
1.5.1 CE-conformity	10
1.5.2 EMC Compliance Statements.....	10
1.5.3 RoHS / WEEE – compliance	10
2 Product Specifications.....	11
2.1 General Description	11
2.2 Safety Requirements.....	12
2.3 Deliverable Items	12
2.4 Description of device	13
2.4.1 Leading Particulars	13
2.4.2 Physical Description	15
3 Safety Information.....	22
3.1 Configuration of the safety instructions	22
3.2 Used pictograms	23
3.3 Hazards during compliant use.....	23
4 Installation	24
4.1 Unpacking	24
4.2 Installation	26
5 Startup	39
5.1 Type holder - Setting-up	39
5.2 Typeholder – Fitting and Removal	40
5.3 Magazine Loading / Unloading Instructions	41

5.4	Power on and Warm up	42
5.5	Air Supply	42
5.6	Power Supply	42
6	Operating	43
6.1	Controls	43
6.2	Coder Mounting and Adjustment	44
6.3	Typeholder	44
6.4	Magazine	44
6.5	Foil Index	44
6.6	Backing Pad	45
6.7	Printing Pressure	45
6.8	Temperature Selection and Adjustment	46
6.9	Dwell Adjustment	47
6.10	Foil Economy	48
6.11	Enable Printing	49
6.12	Alarms	49
6.13	Power Off	50
7	Troubleshooting	51
7.1	Fault Finding Chart	52
7.2	Circuit Description	54
8	Cleaning and Maintenance	62
8.1	Cleaning	62
8.2	Maintenance	64
9	Maintenance	66
9.1	Spare parts	66
9.2	Service address	66
10	Transport and storage	67
10.1	Transport	67
10.2	Storage	67
11	Disposal	68
Appendix		69
EC-Compliance Statement		69
Spare parts		70

PRODUCT IDENTIFICATION

1 Product Identification

1.1 Characteristic data

Device name: S-Compact 50/30

Article Number	Device / Part
0.0000.08620	S-Compact 50/30
0.0000.08540	Power Pack
0.0000.08705	Electronic Module

Print area	[mm]	max. 50 x 30
Print speed	[prints/min]	up to 800
Dwell time	[sec]	0.01 – 1.0
Ribbon feeder	[mm]	2 – 30
Print temperature switchable range	[°C]	70 - 210
Foil size	[mm x m]	52 x 305
Foil Run Out warning		standard
Max. width of substrate		no restriction

1.2 Compliant Use

1.2.1 Ambient conditions

Device name: S-Compact 50/30

Ambient temperature, operation	[°C]	5 - 40
Relative humidity, operation (non-condensing)	[%]	20 - 85
Protection class	[IP]	40
Ambient temperature, transport and storage	[°C]	-10 - 70
Relative humidity, transport and storage (non-condensing)	[%]	20 - 85

1.2.2 Designated use

- The Printing systems can be operated in intermittent mode.
- The Printing systems are intended for commercial or industrial use.
- The Printing systems may not be used outdoors or in a non-explosion-safe environment (Ex-area).
- Only materials suitable for the printing method may be used for printing.
- The Printing System must be permanently installed into a frame designed for this purpose (machine frame/machinery holder).
- No modifications to the Printing System are allowed.
- The applicable safety requirements, the ambient conditions and technical data specified in these Instructions must be observed at all times.
- Operation of the Printing System may only proceed with the specified accessories/consumable material/replacement parts. Only use original accessories and original replacement parts.

Operation/use of the Printing System other than in compliance with the conditions established by the manufacturer may result in hazards to personnel and/or property damage.

Potential misuse of the device:

- The coder should not be operated with this guard removed.
- The coder should not be operated with the magazine removed.

1.2.3 Qualification of personnel

Operation and set-up:

Operation and set-up of the device may only be performed by sufficiently qualified and trained personnel that have been authorized by operator to perform these tasks.

Installation, cleaning and maintenance:

Installation, cleaning and maintenance of the device may only be performed by fully qualified and trained technical personnel.

Maintenance:

Maintenance of the device may only be performed by the manufacturer's technical personnel or by fully trained and qualified technical personnel.

PRODUCT IDENTIFICATION

1.3 Technical data

This Section contains information on the mechanical and electrical properties of the Printing System and its accessories.

1.3.1 Mechanical data

Device name: S-Compact 50/30		Power Pack	Electronic Module	Printhead
Equipment height	[mm]	107	88	215
Equipment width	[mm]	152	196	195
Equipment depth	[mm]	149	86	142
Weight	[kg]	2,4	1,3	6
Noise Emission	[dB (A)]	---	---	74

1.3.2 Electrical data

Device name: S-Compact 50/30		
Rated voltage	[V _{AC}]	220-240 or 110-120
Mains frequency	[Hz]	50 at 220-240 Vac
		60 at 110-120 Vac
Power consumption	[A]	0,7A(at 220 – 240Vac)
		1,5(at 110 – 120Vac)

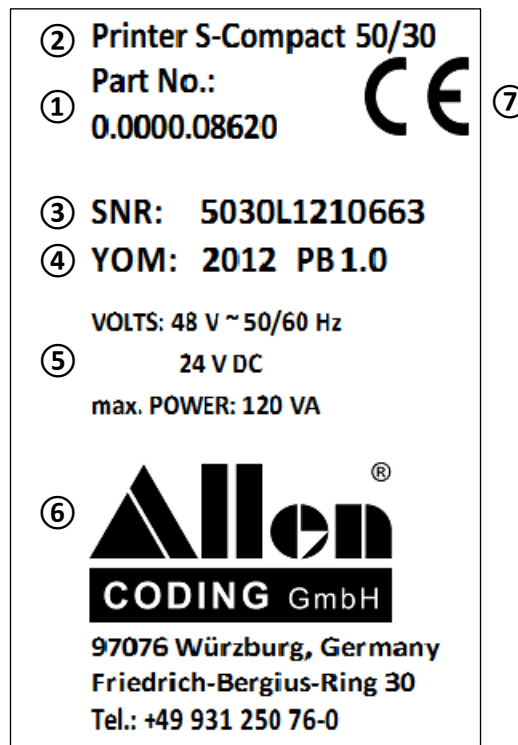
1.3.3 Pneumatic Data

The unit requires a normal industry supply of clean dry air. The air supply requirement is:

Device name Compact 40/25		
Air supply	[bar]	3 - 6 bar at up to 25.2 Liters / min (31.5cc/cycle, 0.9cfm @ 800/min)

1.4 Identification of the device

Type plate



The nameplate attached to the device contains the following data:

①	Article number	⑤	Electrical data: Voltage, frequency, power
②	Device type	⑥	Manufacturer
③	Serial number	⑦	CE-identifier
④	Year built	⑧	

PRODUCT IDENTIFICATION

1.5 Compliance Information

1.5.1 CE-conformity



NOTE

CE-conformity

The product's CE conformance is certified by attachment of the CE symbol to the name plate and by the conformity statement included with the product. A sample of the declaration is found in the Appendix to these Operating Instructions; see "**EC-Compliance Statement**".

The device meets the requirements of the following European EC-Guidelines:

- Machine guideline **2006/42/EG**
- EMC guideline **2004/108/EG**
- The low-voltage guideline 2006/95/EC was adhered to in regards to its protection objectives

1.5.2 EMC Compliance Statements

European Union (EU) Electromagnetic Compatibility Directive Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

1.5.3 RoHS / WEEE – compliance

RoHS

The product complies with the relevant provisions of the RoHS Directive for the European Union.

WEEE Directive Statement for the European Union

WEEE-Reg.-Nr. DE

84410135

In common with all Electronic and Electrical products the product should not be disposed of in household waste. Alternative arrangements may apply in other jurisdictions.

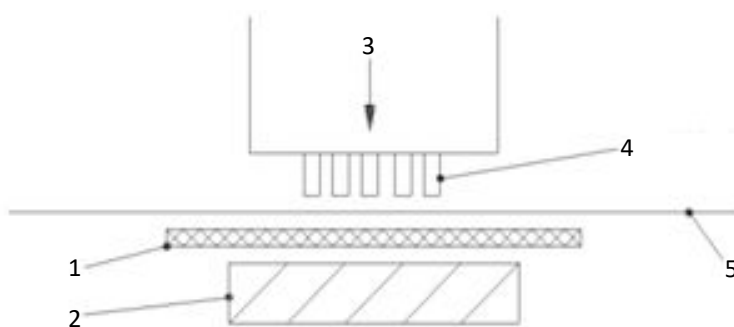
2 Product Specifications

In this Chapter you will find information on the deliverable items and on the furnishings of the device.

2.1 General Description

The Hot Foil Printing Process

Hot foil printing is a process in which heated type is pressed firmly against the item to be printed, with stamping foil between, for a set time. To produce a high quality, non-smudging, permanent print the three variable factors; pressure, temperature and time, must be controlled accurately.



1	ITEM BEING PRINTED
2	BACKING PAD
3	PRESSURE
4	HEATED TYPE
5	STAMPING FOIL

The S-Compact Coder

The S-Compact Coder is designed to produce accurate, clear, high quality coding and marking. It incorporates a range of advanced features to ensure that the requirements of speed, flexibility and ease of use are achieved without compromise. The Coder is available in Left-Hand version. The main features of the coder are:

- Large print area of 50 mm x 30 mm.
- Variable dual temperature range incorporating thermocouple control.
- Microprocessor control
- Digital temperature display.
- Low temperature interlock for parent machine.
- Digital dwell control.
- Low foil warning and foil fault interlock for parent machine.
- Patented precision index control for the most efficient use of foil.
- Reliable high speed operation.
- Consistently high print quality.

PRODUCT SPECIFICATIONS

2.2 Safety Requirements



NOTE

Please always follow the safety instructions.
See Chapter „*Safety Information*“

2.3 Deliverable Items



NOTE

Check the deliverable items for completeness and condition.

After receipt of the shipment, please check immediately to see whether all items listed on the delivery ticket are included and are undamaged. The manufacturer does not accept liability for deficiencies that have been claimed subsequently. Complain against:

- Transport damages directly to the shipping service.
- Deficiencies and/or incompleteness immediately to the manufacturer or your distributor.

The following components belong to the standard deliverable items for the device

Position	Count	Article number	Specification
001	1	0.0000.08620	S-Compact 50/30
002	1	0.0000.08540	Power Pack S-Compact 50/30
003	1	0.0000.08705	Electronic Module S-Compact 50/30
004	1	3.0000.08564	Air-Service-Unit

Position 001 Article Number 0.0000.08620 “S-Compact 50/30” includes the following items:

005	1	0.0000.08530	Magazine S-Compact 50/30
006	1	0.G00.08620	Printhead S-Compact 50/30
007	1	100180	Complementary Set S-Compact 50/30

Position 007 Article number 100180 “Complementary Set S-Compact 50/30” includes the following items:

008	1	0.0000.01016	Washer
009	1,6m	0.0000.08635	Air Pipe 6-4 black
010	1,6m	0.0000.08636	Air Pipe 6-4 blue
011	1	3.0000.46018	Spacer 13mm
012	1	3.0000.46019	Spacer 17mm
013	1	3.0000.46020	Spacer 32mm
014	1	3.0000.46023	Adjustable Hand Lever – M8 x 83mm
015	1	A.3055.00200	Hot Foil, Typ 200, black, 305m x 50mm
016	1	-----	CD with operating instructions

2.4 Description of device

2.4.1 Leading Particulars

Power Supplies

The unit requires a single phase supply which must be connected to the emergency stop circuit of the parent machine. The power supply unit, which should be isolated before making changes, incorporates a simple plug-in link to select for use with mains supplies of either:

- 220-240 Vac 50Hz or 110V-120Vac 60Hz

Fuses

Four replaceable fuses are mounted on the printed circuit board in the power supply unit.

- | | | | |
|-----------|------------------------|---------------------|-------------------|
| ■ FS1 | Mains input line | - T 1.6AL 250 | Volt (220-240Vac) |
| | | - T 1.6AL 250 | Volt (110-120Vac) |
| ■ FS2/FS3 | Control circuit supply | - T 500mAL 250 Volt | |
| ■ FS4 | Heater supply | - T 2.5AL 250 Volt | |

Air Supply

The unit requires a normal industry supply of clean dry and oil-free air. The air supply requirement is:

- 3 - 6 bar at up to 25.2 Liters / min (31.5cc/cycle, 0.9cfm @ 800/min)

Operating Temperatures

The unit can be switched, before or during operation, between two temperature ranges to suit the application and current operating conditions. The temperature ranges can generally be adjusted between:

- 70°C - 140°C or 140°C - 210°C (158°F - 284°F or 284°F - 410°F)

Adjustment within the ranges is carried out using potentiometers which are concealed to facilitate unauthorized tampering.

Range of Typeholders

To allow rapid changes of print, and to allow its use in the widest range of applications, the S-Compact Coder has been designed to accept interchangeable typeholders. These can be supplied as a blank, for machining by the end user, or ready machined to suit the four main type categories:

- Fixed row and universal (*for use with cast type*)
- T-slot (*for use with T-slot type, engraved brass or hardend steel*)
- Zinco (*for etched zinc plates, 5 mm thick*)
- Rotary flick wheel (*wheels to allow easy changing of date, price or numbering*)

For further information contact the ITW Diagraph GmbH Sales.

PRODUCT SPECIFICATIONS

Foil - Stock Range

The S-compact coder is designed to accept a reel of foil with the following maximum dimensions:

■ Maximum Outside Diameter	96 mm for 305 m magazine
■ Width	50 mm ± 1.0 mm
■ Core Diameter	25.95 mm ± 0.2 mm

Foil reels supplied by ITW Diagraph GmbH are specified by their nominal length, quoted in meters.

For printing on different materials a variety of grades are recommended by the manufacturers.

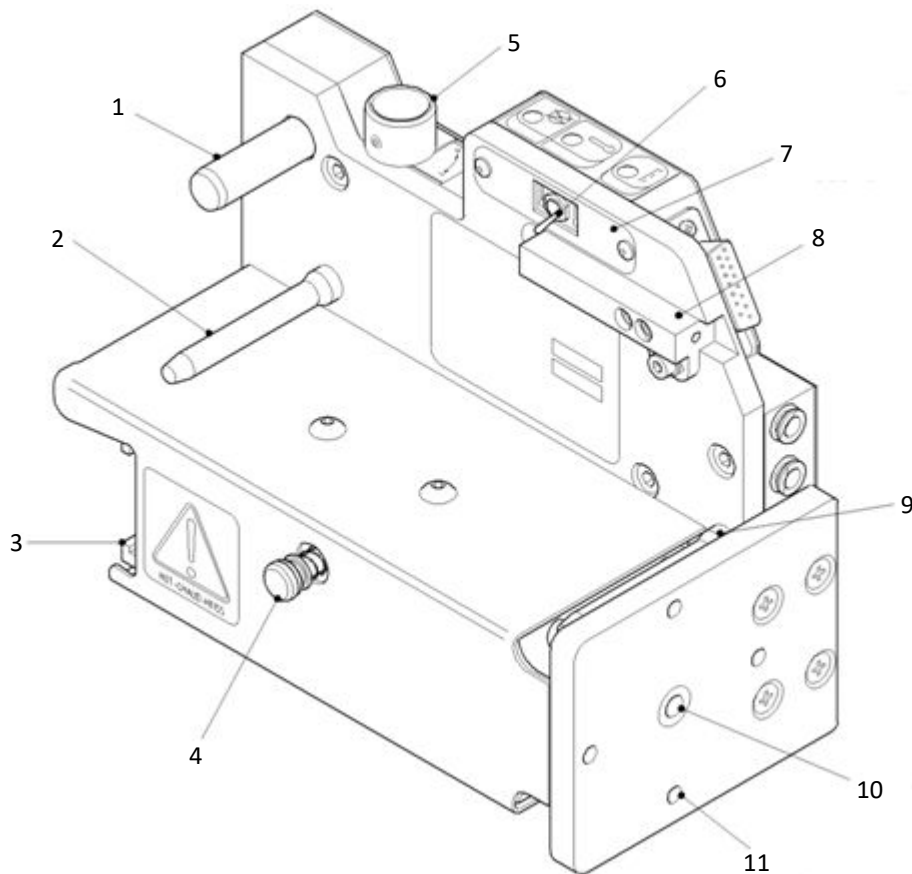
2.4.2 Physical Description

Coder

The coder unit comprises a heated block, mounted to the rod of a pneumatic cylinder which, in turn, is supported by a machined frame. This contains the solenoid valve, to actuate the cylinder, the foil indexing mechanism and a printed circuit control and connection board.

Power and control signals are connected via a plug connection. Air to the solenoid valve and the exhaust from the cylinder, via the valve, are connected to push-in fittings. Alternative air connections are provided to allow for different installation requirements.

The operating mechanism is fully enclosed, with the exception of a rotating shaft which provides motive power to index the foil in the magazine. Foil index depends on the rotation of this shaft and an adjustment knob, to control the index, is provided on top of the coder.



1	MAGAZINE DRIVE SHAFT	7	TEMPERATURE ADJUSTMENT POTENTIOMETERS (UNDER PLATE)
2	MAGAZINE GUIDE SPIGOT	8	LOW FOIL SENSOR
3	HEATED BLOCK	9	MAGAZINE GUIDE SPIGOT
4	MAGAZINE LATCH PIN	10	MOUNTING HOLE
5	FOIL INDEX ADJUSTMENT	11	INDENTS FOR LOCATION
6	TEMPERATURE RANGE SELECTOR SWITCH		

PRODUCT SPECIFICATIONS

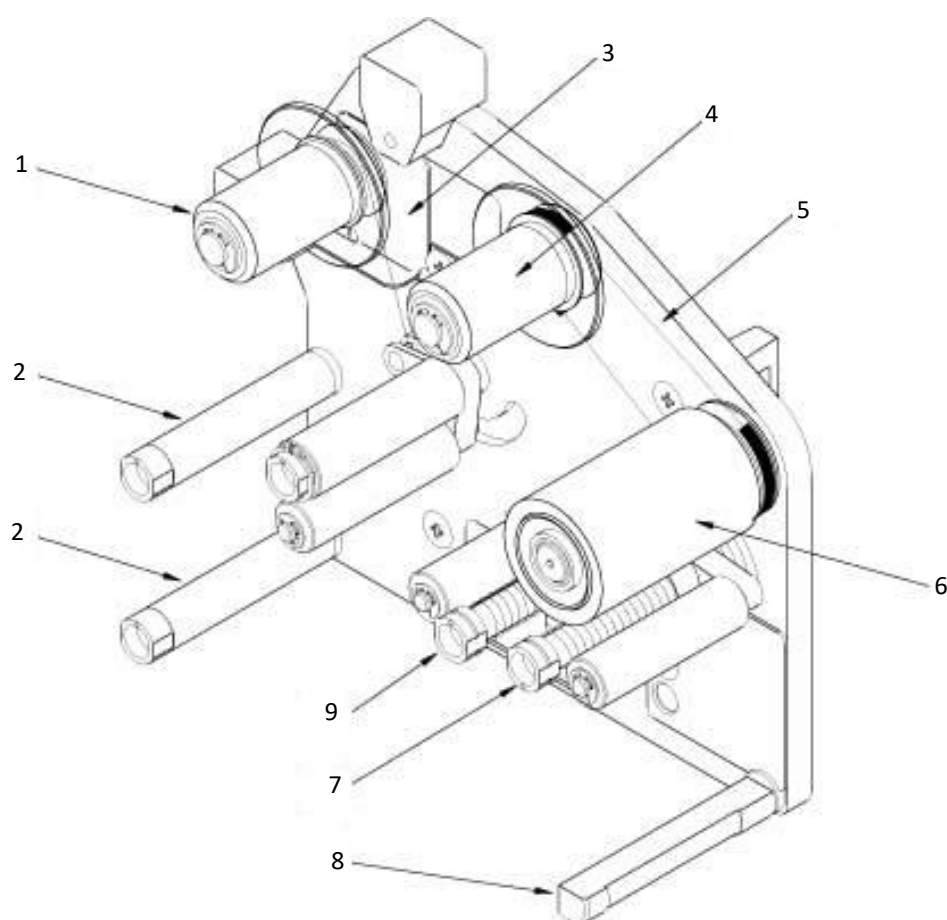
Magazine

The foil magazine fits onto spigots provided on the coder body and is retained by a simple mechanical catch.

The magazine provides a take-up roller, driven from a rubber covered drive roller by an endless belt. The drive roller contains a one-way clutch and is turned by the rotating shaft on the coder body.

Foil is pulled by the drive roller via guide pins, from a feed-on spool, the rotation of which is controlled by a friction belt to stop overrun of the foil.

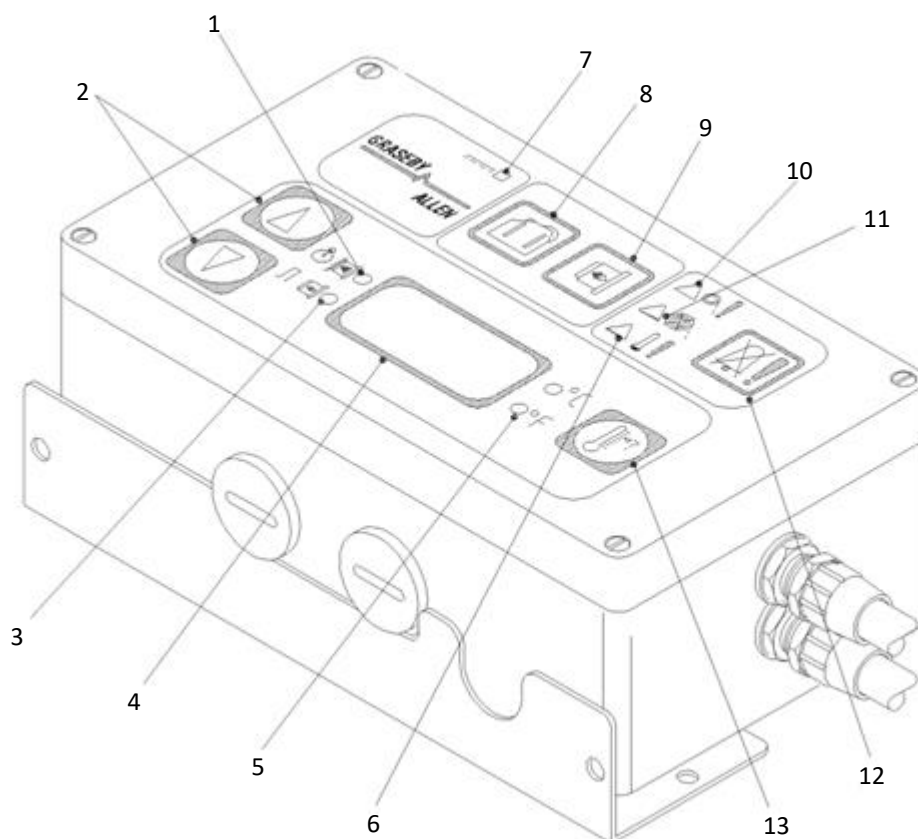
Sprung tension rollers are provided immediately after the feed-on spool and between the drive roller and take-up roller.



1	FEED-ON SPOOL	6	DRIVE ROLLER
2	FOIL ROLLERS	7	NIP ROLLER
3	FOIL TENSION SPRING	8	GUIDE POST
4	TAKE-UP ROLLER	9	FOIL TENSION ROLLERS
5	DRIVE BELT		

Electronic Module

The electronic module is provided with a mounting bracket which allows its fitting in a position convenient to the user. The unit provides control, indication and warning functions.

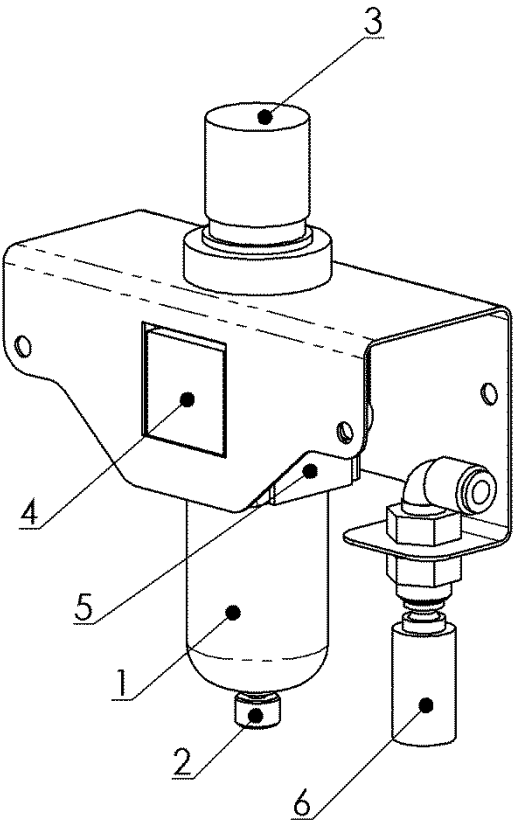


1	DWELL INDICATOR	8	PRINT ENABLE
2	ADJUSTMENT BUTTONS	9	TEST PRINT (SINGLE CYCLE)
3	SIGNAL DELAY INDICATOR	10	LOW FOIL INDICATOR
4	LED DISPLAY	11	FOIL FAULT INDICATOR
5	TEMPERATURE RANGE INDICATORS	12	ALARM CANCEL / FAULT INDICATOR
6	LOW TEMPERATURE INDICATOR	13	SET TEMPERATURE SWITCH
7	POWER ON LED		

PRODUCT SPECIFICATIONS

Air Service Unit

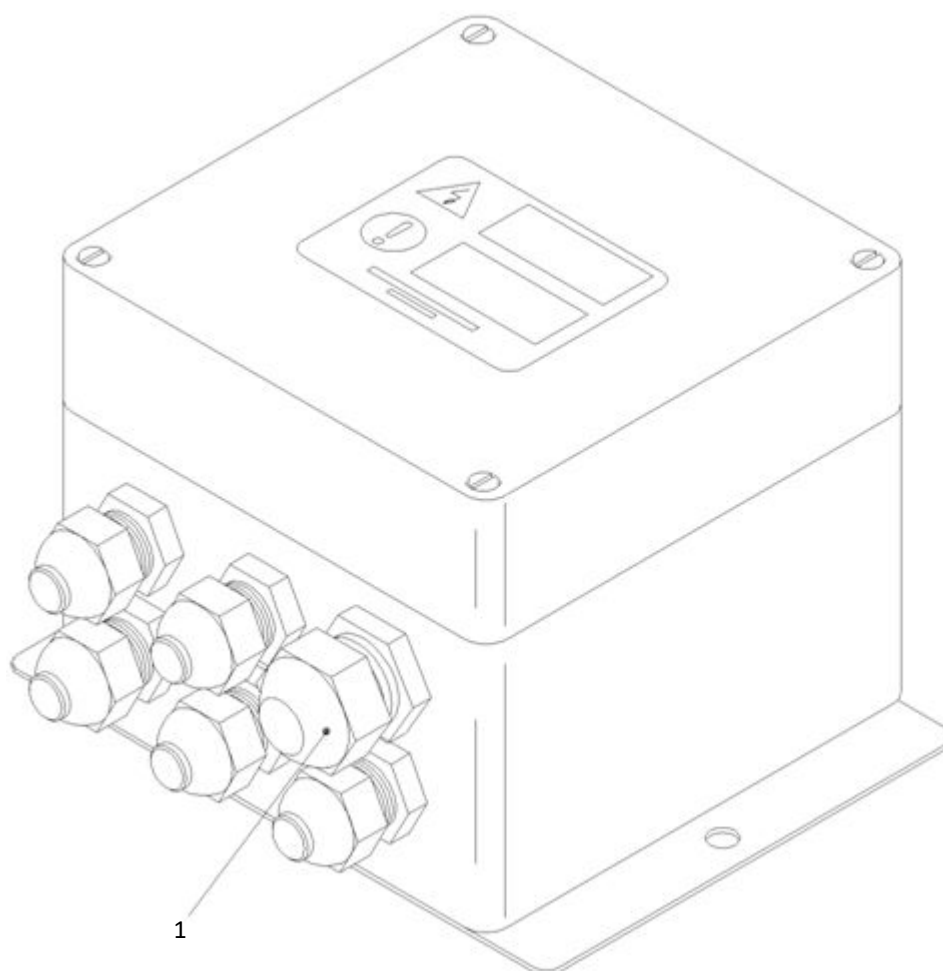
The air service unit incorporates a pressure regulator and water separation bowl, a pressure gauge, air distribution manifold and an air exhaust silencer. The water separation bowl is fitted with a manual drain valve.



1	WATER SEPARATION BOWL	4	PRESSURE GAUGE
2	MANUAL DRAIN VALVE	5	AIR DISTRIBUTION MANIFOLD
3	PRESSURE CONTROL	6	EXHAUST AIR SILENCER

Power pack

The power pack is a fully enclosed unit containing a power transformer, fuses and connection blocks to distribute the power and control signals to and from the electronic module and parent machine.



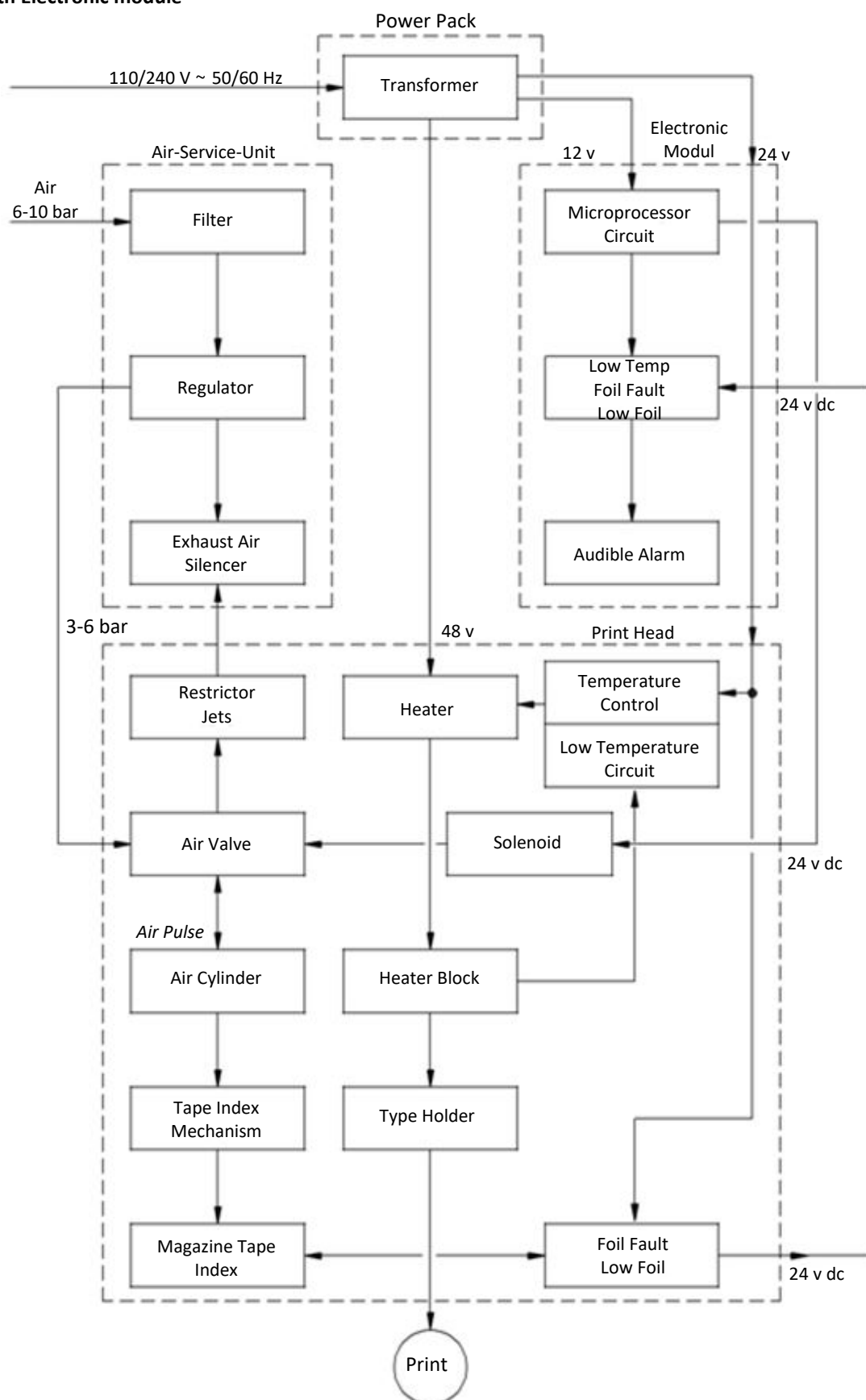
005

1	GLAND FOR MODULE CABLE		
---	------------------------	--	--

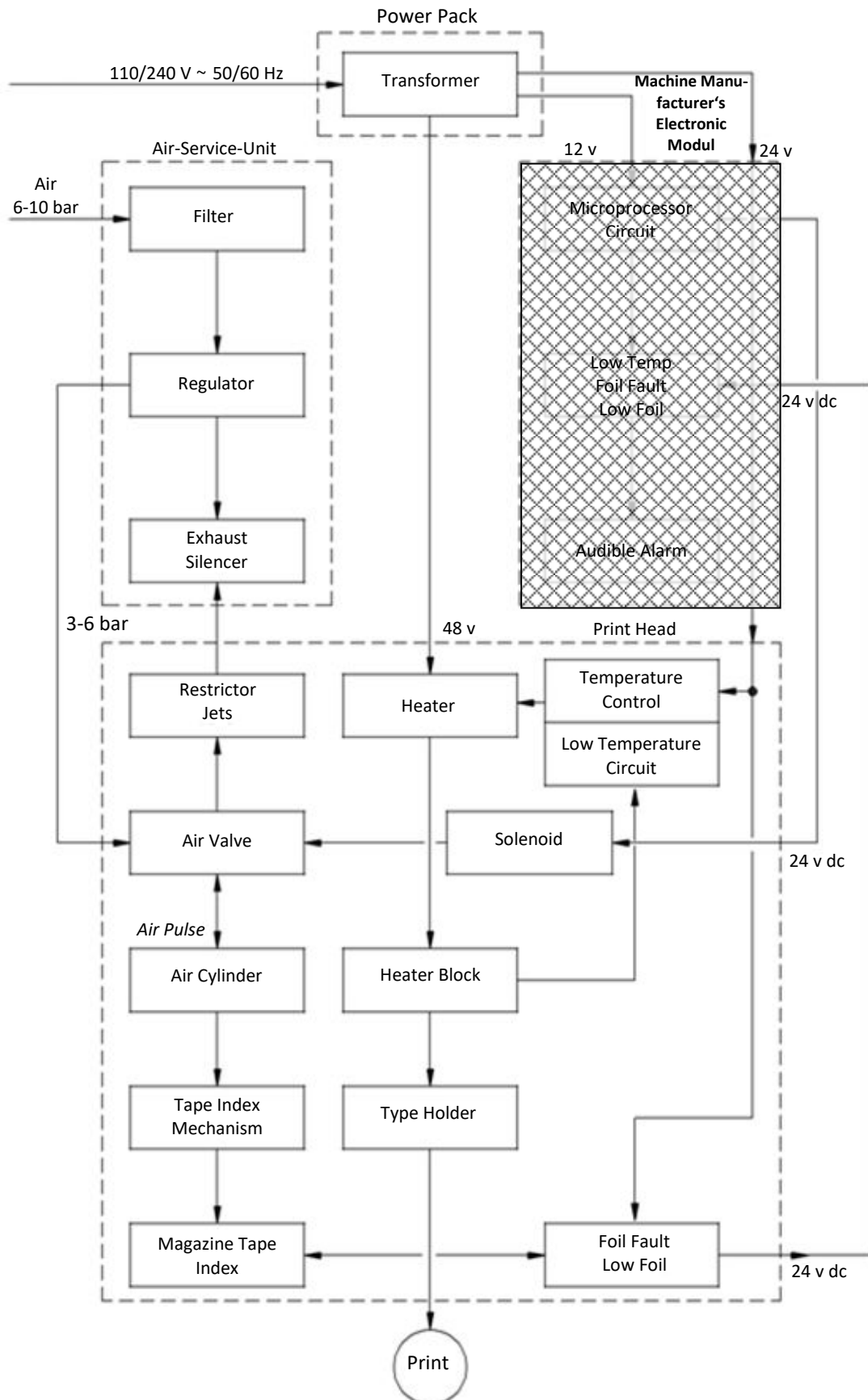
PRODUCT SPECIFICATIONS

Functional Description

1. With Electronic module



2. Without Electronic Module



3 Safety Information

This Chapter contains information on the configuration and relevance of the safety information presented in these operating instructions, and also information on possible hazards which may occur even for compliant usage of the device.

3.1 Configuration of the safety instructions



SIGNAL WORD



Type and source of hazard

Explanation of the hazard and information on possible consequences of non-compliance

- Activities/prohibited actions to help prevent accidents.

	The pictogram denotes the type of hazard		
	The safety sign  before the signal word indicates a possibility of personal injury		
	The signal word denotes the severity of the hazard		
	SIGNAL WORD	Consequences when hazard occurs	Probability of occurrence
	HAZARD	Severe physical injury or death (irreversible)	imminent
	WARNING	Severe physical injury or death (irreversible)	possible
	CAUTION	Slight/minor physical injury (reversible)	possible
	ATTENTION	Property damage to machinery and/or to nearby assets	possible
	The reference text describes: ▪ type and source of hazard, ▪ the possible consequences of disregarding the safety instruction, ▪ measures or restraints to prevent the hazard.		

3.2 Used pictograms

Pictogram	Meaning
	Warning of a general hazard
	Warning of possible property damages
	Before performance, observe the corresponding information in the operating manual
	General note

3.3 Hazards during compliant use

-  **CAUTION**
-  **Potential hazard caused by incorrect accessories and spare parts!**
- The use of accessories and spare parts that are not recommended by the manufacturer may compromise safety, functionality and efficiency of the device. Any liability and warranty for any damages caused by not recommended accessories and spare parts or non-intended use is excluded by the manufacturer.
- Thus use manufacturer recommended accessories and spare parts exclusively.

4 Installation

In the following Chapter you will find information on the installation of the device.

ITW Diagraph GmbH can provide mountings suitable to install the S-Compact Coder onto a wide range of machines. In the following sections, the standard mounting frame is described. Contact ITW Diagraph GmbH for assistance or, alternatively, use the dimensions given for the standard mounting frame as a guide.

CAUTION



Potential hazard due to incorrect or non-compliant installation!

An incorrect or improper assembly of the device may impair safety, functionality and efficiency of the device.

- The installation of the device may be performed exclusively by qualified technical expert personnel.
 - Follow the relevant instructions in the operating manual.
 - The coder, electronic module and power pack must be earthed.
 - Isolate the coder, electronic module and power pack before removing any covers.
-



NOTE

Backing Pad

A resilient backing pad should be used if printing to a media which would otherwise have a rigid backing, for example, when printing to a label strip. This takes up any small inaccuracies in the type face, reduces shock loading on the coder and gives greatly improved performance and longevity.

The use of a backing pad is not required when printing directly onto a more resilient media, for example, card-board boxes.

4.1 Unpacking

CAUTION



Hazards due to defects or transport damage!

Transport damage to the device may result in unforeseeable hazards to personnel and/or property.

- When unpacking the device, check for any visible damage.
 - Never ever connect a damaged device to the voltage supply.
 - In case of transport damage, consult with the manufacturer or your distributor.
-



NOTE

Check the deliverable items for completeness and condition.

After receipt of the shipment, please check immediately to see whether all items listed on the delivery ticket are included and are undamaged. The manufacturer does not accept liability for deficiencies that have been claimed subsequently. File complaints with:

- Transport damages directly to the shipping service.
 - Deficiencies and/or incompleteness immediately to the manufacturer or your distributor.
-



NOTE

Recycling of transport packing

The transport packaging may be stored for later recycling, e.g. transport or storage.

Step 1: Open the transport packing.

Step 2: Check whether all items listed on the delivery slip are included and undamaged.

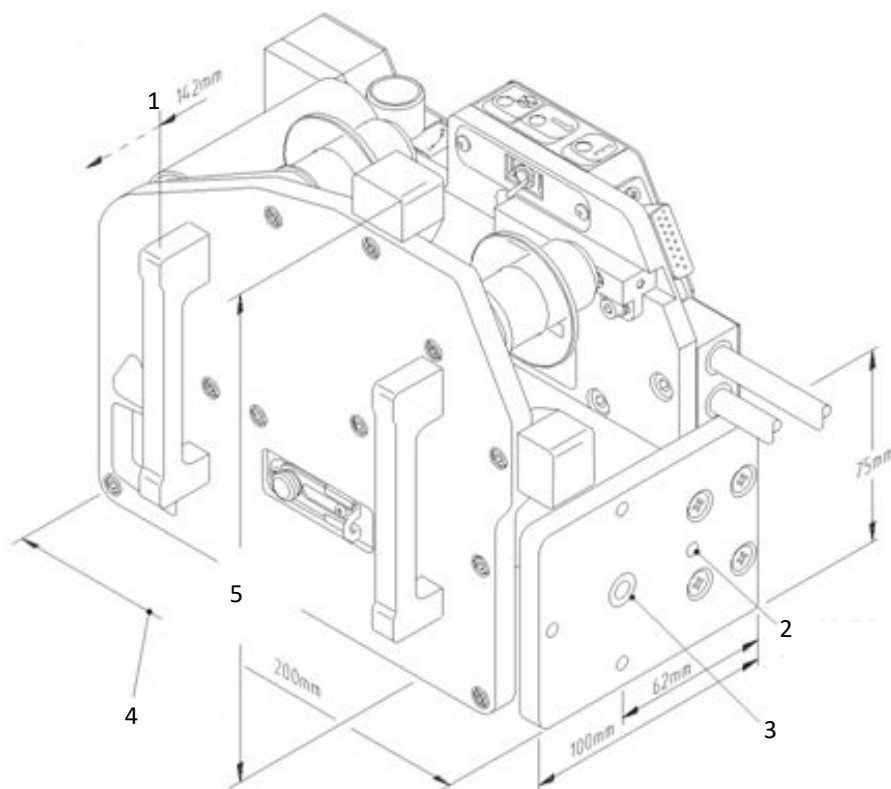
Step 3: Remove all components of the device carefully from the transport packing

INSTALLATION

4.2 Installation

Space Requirements

The illustration shows the installation dimensions of a Left-Hand Coder. When using a mounting frame not supplied by ITW Diagraph GmbH, then it is suggested that a convenient storage location is provided for the type holder extraction handle. The handle has an M5 thread.



1	+109 mm FOR REMOVAL OF MAGAZINE	4	205 mm WITH TYPE HOLDER IN FORWARD POSITION
2	4 LOCATION INDENTS FOR BALL CATCHES	5	198 mm WITH 305 m MAGAZINE
3	TAPPED M8 FOR MOUNTING SCREW		



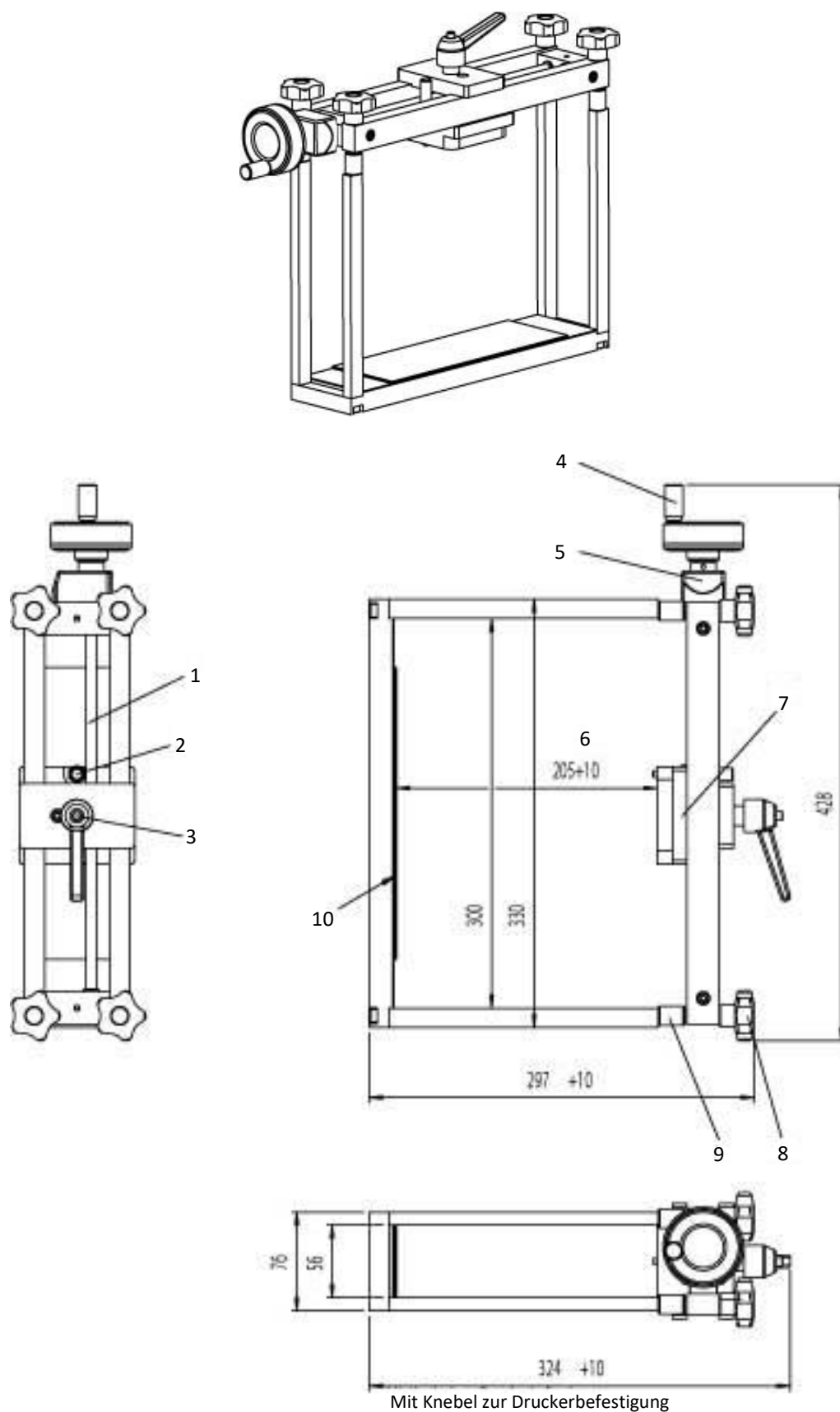
NOTE

Clearance required for removal of magazine

Observe the clearance required for removal of the magazine and the possibility to turn the unit 360° in steps of 90° (longitudinal and lateral alignment of the type head to the printing medium).

Mounting Frames

The illustration shows the principle dimensions and features of the standard ITW Diagram GmbH S-Compact Coder mounting frame (Art.-No.:1.0000.04270)



Mit Knebel zur Druckerbefestigung

INSTALLATION

1	THREADED ROD FOR POSITION ADJUSTMENT	6	DISTANCE TO BACKING PAD
2	LOCKING BOLT	7	BALL CATCHES LOCATE CODER AT 90° INTERVALS
3	POSITION ADJUSTMENT KNOB	8	STAR KNOB
4	ADJUSTMENT LOCKING KNOB	9	KNURLED ADJUSTMENT NUTS
5	POSITION INDICATOR	10	BACKING PAD

Coder Mounting and Adjustment Instructions

The following instructions are based on the use of a standard ITW Diagraph GmbH mounting frame. Any custom built installation adapter should incorporate at least the alignment adjustments indicated.

- Arrange to install the mounting frame to provide coder position adjustment to suit the application. For example, if printing directly onto cardboard boxes then it may be desired to allow the height of the printed code up the side of the box to be varied. Alternatively, if printing to label stock, the alignment of the printed text across the face of the label would be more important.
- Install the mounting frame securely.
- Mount the coder unit to the frame using an M8 screw. Ensure that the screw length does not allow it to protrude beyond the thickness of the coder mounting plate. Align the coder head using the ball catches and indents provided on the mounting face.
- Adjust the coder printing position. Release the coder clamping handle by a quarter turn and move the coder position using the position adjustment knob. Retighten the coder clamping handle.
- Ensure that the chosen method of mounting will allow the face of the printing block to be parallel with the face of the printing medium. If necessary, release two or more of the adjustment locking knobs and turn the knurled adjustment nuts to correct the alignment. Tighten the adjustment locking knobs.



HINWEIS

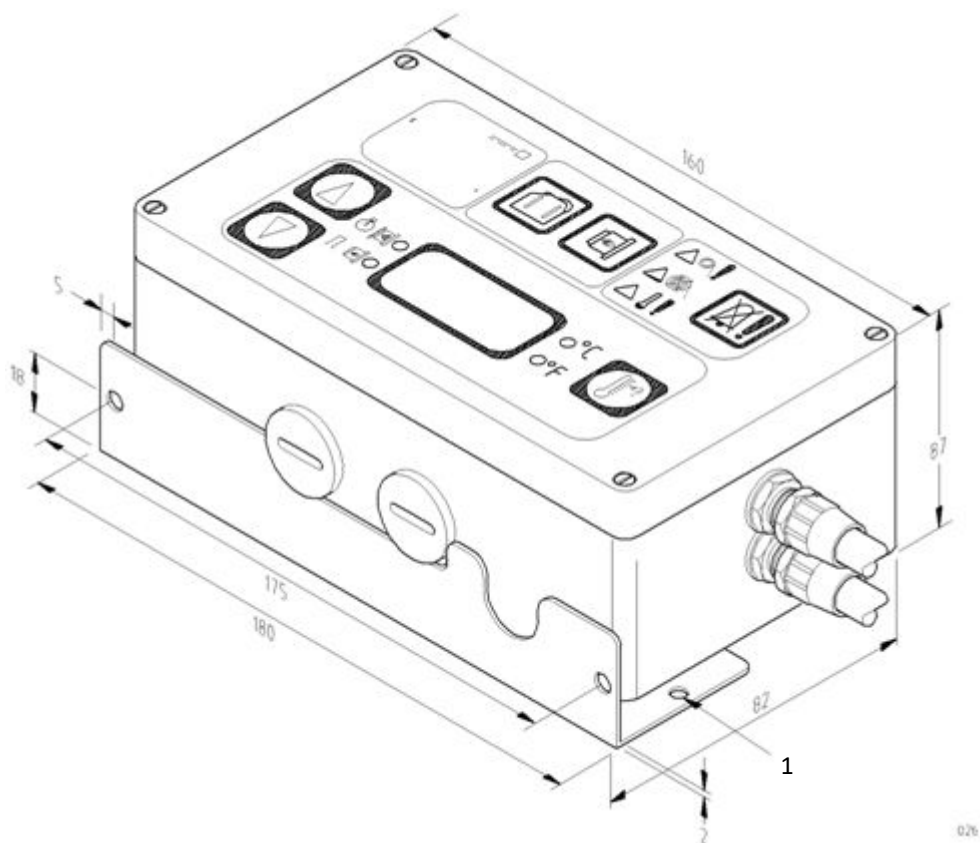
Replacement of adjustment locking knobs

The adjustment locking knobs may be replaced using standard hexagon nuts to prevent unauthorized tampering.

- If necessary, insert the backing pad strip and ensure that it is aligned with the print head. Note that the backing pad strip is used to provide a resilient surface to take up small inaccuracies of the type face and will not be necessary if the printing medium is sufficiently resilient,

Electronic Module Mounting Instructions

The illustration shows the electronic module. The module may, within the restrictions of cable length, be mounted in any convenient position in which the operator can clearly see the indicator lights and can access the push-buttons. (Preferably between 0.6 m and 1.9 m from floor level).



1	4 MOUNTING HOLES Ø 5,5		
---	------------------------	--	--

INSTALLATION

Air Service Unit Mounting and Adjustment

The illustration shows the installation dimensions for the standard air service unit, which should be mounted vertically, as shown. Access must be provided to allow maintenance personnel to adjust the operating pressure and view the pressure gauge. Access is also required to visually check the liquid level in the sight glass and to drain the bowl using the manual drain valve.

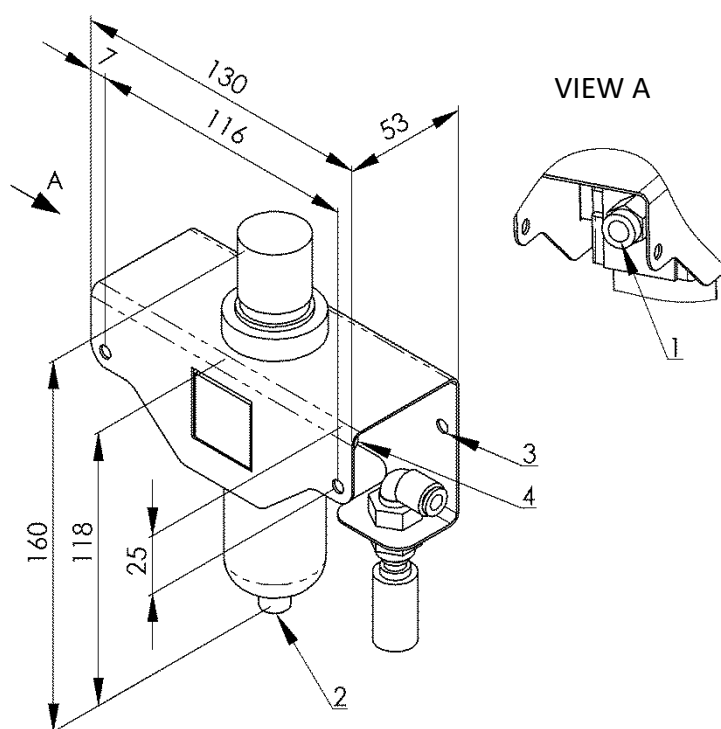
CAUTION



Moisture in water separation bowl of air service unit and exhaust discharge of the cylinder.

Moisture can accumulate in the water separation bowl and in the exhaust charge of the cylinder and can cause a possible hazard if coming into contact with live electrical circuits.

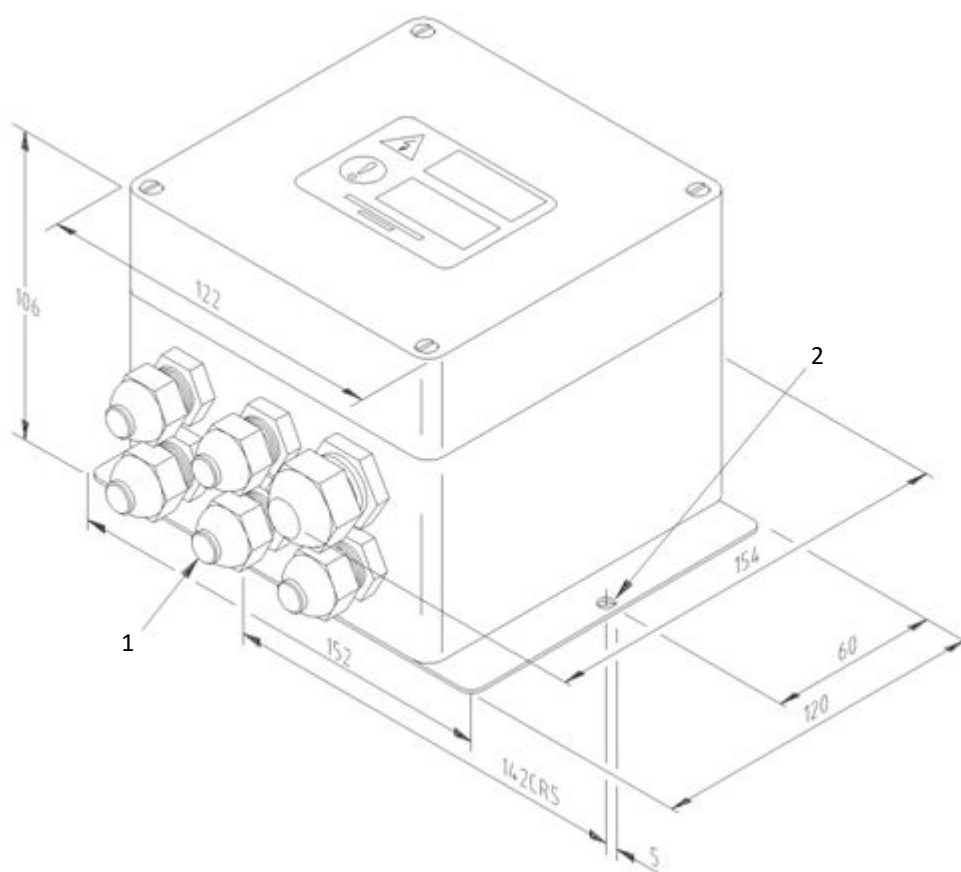
- Drain moisture from the water separation bowl at regular intervals
- Check exhaust charge of the cylinder for moisture and drain if necessary
- Position the air-service-unit so that there is no chance of this moisture coming in contact with live electrical circuits



1	8 mm PUSH IN AIR FITTING FOR AIR SUPPLY	4	6 mm PUSH IN AIR FITTINGS FOR PIPES TO PRINTHEAD
2	MANUAL DRAIN VALVE		
3	4 MOUNTING HOLES Ø 5,5		

Power Pack Mounting Instructions

The illustration shows the installation dimensions for the power pack. Following installation, access to the power pack is required for replacement of fuses as necessary.



011

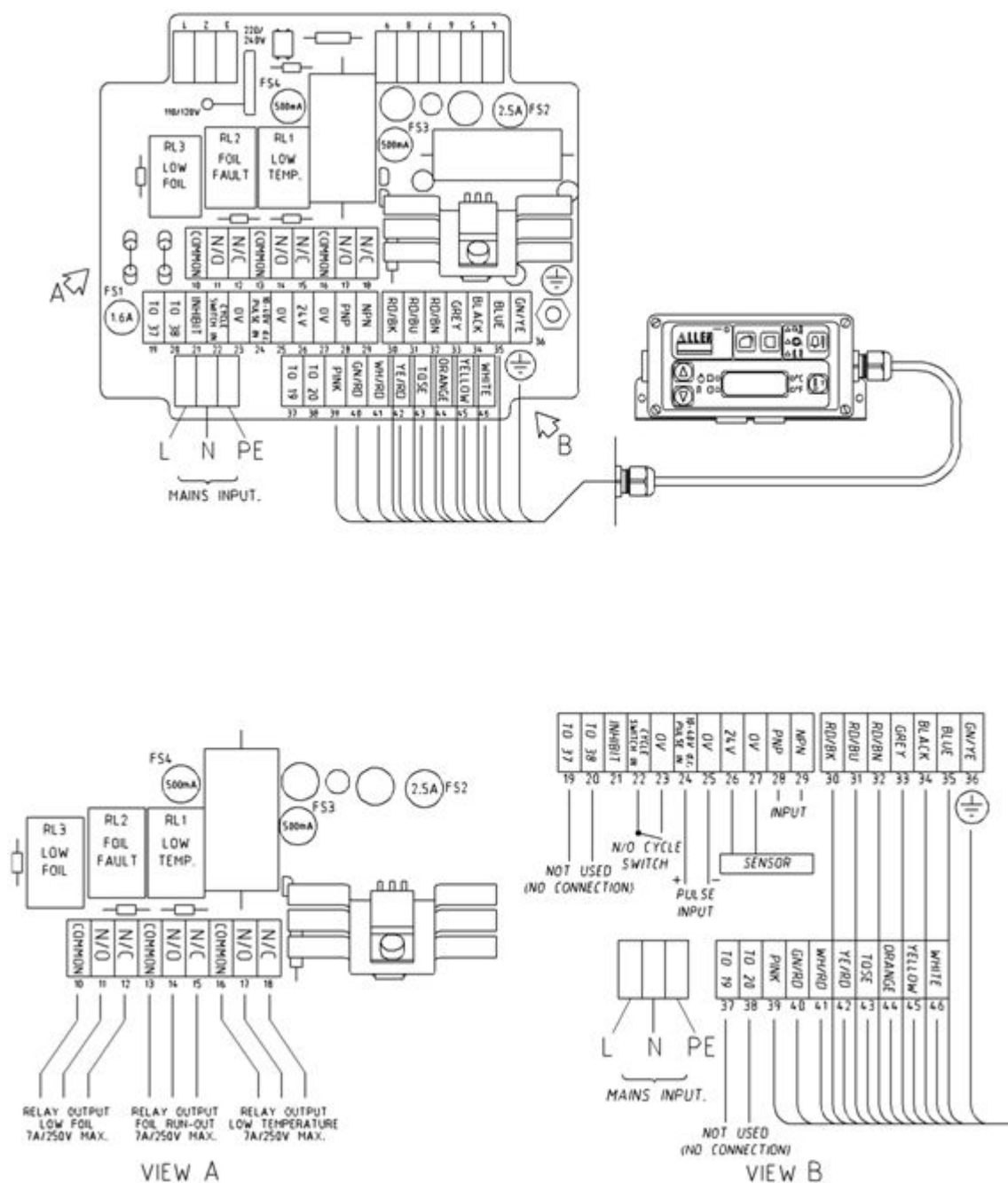
1	CABLE Ø 4 MIN – Ø 8 MAX	2	2 MOUNTING HOLES FOR M5-SCREWS
---	-------------------------	---	--------------------------------

INSTALLATION

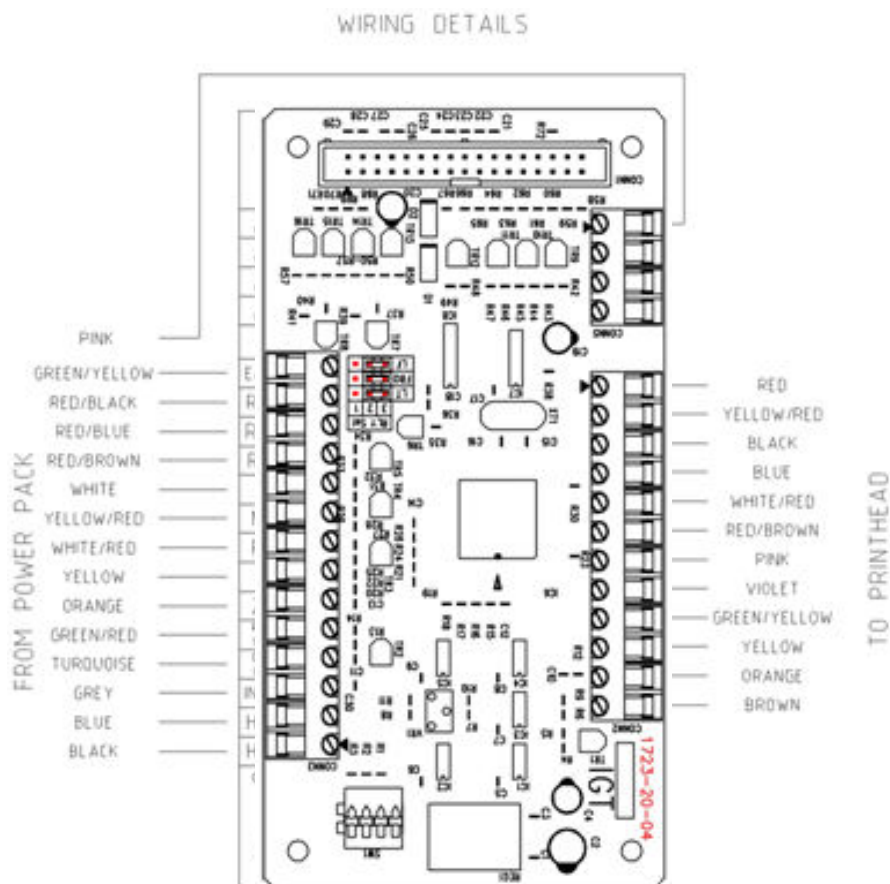
Electrical Connections

1. With Electronic module (Standard)

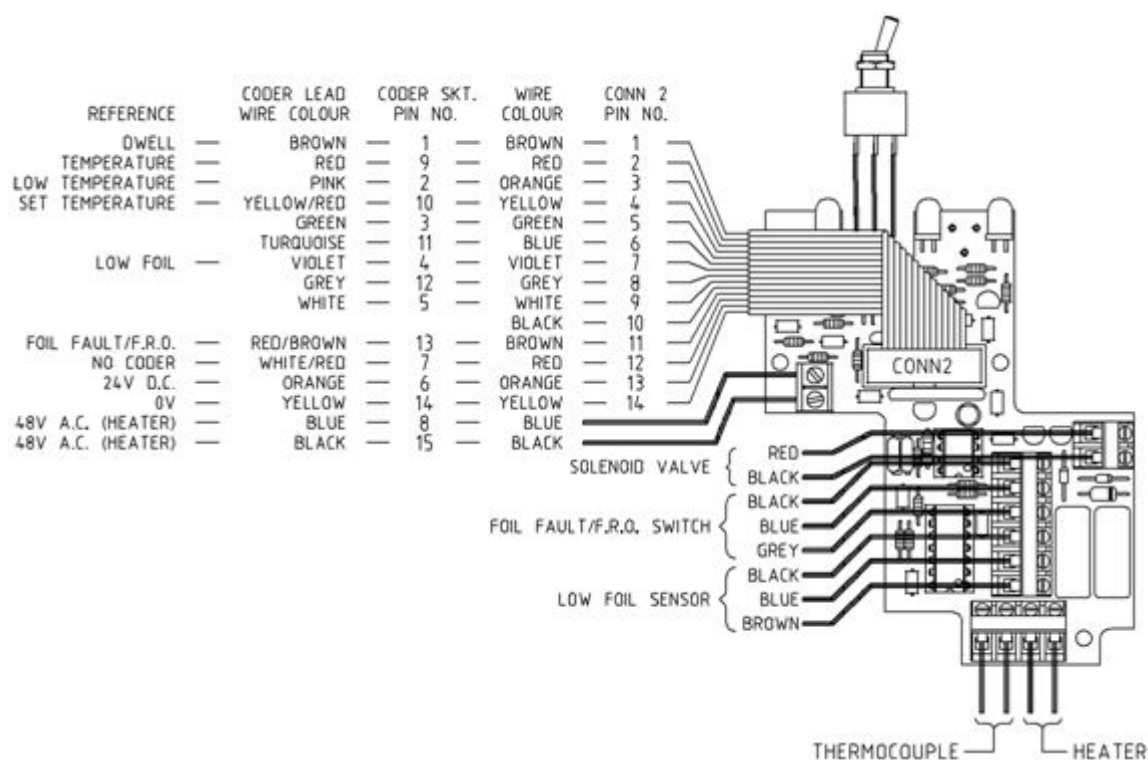
For identification of terminals and connections in the power supply, refer to diagram below.



For identification of terminals and connections on the electronic module, refer to diagram below.



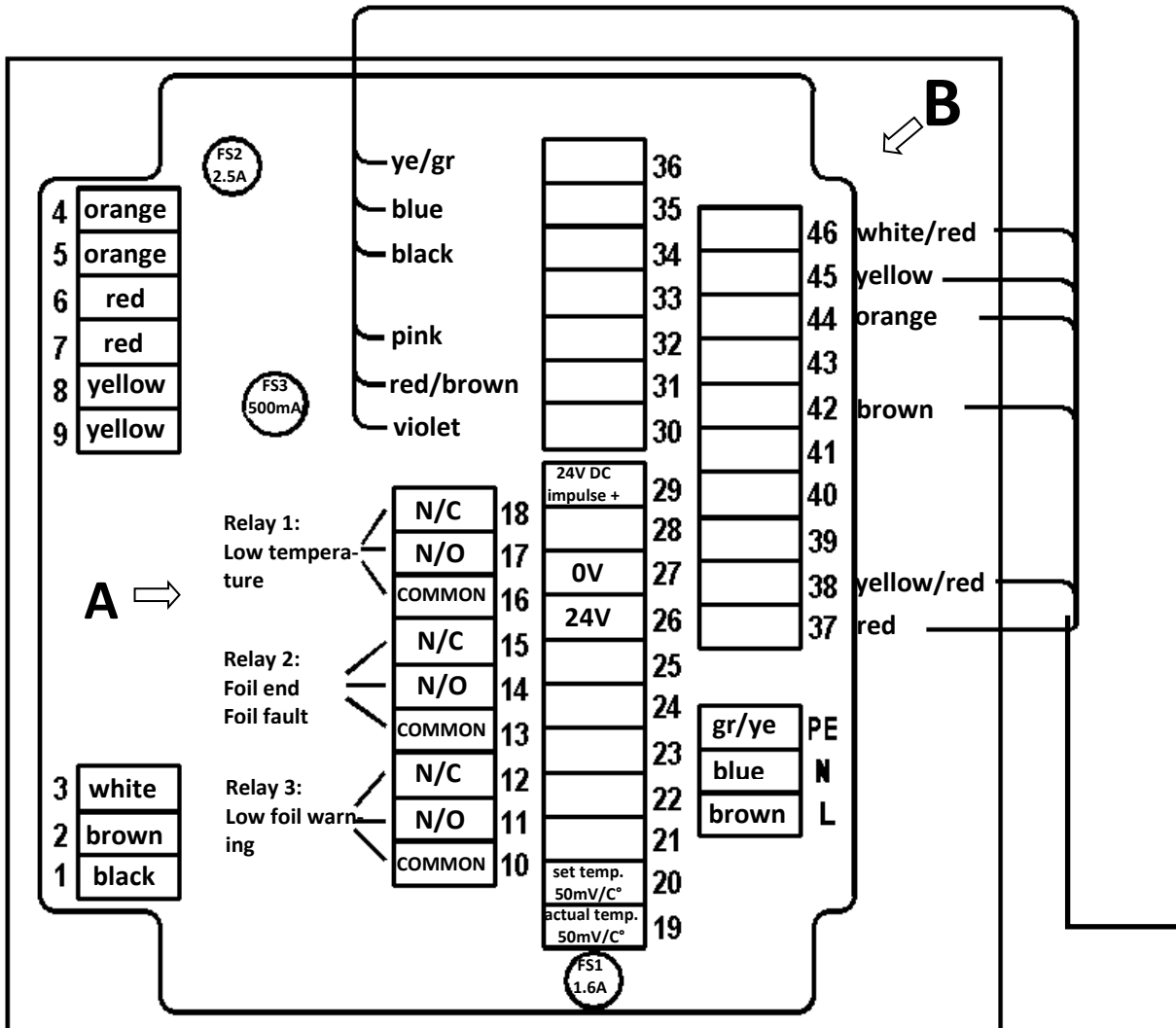
Electronic Module Connections



Printhead PCB Connections

INSTALLATION

2. Without Electronic module (OEM version)

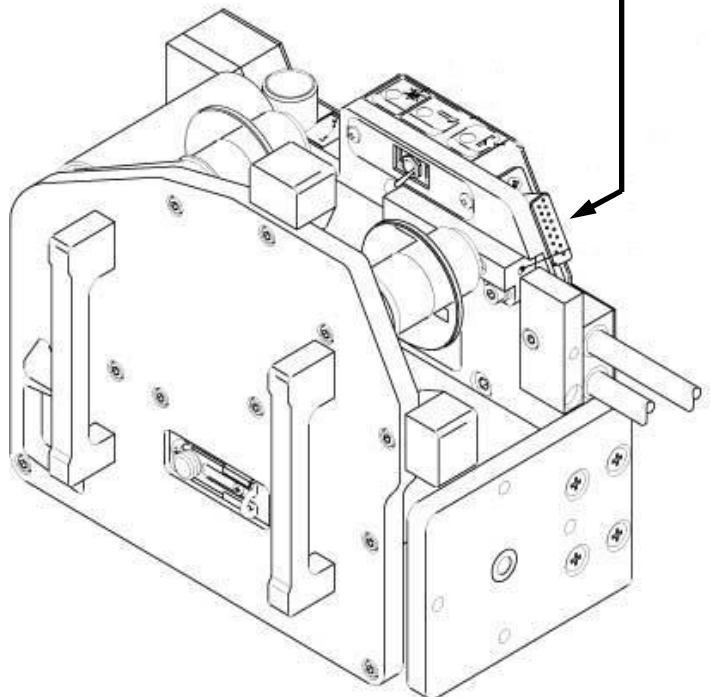


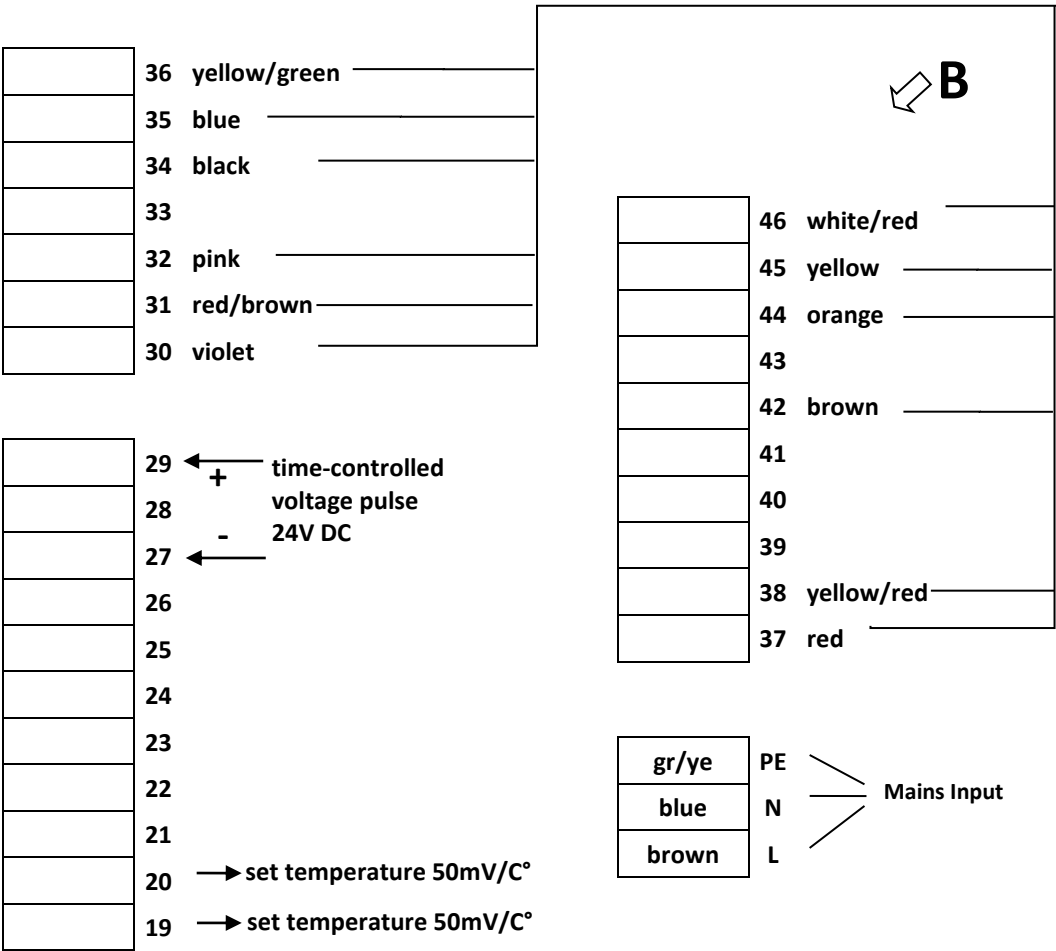
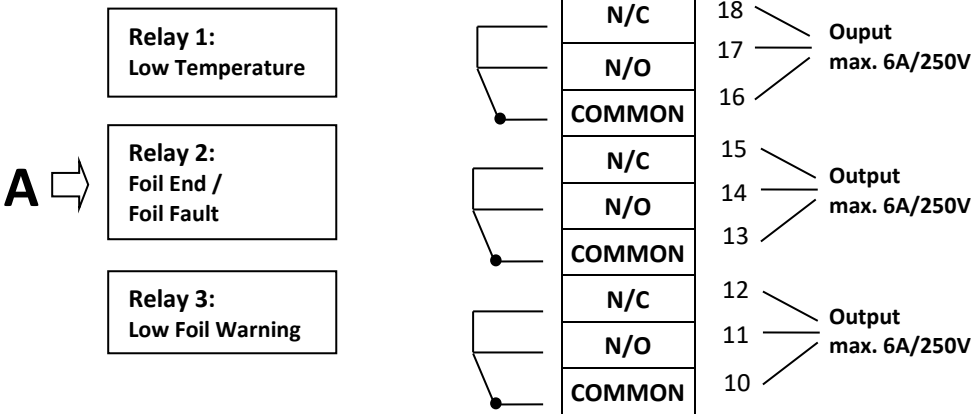
Attention:

Art.-No.: 1.0001.08540 to be used only without electronic module.

Time-controlled voltage pulse required for terminals 27 and 29.

Scope of delivery includes connection cable 0.0001.08977, length 6m.





INSTALLATION

Pneumatic Connections

All pneumatic connections should be made using standard 6 mm x 4 mm flexible air lines, preferably coded to distinguish the infeed to the air cylinder.

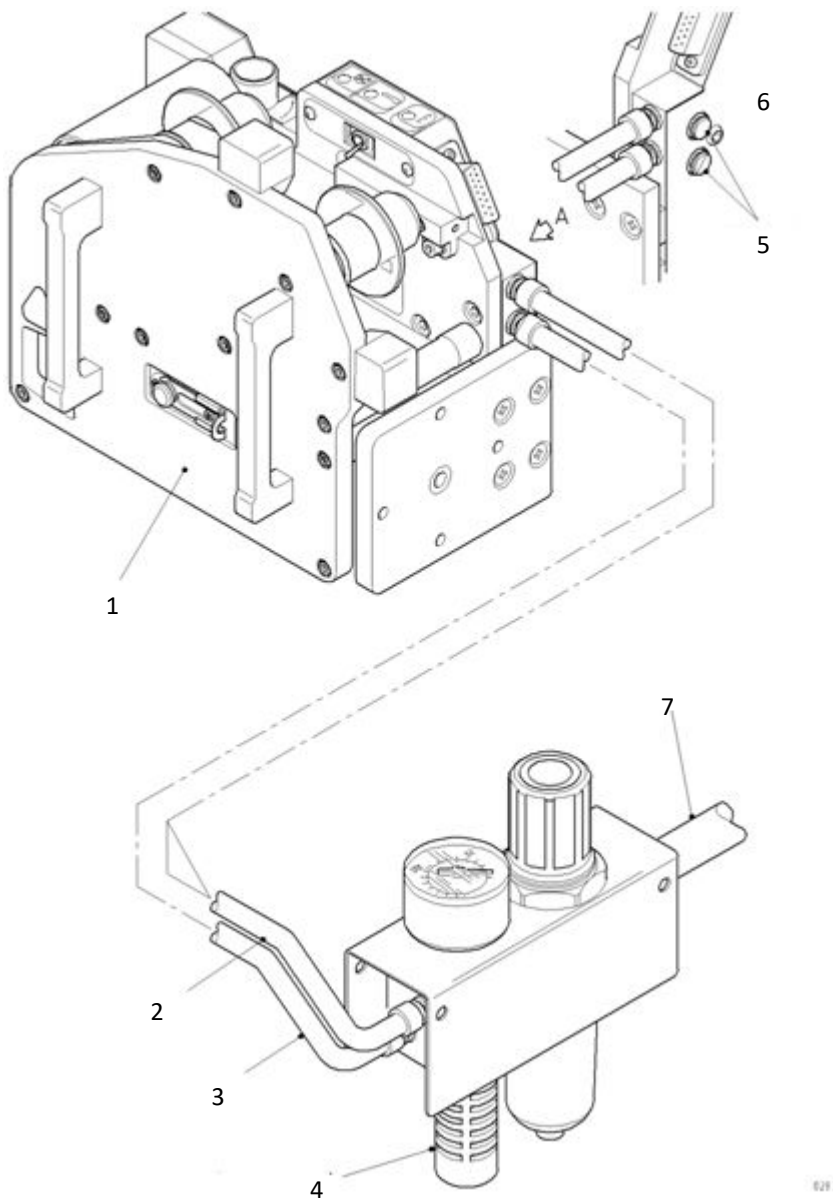
The connections required between the coder and air service unit are shown in the illustration.



NOTE

Alternative connections

If space limitations for the installation result in a restrictive pipe run to the end of the coder, then alternative connections should be used.



1	PRINTHEAD	5	ALTERNATIVE AIR CONNECTIONS
2	AIR INFEED 6 mm O/D PIPE (BLACK)	6	VIEW A
3	AIR EXHAUST 6 mm O/D PIPE (BLUE)	7	AIR INTAKE 8 mm O/D PIPE
4	EXHAUST AIR SILENCER		

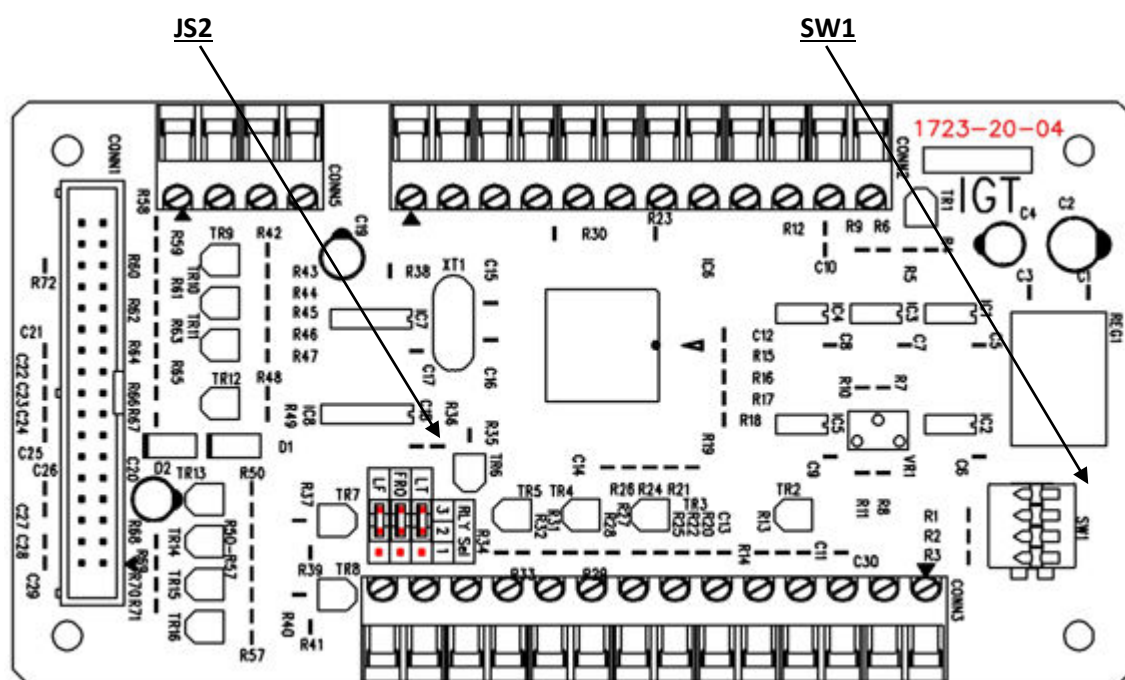
Languages & Fault Relays Set-up

Before changing the language for warning or temperature messages, disconnect the equipment from the mains supply as the switch positions must be at zero voltage.

Unscrew the 4 screws retaining the front panel of the switch cabinet. A 4-switch bracket (SW1) enables the message to be changed as shown in the table below.

SWITCH NO.				LANGUAGE	UNIT TEMPERATURE
1	2	3	4		
OFF	OFF	OFF	XXX	ENGLISH	°C
ON	OFF	OFF	XXX	GERMAN	°C
OFF	ON	OFF	XXX	FRENCH	°C
ON	ON	OFF	XXX	SWEDISH	°C
ON	ON	ON	XXX	ENGLISH	°F
OFF	OFF	ON	XXX	FINNISH	°C

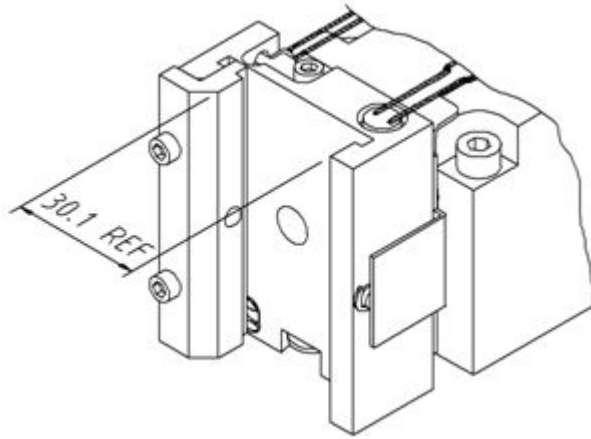
The 3 jumper switches, (JS2), allow the user to change the operation of the fault relays. When set between pins 1 & 2 the relays are open and do not change state at power up. When set between pins 2 & 3 the relays are open, but and change their state on power up.



INSTALLATION

Heater Block Set-up

The Coder is supplied with the Heater Block configured to accept either 30mm wide Type holders (used by the Compact 205 series) or 35mm wide Type holders (to make use of the 50/30 print area). The configuration for 30mm wide Type holders is shown below:



Configuration for 35mm wide Type holders

To configure the Heater Block to accept 35mm wide Type holders make the following changes:

1. Ensure the Coder is not connected to the Power and Compressed Air supplies.

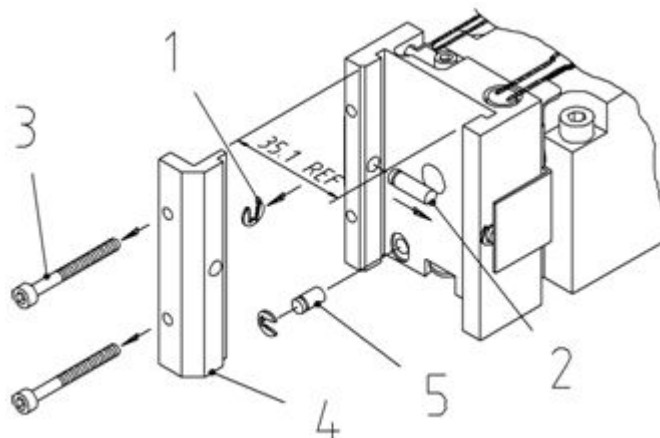


WARNING

Heating block cool down

If the coder has recently been in use allow the heater block to cool before continuing

2. Remove the Magazine and type holder from the Coder, then remove the Heater Block Guard
3. Carefully remove the clip (1) retaining the long detent (2).
4. Withdraw the long detent (2).
5. Undo and remove the 2 screws (3).
6. Remove the Heater Block Insert (4).
7. Extract the clip and short detent (5).
8. Insert the short detent (5) into the Heater Block in place of the long detent and retain using the clip.



5 Startup

5.1 Type holder - Setting-up



WARNING



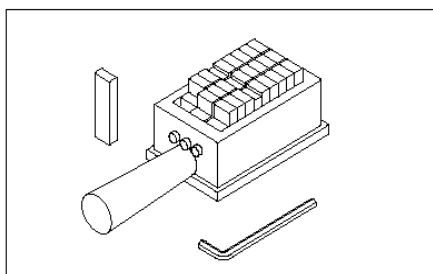
Skin burns due to high temperature of type holder and heater block

The heater block and type holder operate at a temperature high enough to cause skin burns if touched.

- Take care to avoid direct contact when removing or inserting a type holder from the heater block.

The four main categories of type holder are prepared in the following manner:

Fixed Row and Universal



These type holders accept cast type.

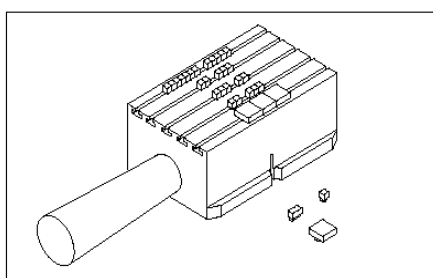
Clean the recess(es) to ensure that the type will be seated correctly.

Insert the type characters and spacers, to create gaps, one piece at a time.

Fit additional spacers as necessary to align the type and fill the recess(es).

Use the screws in the end of the type holder to clamp the type securely, an hexagonal wrench is provided.

T-slot



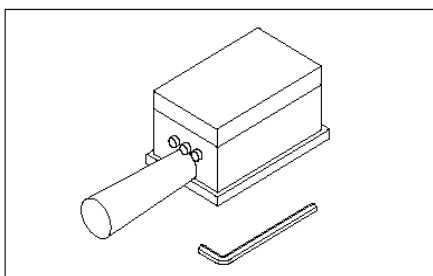
These type holders accept T-slot type which is normally engraved hardened steel.

Clean the recess(es) to ensure that the type will slide easily in the slots.

Insert the type characters and spacers, to create gaps, one piece at a time.

Insert the T-slot type retaining clips or blocks into each end of the slot(s).

Zinco



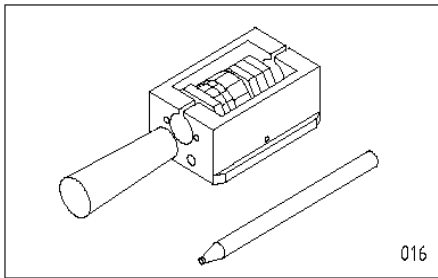
These type holders accept a 5 mm thick etched zinc plate.

Clean the mating faces to ensure that the plate will be seated correctly.

Use the countersunk screws to secure the plate, a hexagonal wrench is provided.

STARTUP

Rotary Flick Wheel



These type holders are supplied with rotary wheels carrying the type characters.

Rotate the wheels to obtain the desired print. An indexing pencil is provided to push each wheel round to the correct position.

5.2 Typeholder – Fitting and Removal



WARNING



Skin burns due to high temperature of type holder and heater block

The heater block and type holder operate at a temperature high enough to cause skin burns if touched.

- Take care to avoid direct contact when removing or inserting a type holder from the heater block.

Screw the extraction handle into the tapped hole provided in the type block and use this as a handle. Check that the type face is correctly oriented and slide the type block into the heater block.

Take care to avoid direct skin contact with the type holder or heater block.

To withdraw the type holder, screw the extractor into the tapped hole and use this as a handle to slide the type block out. With normal care it is possible to extract the block safely without needing to cool it down first.

5.3 Magazine Loading / Unloading Instructions

The coder is fitted with a foil fault sensor. An audible alarm will sound and the fault indicator will be illuminated when either the foil runs out at the end of the reel, if the foil breaks, or when a magazine loaded with foil is removed.

To cancel the audible alarm, press the alarm cancel button. The button will remain lit until a loaded magazine is replaced on the coder. The coder will not function until the foil is replaced.



NOTE

Reduction of downtime

To reduce down-time, it is recommended that a second, spare, magazine is kept on standby. This can be pre-loaded with foil at a convenient time and rapidly exchanged for an empty magazine.

Release the magazine from the coder body by sliding the latch out of engagement with the central pillar.

By pulling on the two handles, remove the magazine directly away from the coder body.

Fit an empty cardboard core onto the take-up roller, this would normally be transferred from the now empty feed-on spool.

Check the condition of the rubber foil drive roller, if necessary, clean off any dust

Referring to the label, push a new reel of foil onto the feed-on spool and thread the foil, using the path indicated, to the take-up roller.

Secure the free end of the foil to the cardboard core on the take-up roller using adhesive tape.

Rotate the foil drive roller to ensure that the foil is securely attached at the take-up roller and to apply the correct initial tension to the foil.

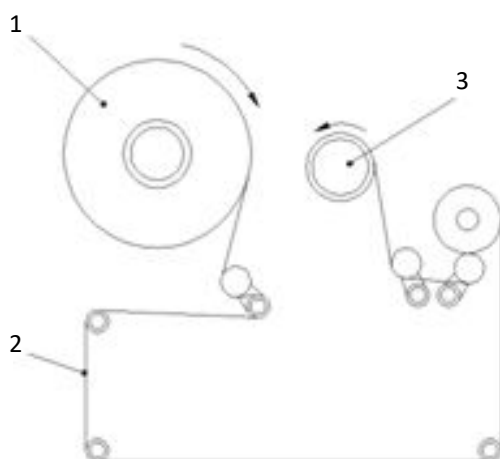


NOTE

On-way clutch of foil drive

The foil drive roller is fitted with a one-way clutch and can only rotate in one direction.

Replace the magazine, checking that the foil enters cleanly into the slot provided at the rear of the coder. Guide pins ensure that the magazine is correctly aligned but, if the foil is not passed through this slot the foil run out sensor will still inhibit operation.



1	PUSH NEW REEL OF FOIL ONTO FEED-ON SPOOL (MAX. DIA 96 mm)
2	PIGMENT (DULL) SIDE OF FOIL
3	USE EMPTY CARDBOARD CORE ON TAKE-UP REEL

Foil Route - 305 m Magazine (Left-Hand)

STARTUP

5.4 Power on and Warm up

Normal Operation

In normal operation the unit will be powered up at some time before the start of the working shift to allow the correct temperature to be reached before operation is due to start.



WARNING



Skin burns due to high temperature of type holder and heater block

The heater block and type holder operate at a temperature high enough to cause skin burns if touched.

- Take care to avoid direct contact when removing or inserting a type holder from the heater block.

At the start of the shift, visually inspect the condition of the coder, coder mounting and wiring. If necessary, clean the unit and the surrounding area.

Rectify any apparent signs of damage or wear.

Following any maintenance or problems with the unit it is recommended that the following Initial Set-up Procedure is followed in sequence.

5.5 Air Supply

Check that an air supply is connected to the air service unit and that the pressure gauge is indicating an outlet pressure of at least 4 bar (58 psi). If necessary, lift the adjusting knob on the regulator and adjust, by turning, until the correct pressure is indicated. Press down on the regulator adjusting knob to lock the adjustment. Drain any moisture that may have accumulated in the bowl.

5.6 Power Supply

Enable the power supply to the power pack. The green LED's on the electronic module and the coder body will be illuminated to indicate that the 24 V_{DC} power supply is enabled. In addition, any alarm LED's (yellow triangles) will be illuminated on the electronic module.

6 Operating

6.1 Controls

When the power has been enabled, the four illuminated push-buttons will light in sequence to show that the microprocessor is powered up. If the coder is not connected to the electronic module, "NO CODER" will be scrolled across the LED display.

Before connecting the coder, set the heater selector switch to high or low range as required. Normally, the low range would be used but, for high speed printing or with a large area of print, the high temperature range may be required.

Switch off the power supply before connecting the coder, then enable the supply again.

With the coder connected, the temperature will be displayed and the appropriate 'range' LED (yellow circle) will be illuminated, (Centigrade or Fahrenheit). The "Low Temperature" LED (triangle) will be illuminated until the operating temperature is reached.

If any alarm conditions exist, the relevant LED's (triangles) will be illuminated and the "Fault Indicator"  will flash. The applicable fault message/s, "LOW FOIL", "FOIL FAULT" or "LOW TEMP" will be scrolled across the LED display, alternating with the display of temperature. The "Fault Indicator" push-button will remain illuminated until all the faults have been cleared.

Once the fault conditions have been cleared the display will remain at the temperature. To display the pre-set temperature, used when making an adjustment at the coder, press the "Set Temperature"  push-button. This will remain illuminated while the pre-set temperature is being displayed. Press again to return the display to the actual temperature.

To change the dwell setting, or to display it, press and release one of the up/down adjustment buttons ($\Delta \nabla$). Then wait for the "Dwell"  LED (yellow circle) to illuminate.

Unless the dwell time has been set up or was last being used for the same printing task and has not been disturbed since, set the dwell control to indicate 0035, that is 35 milliseconds.

The dwell setting can be adjusted to a maximum of 1 second, (1000 milliseconds), as required. Wait for the display to return to the actual temperature, (approximately 2 seconds after the last adjustment was made), before making any other adjustments.

To display the 'signal delay' setting press and hold both of the up/down ($\Delta \nabla$) adjustment buttons then wait for the "Delay" LED (yellow circle) to illuminate. The delay setting can be adjusted to a maximum of 2.5 seconds, (2500 milliseconds), as required. Wait for the display to return to the actual temperature, (approximately 2 seconds after the last adjustment was made), before making any other adjustments.



HINWEIS

Dwell and delay settings

Adjusting the dwell or delay settings down, past zero, will take the setting to maximum and then continue to reduce it. Single steps of adjustment can be achieved by 'pecking' the up or down push-button with a finger.

There is a concealed push-button behind the logo which, when pressed and held for approximately 2 seconds, will initiate a test program. First, all of the segments in each of the 4 display digits will be illuminated in sequence, then "SOFTWARE VERSION" will be scrolled across the display. This will then change to show the version number, for example 0002. The display will remain while each of the LED's controlled by the microprocessor, (not the power LED or the alarm LED's), are illuminated in sequence. When the test program is complete the controls will return to the status prior to it being initiated, which may cause the alarm to sound.

OPERATING

6.2 Coder Mounting and Adjustment

If the coder has been set up as described above under Installation, or was last being used for the same printing task and has not been disturbed since, this procedure can be ignored.

If the coder mounting has been disturbed, or is being set-up for a new printing task then proceed as follows:

- Release the four adjustment locking knobs and turn the knurled adjustment nuts by equal amounts to move the coder away from the print position. By turning the adjustment nuts by equal amounts the alignment will be maintained. Tighten the adjustment locking knobs.
- Adjust the coder printing position. Release the coder clamping handle by a quarter turn and move the coder position using the position adjustment knob to align the print head with the required printing position. Retighten the coder clamping handle.

6.3 Typeholder



 **WARNING**

Skin burns due to high temperature of type holder and heater block

The heater block and type holder operate at a temperature high enough to cause skin burns if touched.

- Take care to avoid direct contact when removing or inserting a type holder from the heater block.

Check and/or set-up the required print set in the type holder.
Refer to Section 5.1-5.2.

	NOTE
	Quick change of type It is suggested that a spare type holder is obtained. Type can then be set using a cool type holder.

Using the extractor handle, load the type holder to the heater block.

6.4 Magazine

If necessary, load foil onto the magazine.
Locate the magazine onto the coder and secure in place using the latch.
Refer to Section - *“Magazine Loading / Unloading Instructions”*

6.5 Foil Index

If the coder foil index has previously been set up or was last being used for the required printing task and has not been disturbed since, this procedure can be ignored.

Adjust the foil index knob fully anti-clockwise to give the maximum foil index for each printing cycle.

For the most efficient use of foil the index knob must be adjusted in operation.
Refer to Section – *“Foil Economy”*

6.6 Backing Pad

Check that the backing pad is correct for the print task.

Check that the backing pad is in good condition and is aligned with the print area. A backing pad is not normally required for carton printing.

6.7 Printing Pressure

Allow at least 5 minutes for the print head and heating block to reach and stabilize at the set temperature. The low temperature indication LED on the coder body will extinguish when the correct temperature is reached.

Position the material to be printed over the backing pad, press the Test Print button and examine the results.

ATTENTION



Damage of coder

Damage will occur if the coder is set too close to the material surface.

- Pay attention to the right distance between coder and material

If the resulting print is too light then release the four adjustment locking knobs and turn the knurled adjustment nuts by equal small amounts to move the coder closer to the material being printed on. By turning the adjustment nuts by equal amounts the alignment will be maintained. Tighten the adjustment locking knobs.

Repeat the test print sequence, if necessary adjusting the nuts by different amounts, until an even print with a light impression is obtained. Tighten the locking knobs after each adjustment.



NOTE

Uneven print

Moving the coder too far forward will affect the index. An uneven print might be corrected by moving the coder back on the side with the darker print. With experience it is possible to combine this adjustment with that for the foil index knob.

Refer to the section – *“Foil Economy”*.

6.8 Temperature Selection and Adjustment

Switching between the two temperature ranges is achieved by moving the toggle switch on the coder body between the marked high and low temperature positions. The lower range position is closest to the print material.

A temperature display is provided on the electronic module. The adjacent selector switch allows the display to be switched between displaying the pre-set and the actual temperatures. The selector switch is illuminated when the display is showing the set temperature.

Temperature adjustment within the ranges is carried out using two potentiometers concealed behind the cover plate surrounding the temperature range toggle switch on the coder body. It is recommended that only maintenance technicians are allowed to undertake this adjustment and that the cover plate and retaining screws are replaced after adjustment to deter unauthorized tampering. Although each potentiometer is marked with a temperature scale this should be used only as a guide, the set temperature should be monitored using the temperature display as described above.

The effect of the set temperature is variable and will depend on other factors such as the print area, printing speed, dwell time and foil grade. The transfer of pigment from the foil to the substrate depends on the temperature to which it is heated.

For a given print head temperature, the rate of transfer of heat to the pigment is reduced by a larger area of print, higher printing speed and shorter dwell time. The effect being aimed at is for the pigment to adhere completely and permanently to the surface being printed.

The following table gives a guide to the temperature ranges to use, these apply when printing to paper, card or plastic film. Metallic foils will require a higher operating temperature:

Print	Speed	Heat Range (Factory Setting)
1 to 3 lines of up to 10 pt type, or an equivalent area	Up to 150 prints per minute	Low 130°C (266°F)
4 lines or more of 10 pt type, or an equivalent area	Over 150 prints per minute	High 160°C (338°F)

6.9 Dwell Adjustment

The dwell time is the short period of time for which the item being printed is stopped while the printing is carried out. Dwell time is set to between 0000 and 1000 milliseconds using the Δ and ∇ keys on the electronic module.

Dwell time must be adjusted to give a good print. The following reproduction gives an indication of the effects which may be found.



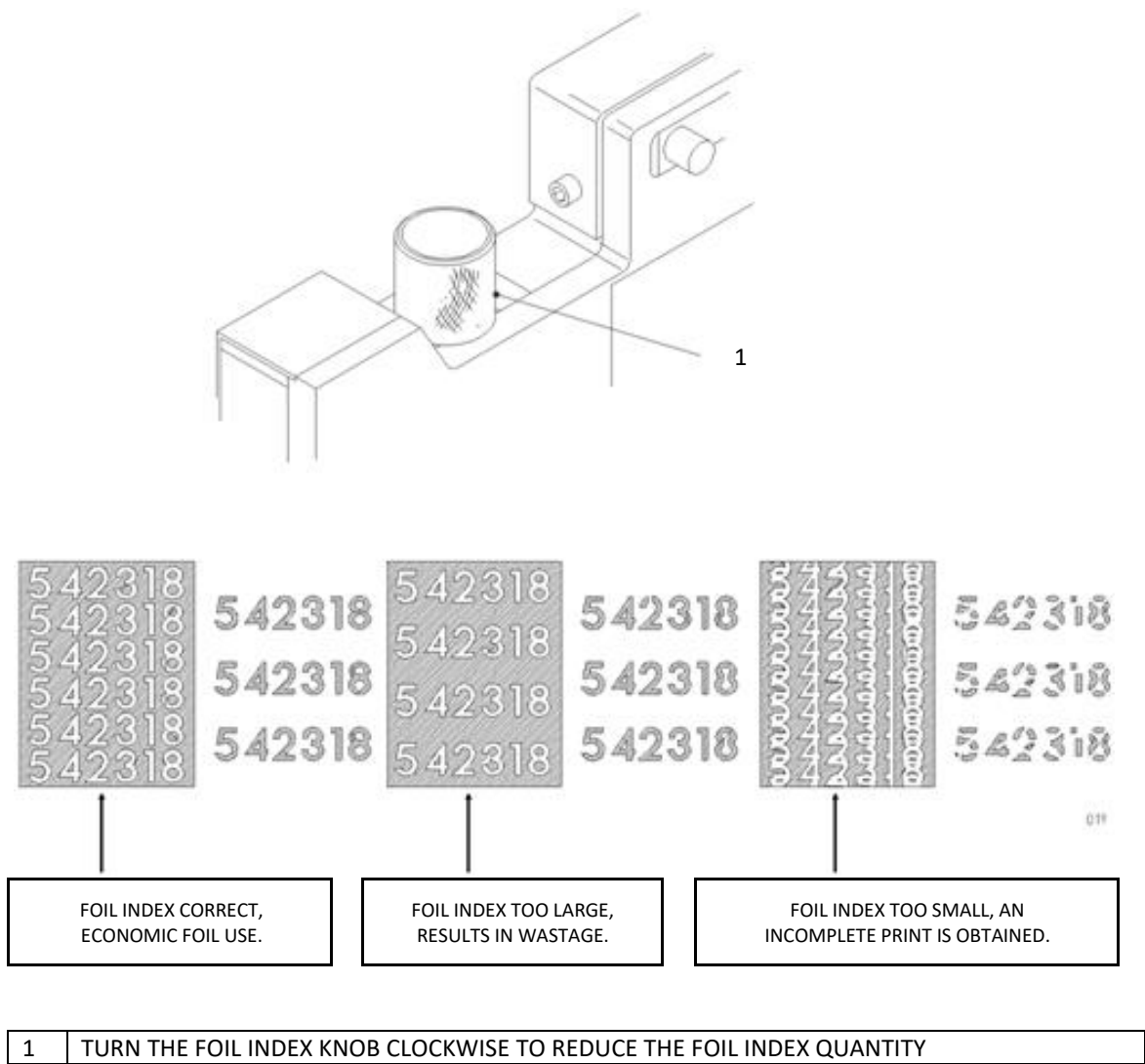
The setting to aim for is the minimum dwell time which produces a good print. A long dwell time will reduce the number of prints per minute which can be achieved. If the print does not adhere completely and permanently to the surface being printed, that is it can be rubbed off, try varying the heat and/or dwell settings. If a satisfactory print quality cannot be obtained it may be necessary to use a different grade of foil.

For further recommendations, please refer to section *"Foil Economy"*

6.10 Foil Economy

Foil is indexed through the coder as the print head returns after each print. The length of the foil indexed is being adjusted using the foil index knob; the knob being turned clockwise to reduce the amount of foil movement.

Efficient use of the foil is indicated by the illustration below.



The foil index knob can be adjusted whilst the coder is printing and the amount of foil index can be seen as the foil moves round the rubber drive roller.

6.11 Enable Printing

Once the coder unit set-up procedure is complete normal operation becomes very simple. The unit must be allowed to warm up for about 5 minutes after power-up, until the low temperature alarm on the control unit and the low temperature indicator on the coder body are extinguished.

The Print Enable button  should then be pressed, and will be illuminated, and operation continues automatically.

The operator should however check the print quality during production, if necessary increasing or decreasing the dwell time to correct for any variations in quality.

The operator is also required to respond to any audible alarms issued by the electronic module.

6.12 Alarms

The coder body contains four LED indicators, three of which indicate an alarm condition.

A low temperature LED on top of the unit indicates an alarm condition and will be repeated at the electronic module.

The second LED on top of the unit signifies failure of the thermocouple sensor fitted to the print block heater. Failure of the thermocouple will disable the heaters, resulting in a low temperature and will result in an alarm condition which will be repeated at the electronic module.

A further LED is fitted to the low foil sensor and will be illuminated when the sensor detects a low level of foil on the feed-on spool. This alarm condition will be repeated at the electronic module.

The three alarm indications on the electronic module are described below. In each case, when the alarm occurs the indicator will be illuminated, the audible alarm will sound and the alarm cancel push button  will flash on and off.

Pressing the push button will cancel the audible alarm in each case, however the push button and alarm indicator will remain illuminated, (on steady), until the fault condition is rectified.

Low Foil

When the low foil sensor on the coder body detects a low level of foil on the feed-on spool, the indicator light is illuminated. The sensor is provided to give the operator time to prepare a replacement magazine, or get ready to reload the original magazine, when the foil runs out. The sensor position can be adjusted to give an appropriate warning period, depending on the print speed and the amount of foil index.

Foil Run-out/Fault

A micro-switch in the foil feed slot at the rear of the coder is actuated by the foil passing through the slot. When the end of the reel is reached, or the foil breaks, the micro-switch is released and the indicator light is illuminated. The alarm can only be cancelled by reloading the magazine with foil and replacing it on the coder body.

The foil run-out/fault alarm can also be caused by removing the magazine from the coder body and therefore inhibiting printing.

Low Temperature

The temperature of the print head heater block is monitored continuously by a thermocouple. When the measured temperature is more than 6% below the set temperature, the "Low Temperature" LED (triangle) is illuminated. If the low temperature alarm occurs frequently during normal operation then either the set temperature must be increased or the print speed reduced.

See Section - *"Temperature Selection and Adjustment"*

OPERATING

Thermocouple Failure

When the temperature monitoring circuit detects a failure of the thermocouple, a Low Temperature alarm will be triggered at the Electronic Module. On the Coder the Low Temperature and Thermocouple Failure indicator lights will illuminate.

Check for a wiring fault. If none is found, then replace the Thermocouple.

6.13 Power Off

When product flow through the machine is stopped the coder will also stop, although it will still be powered up and the temperature maintained. The coder must therefore be switched off at shutdown, or the completion of the shift.

To shut down the coder unit, switch off the power supply at the external isolator switch.



WARNING



High temperature of print head and heater block.

Air pressure of air service unit.

When shut down the print head and heater block will still be at a high temperature. Danger of skin burns. Air pressure will still be present until switched off at the air service unit or the main feed.

- Allow time for these to cool down before undertaking any maintenance or cleaning on the coder unit
 - When undertaking any maintenance or cleaning on the coder unit, note, that air pressure will still be applied to the air service unit.
-

7 Troubleshooting

The following Chapter is intended to help you understand fault messages, to identify their origin and to correct them.

Adjustment

Instructions for the adjustment of operating temperature, pressure, dwell time and alignment are provided in Section – “Operation”.

Testing

Following maintenance, or if any problems are experienced during operation, the function of the coder unit can be checked using the test button  on the electronic module. The test button, when pressed, operates the coder for one single print cycle.

- If necessary, press the print enable button  on the electronic module, the indicator light will be extinguished when the coder is off line.
- Check that the backing pad, if fitted and the print media is in position. Operating the coder without a resilient backing pad or print media will impose excessive loads on the coder unit and will increase wear.
- Press and release the test button . The coder will perform a single print cycle.
- Repeat the single print cycle, checking and making adjustments as necessary.

The alarms, sensors, interlocks and general operation parameters can be checked as described below.

Low Foil

The low foil sensor and alarm is operated whenever the amount of foil remaining on the feed-on spool is reduced to a low level. During operation, check the time interval between operation of the low foil alarm and the foil run-out alarm. If necessary, adjust the position of the low foil sensor in its slot to give the required warning period.

Foil Run-out/Fault

The foil run-out sensor and alarm is operated whenever the end of the foil is reached, the foil breaks or when the magazine is removed.

Low Temperature

The low temperature alarm will be triggered during the warm-up period whenever the coder is powered up from cold. During normal operation the low temperature warning can also be checked by increasing the set temperature and generating a warning. Remember to re-set the temperature after the check has been made. In addition, if the printing rate is too high (i.e. more heat is lost through the foil), the alarm may also be triggered.

The alarm operates if the actual temperature is more than 6% below the set temperature. For example, if the actual temperature is 150°C the alarm will sound if the ‘set temperature’ is increased to about 160°C.

Solenoid

Operation of the air solenoid can be checked at any time using the test button as described above. Note that the speed of operation of the cylinder is determined by the air-flow restrictors drilled into the manifolds and is not variable.

7.1 Fault Finding Chart

VORSICHT

Danger when undertaking electric fault finding!

If supply is not disconnected when undertaking any maintenance, there may be danger for the personnel and damage may be caused to the device or other nearby property.

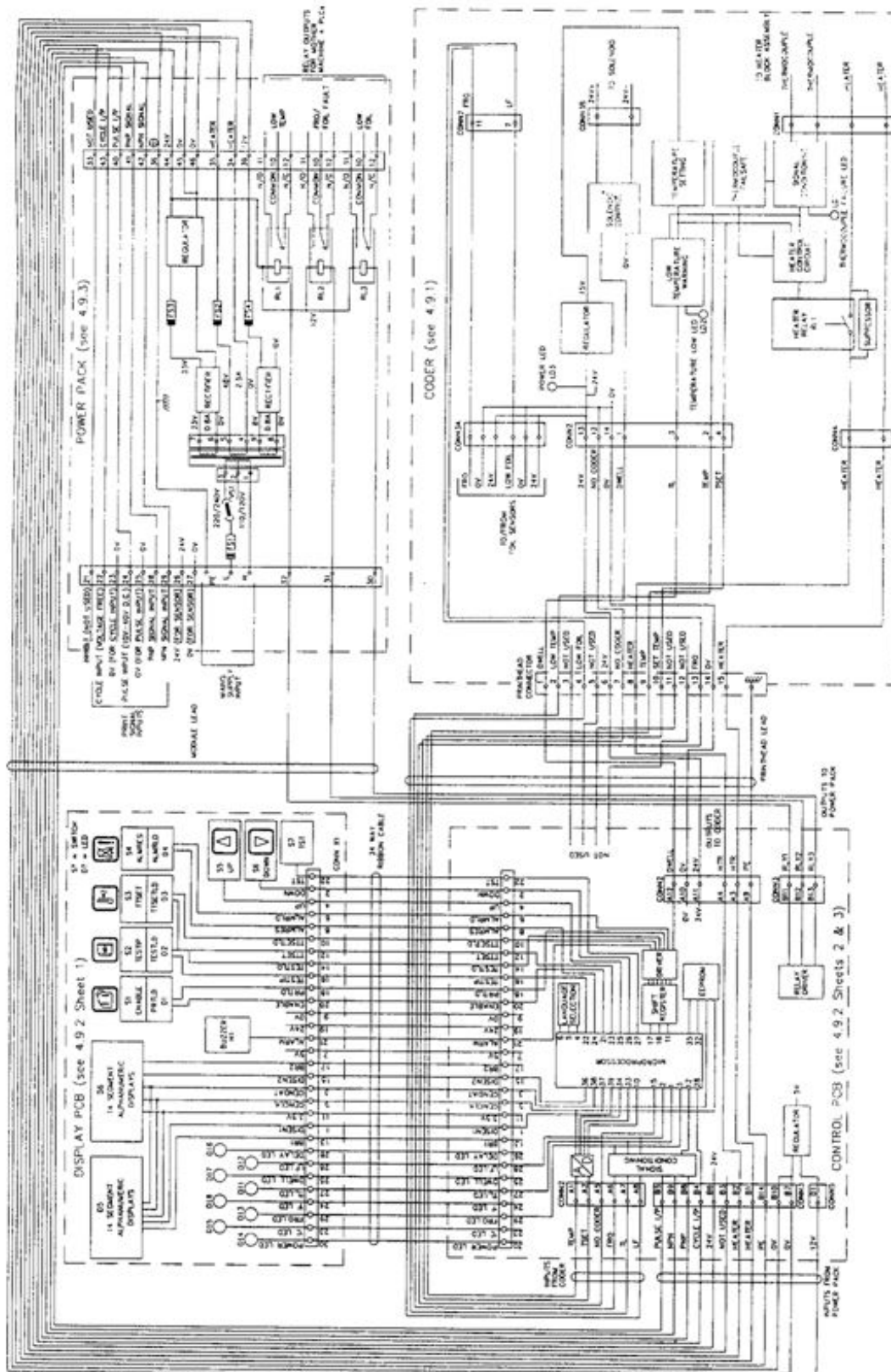
- Ensure that electrical supplies are properly isolated before undertaking any maintenance procedure. The supply should be disconnected by pulling the mains plug.
- During activities and during your absence, secure the device so that no changes may be performed by other persons or situations.
- Electrical and mechanical fault finding must only be undertaken by persons suitably experienced and qualified.
- A notice should be placed at the point of isolation showing:
DANGER - WORK IN PROGRESS!
- All machine covers must be securely fastened and all control, interlock and safety systems re-instated, before returning the unit to service.

CONDITION	POSSIBLE CAUSE	REMEDY
'Power On' LED's on electronic module and coder fail to light	Power supply fault	Check and rectify power supply
	Line fuse FS1 in power pack open circuit	Replace fuse
	Control circuit fuse FS3 in power pack open circuit	Replace fuse
Push-button indicators on electronic module not working but 'Power On' LED's are lit	Control circuit fuse FS4 in power pack open circuit	Replace fuse
Coder heater not working, 'Power On' LED's fail to light but module display is working	Control circuit fuse FS3 in power pack open circuit	Replace fuse
Coder heater not working, but 'Power On' LED's are lit	Heater open circuit	Replace heater
	Heater wiring fault	Check wiring and rectify or replace
	Heater supply fuse FS2 in power pack open circuit	Replace fuse
Thermocouple failure LED on coder is lit	Thermocouple failed	Replace thermocouple
	Thermocouple wiring fault	Check wiring and rectify or replace
Coder does not cycle	No input signal	Check control circuit and signal from controlling machine
	Low air pressure	Check air supply, regulator and air piping, adjust air pressure to 4 bar
	Solenoid valve fault	Check solenoid and wiring, replace solenoid if necessary
Coder operation sluggish	Low air pressure	Check air supply, regulator and air piping, adjust air pressure to 4 bar
	Solenoid valve fault	Check solenoid and wiring, replace solenoid if necessary
	General wear	Return coder unit to ITW Diagraph GmbH for refurbishment

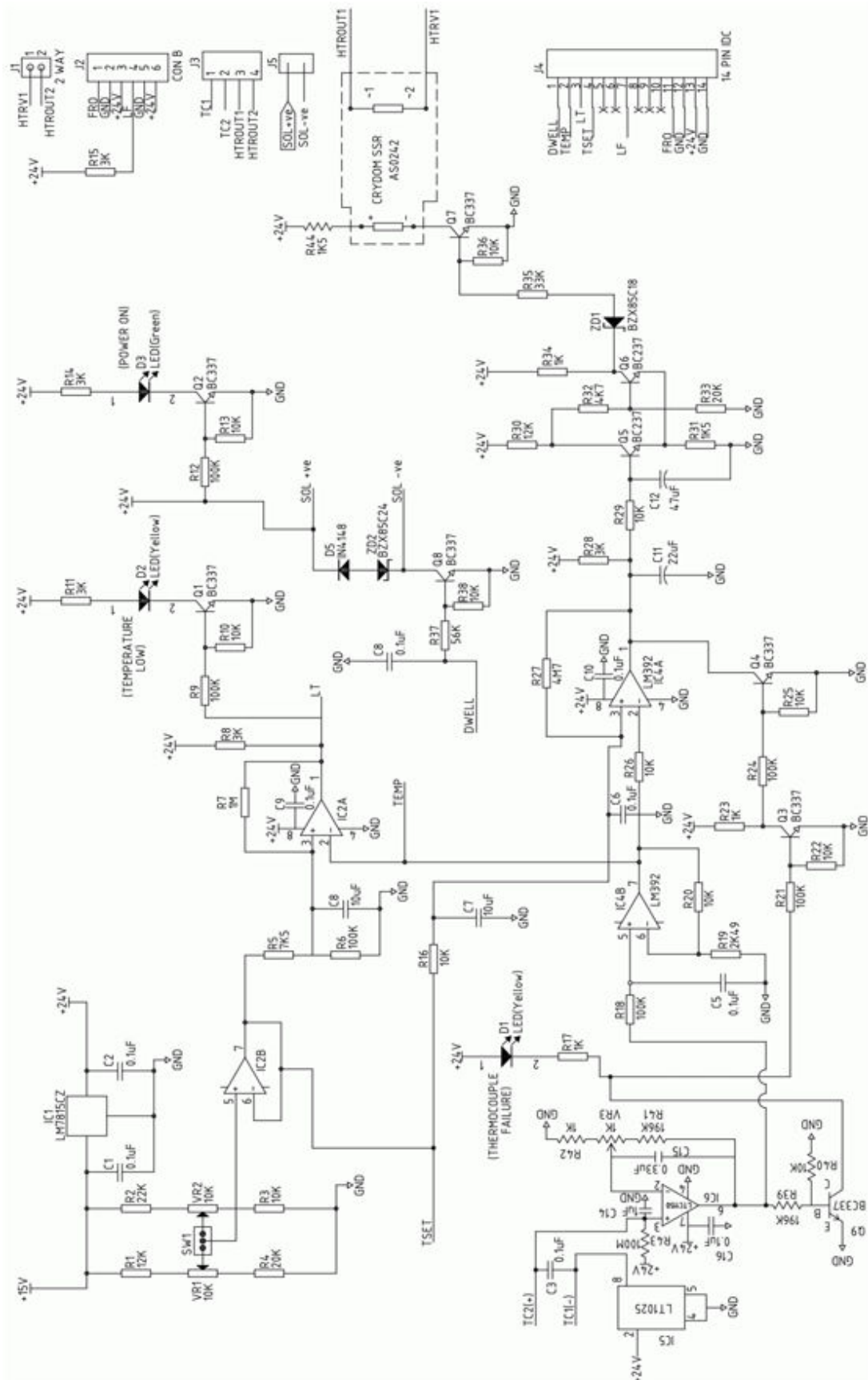
CONDITION	POSSIBLE CAUSE	REMEDY
E-Module display locks out	Cycle switch print signal is continuous	Check print signal is from N/O contact of cycle switch.
Print quality poor	Incorrect foil grade	Change to correct grade of foil for application
	Incorrect temperature	Select correct temperature range, increase or decrease temperature setting to suit application
	Incorrect dwell time	Increase or decrease dwell time to suit application
	Incorrect air supply	Check air supply, regulator and air piping, adjust air pressure to 4 bar
	Print media not correctly supported	Check condition of backing pad, if used.
		Consider using backing pad
	Coder mounting alignment	Check and adjust alignment
	Type characters not level	Check and reset type
	Solenoid valve sticking	Replace solenoid valve
	Input signal fault	Check interlocks, wiring and signal from controlling machine
Foil tracking off	Foil alignment	Check threading of foil through magazine
	Magazine damage	Repair or replace magazine
Foil index inconsistent	Foil drive roller	Clean or replace roller
	Take-up roller	Check fit of cardboard core on roller
	Drive belt	Check drive belt
		Clean drive belt

7.2 Circuit Description

This section contains the schematic diagrams for the coder, electronic module and power pack. The circuits for the unit are not sufficiently complex to warrant a detailed circuit description.

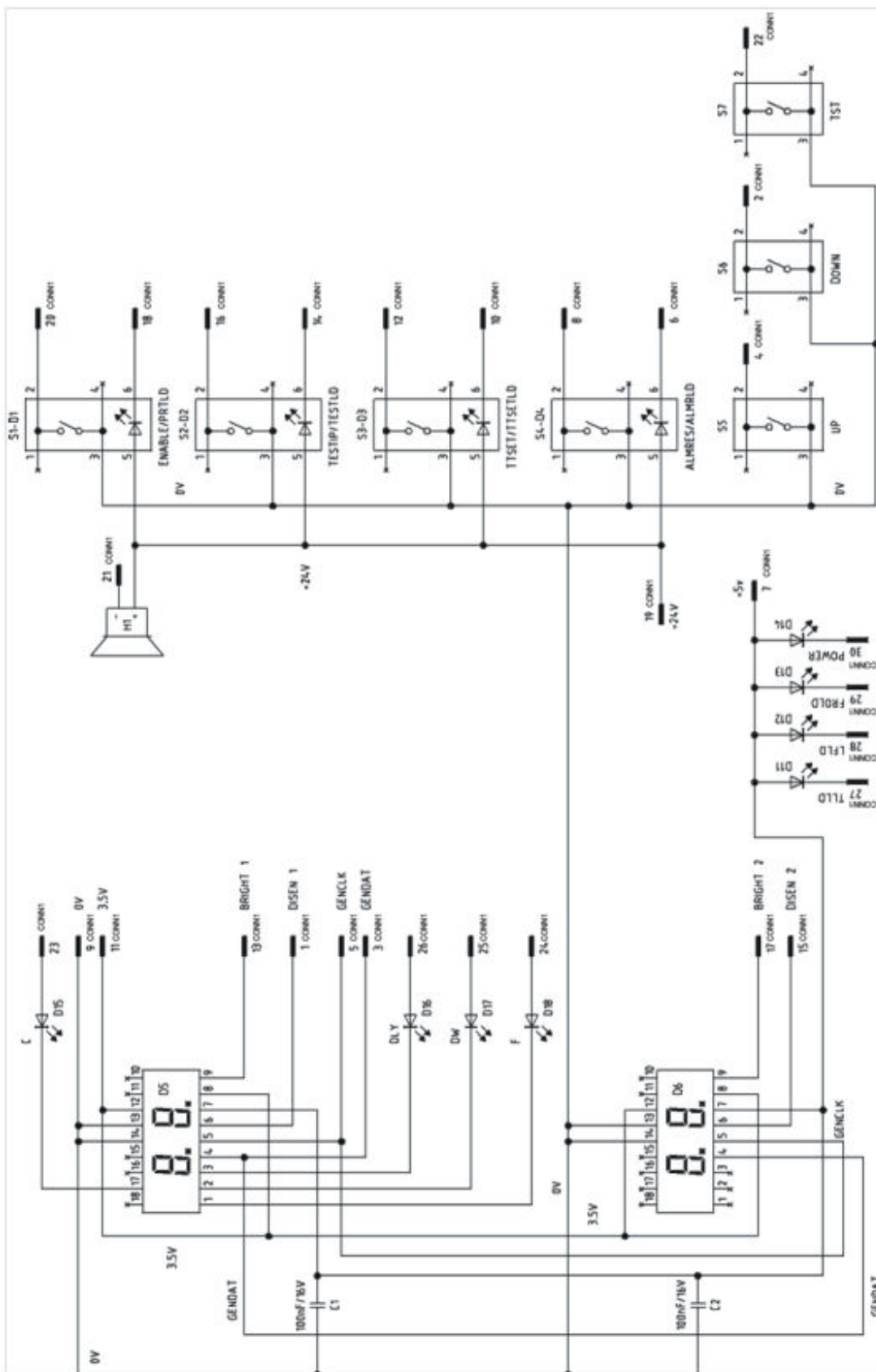


Coder

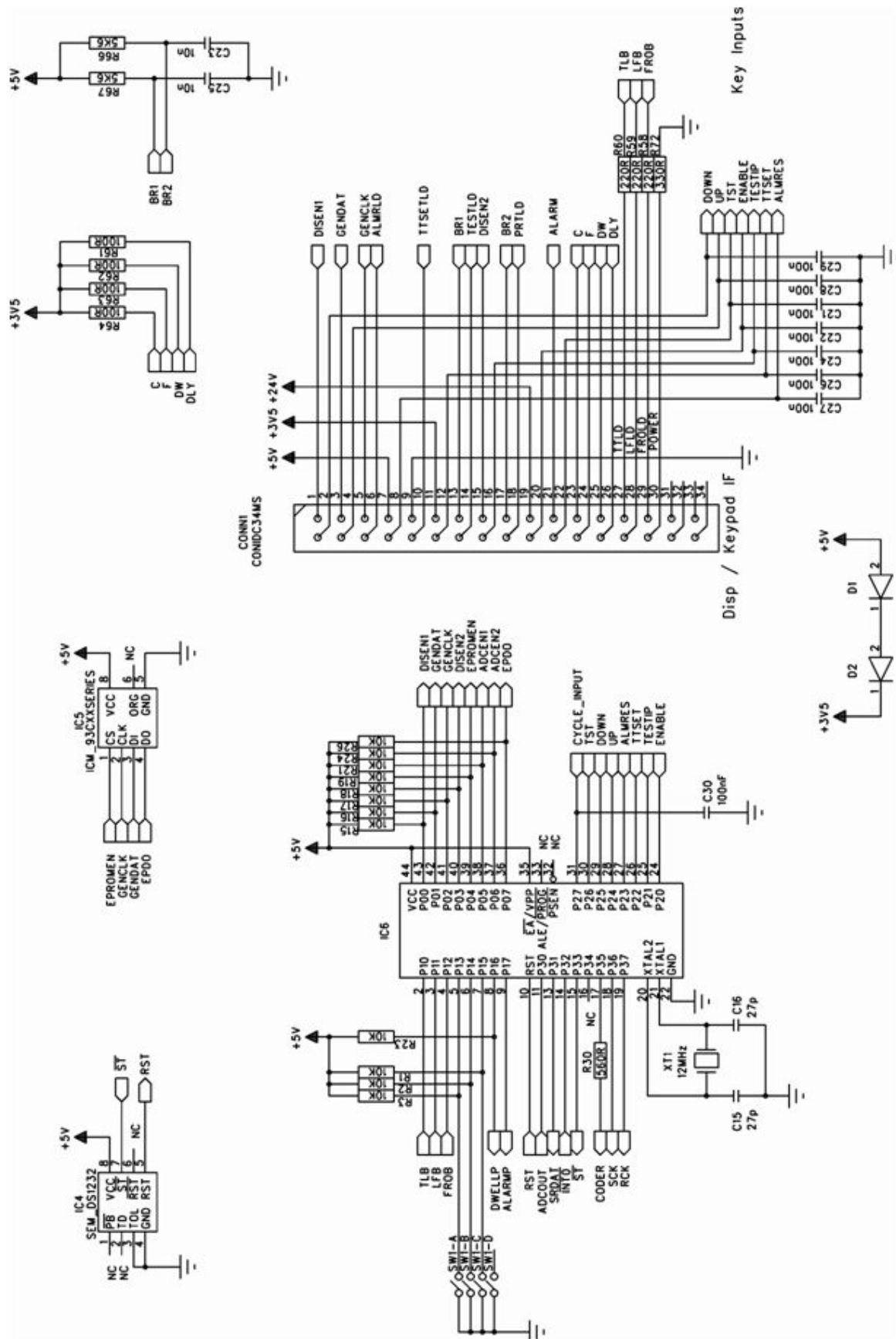


Printhead Schematic

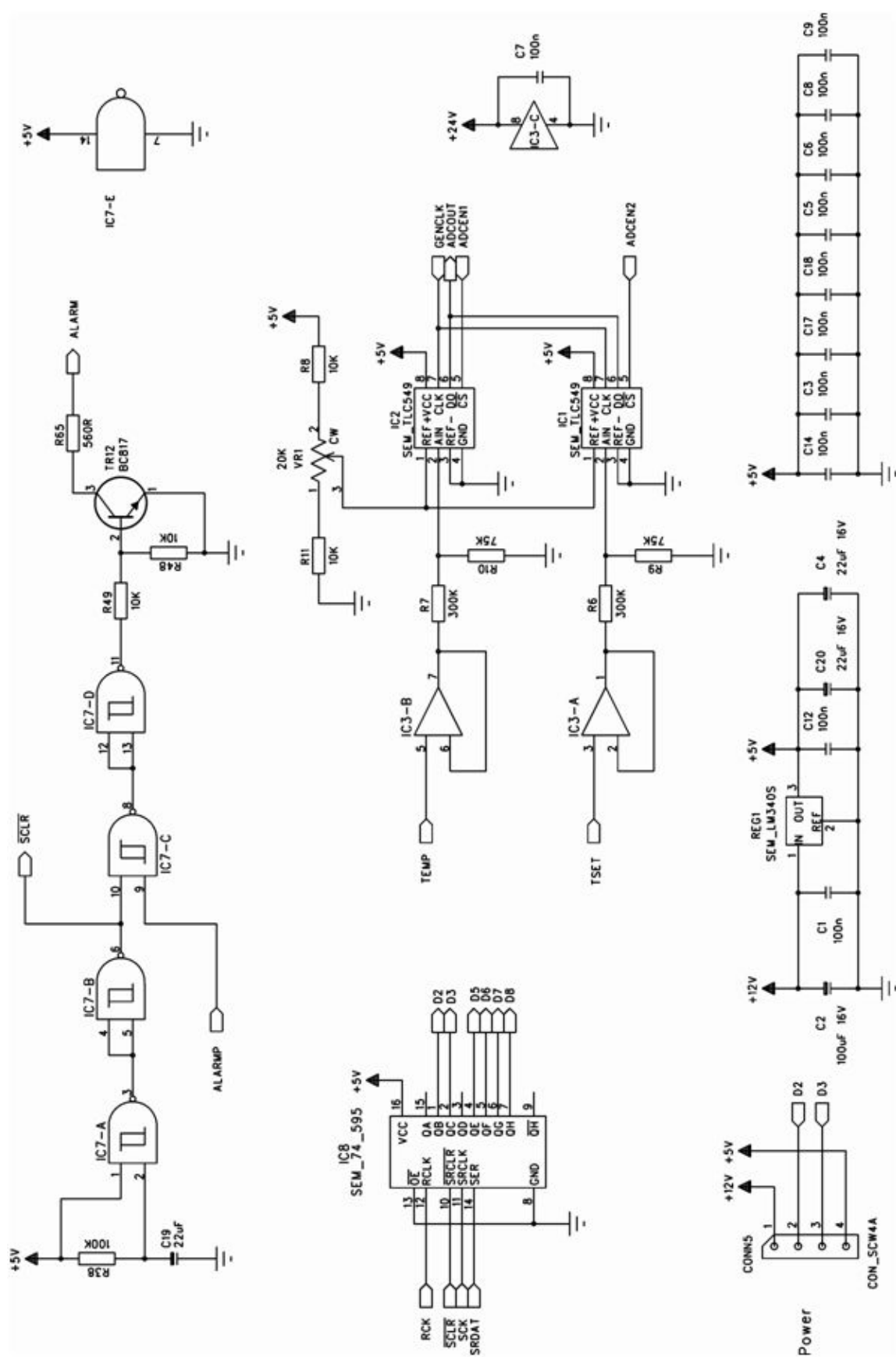
Electronic Module



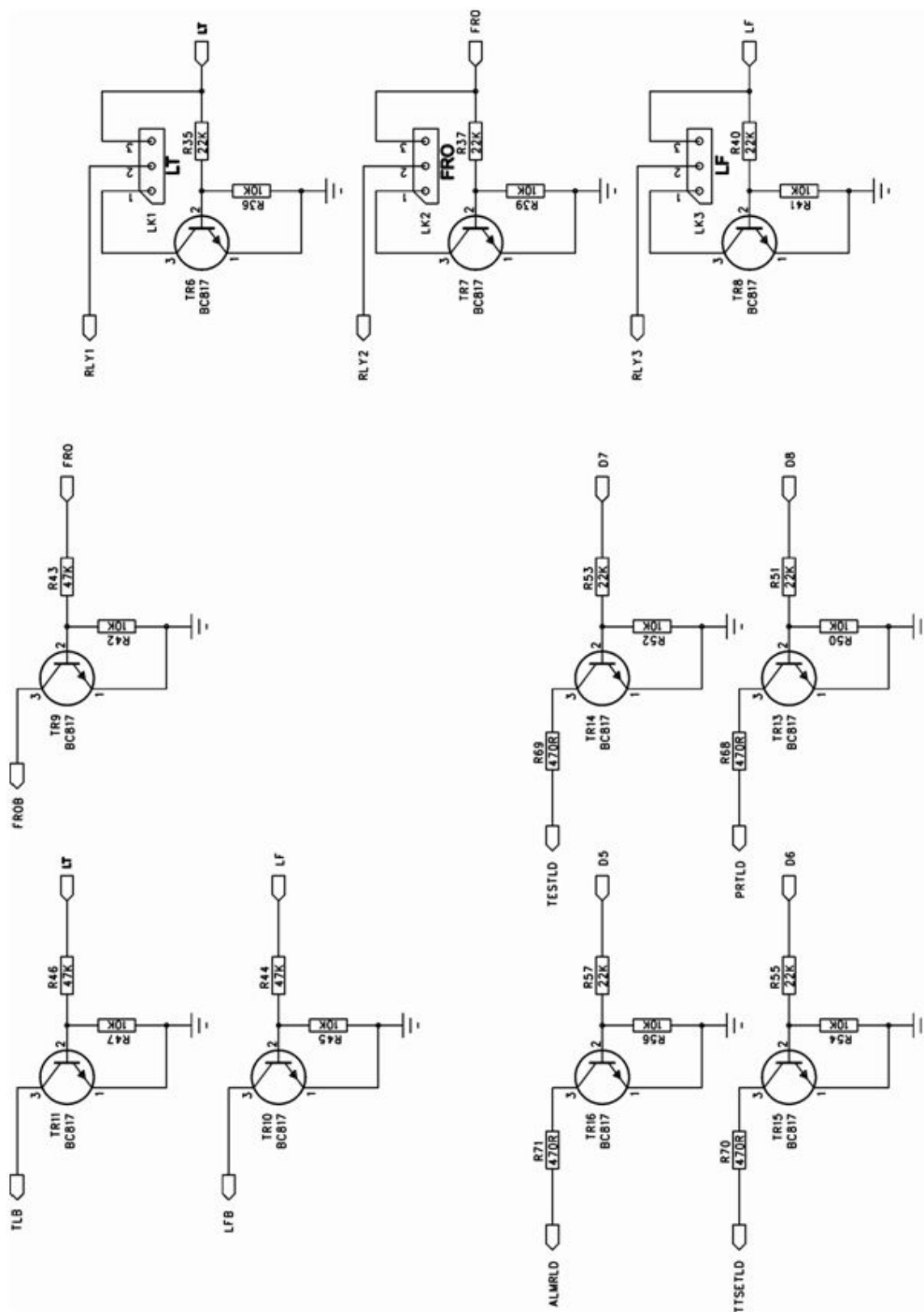
Schematic Diagram for Electronic Module (Front Panel) - Sheet 1



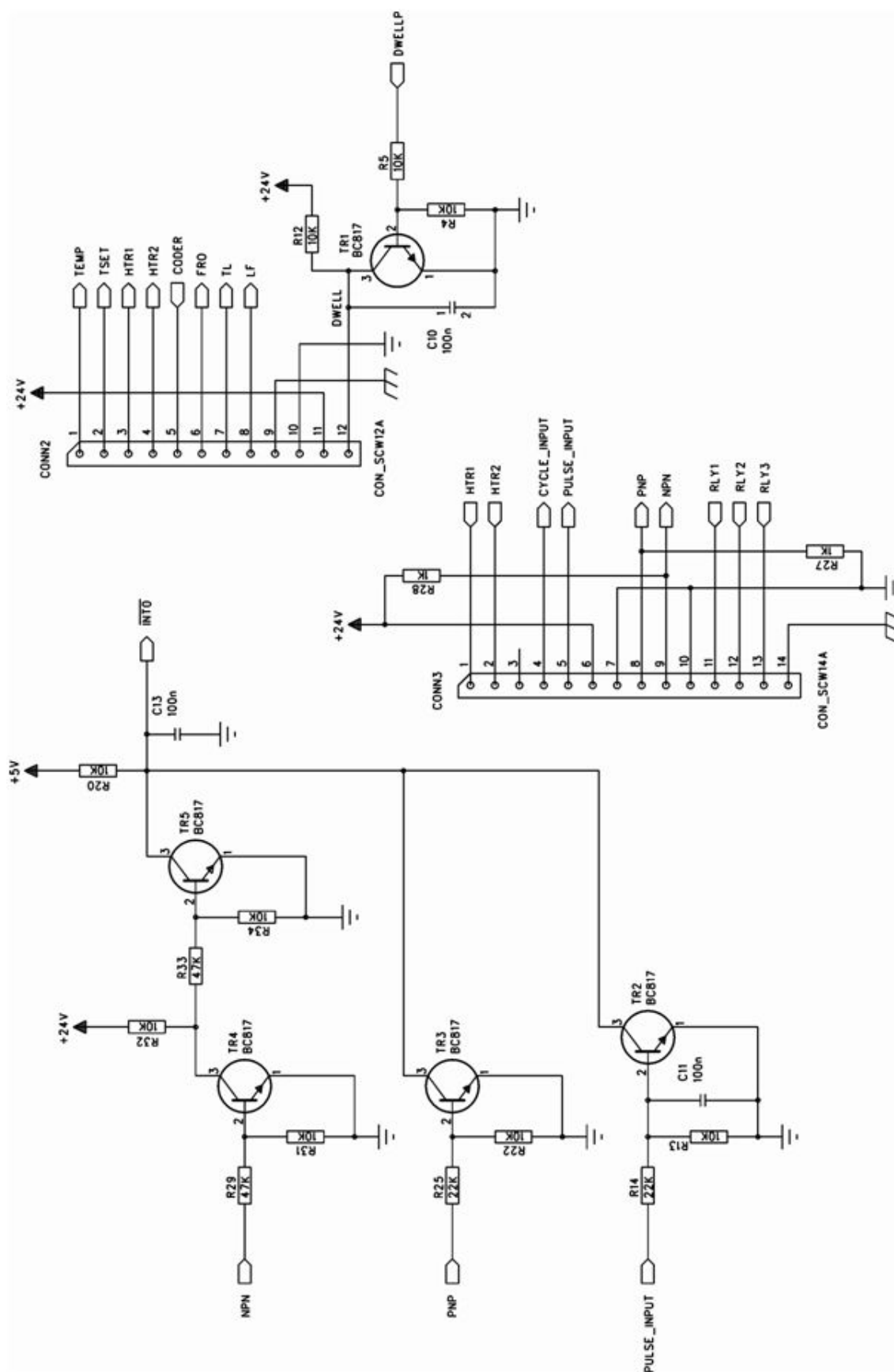
Schematic Diagram for Electronic Module (Front Panel) - Sheet 2



Schematic Diagram for Electronic Module (Front Panel) - Sheet 3

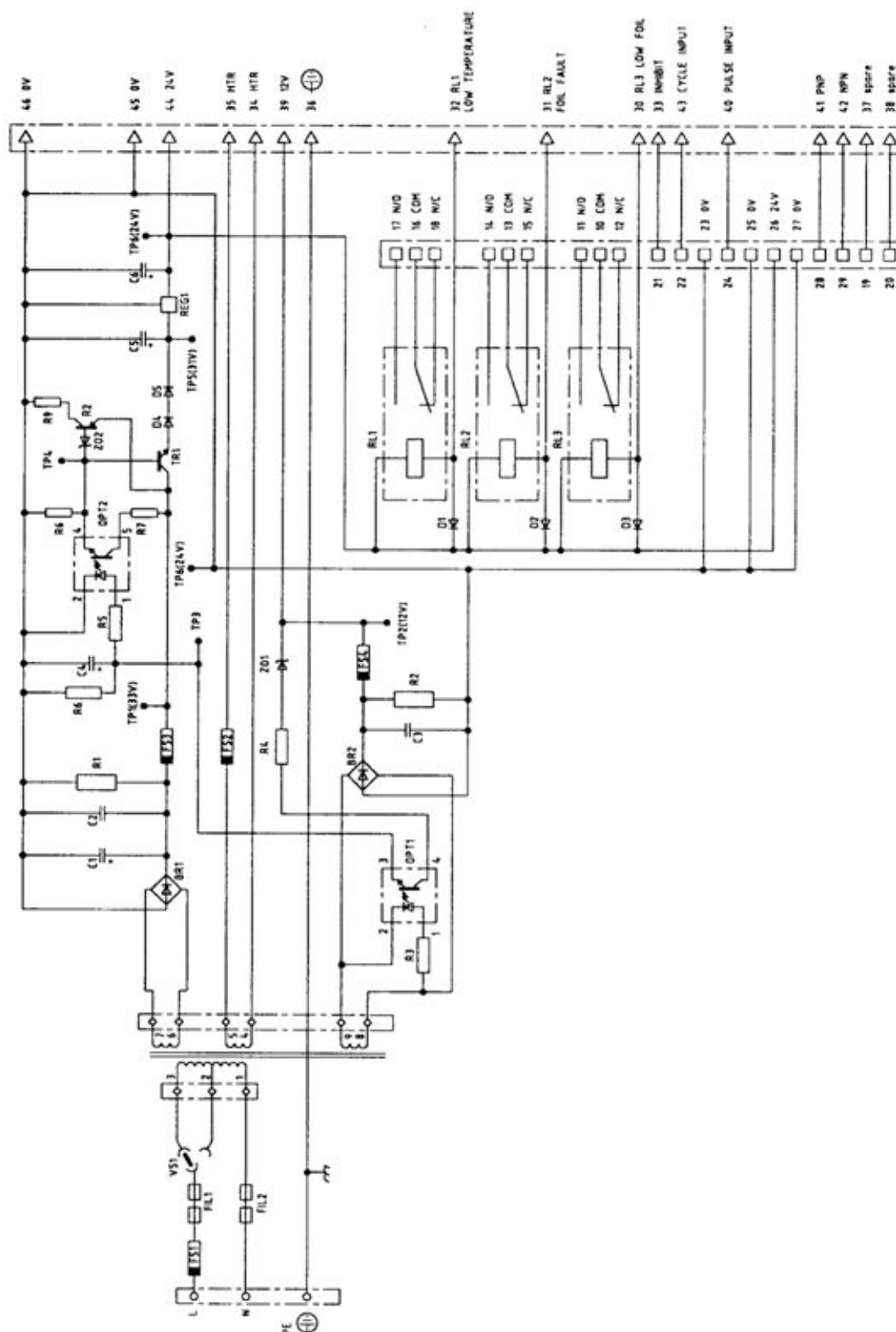


Schematic Diagram for Electronic Module (Front Panel) - Sheet 4



Schematic Diagram for Electronic Module (Front Panel) - Sheet 5

Power Pack



Schematic Diagram for Power Pack with PCB 0.0000.08541

8 Cleaning and Maintenance



CAUTION

Hazards during cleaning and maintenance activities!

Switch off the device during cleaning and maintenance work, otherwise personnel safety may be at risk and damage to the device or other nearby property may result.

- Always deactivate the power supply to the device during cleaning and maintenance activities. Pull the mains plug.
 - During activities and during your absence, secure the device so that no changes may be performed by other persons or situations.
 - Maintenance and cleaning work may only be performed by trained personnel.
 - A notice should be placed at the point of isolation showing:
DANGER – WORK IN PROGRESS
 - All machine covers must be securely fastened and all control, interlock and safety systems re-instated before returning the unit to service.
-



WARNING

Skin burns due to high temperature of type holder and heater block

The heater block and type holder operate at a temperature high enough to cause skin burns if touched.

- Take care to avoid direct contact when removing or inserting a type holder from the heater block.
-

8.1 Cleaning



ATTENTION

Damage to the device due to improper cleaning

Use of improper cleaning methods and the use of incorrect cleaning agents may result in damage to electronic and mechanical components of the device.

- Disconnect the device from the power supply before you begin the cleaning.
 - Follow the cleaning instructions described in the operating manual.
 - Only use cleaning agents specified by the manufacturer.
-

Drive Band and Rubber Roller Cleaning

For greatest efficiency from the Drive Band and Rubber Roller on the Magazines they should be regularly cleaned.

The table below suggests cleaning solutions that may be used, and lists solvents that are not to be used, for further information contact ITW Diagraph GmbH.

CAN BE USED	DO NOT USE
Butane	Acetone
Kerosene	Alcohol
Methylated Spirit	Benzene
Paraffin Oil	Carbon Tetrachloride
Petroleum/Gasoline	MEK
Water	Methanol
	Thinners
	Trichloroethylene

Cleaning intervals, depending on prints per minute and foil index.

CLEANING INTERVALS (IN HOURS)							
		PRINTS PER MINUTE					
		100	200	300	400	500	600
INDEX IN mm (UP TO AND INCLUDING)	5	672	336	336	240	240	168
	10	336	240	168	96	96	72
	15	336	168	96	72	72	48
	20	240	96	72	72	48	48
	25	240	96	68	48	48	24
	30	168	72	48	48	24	24

CLEANING AND MAINTENANCE

8.2 Maintenance

Regular inspection and maintenance intervals are necessary to detect any occurring damage and wear in a timely manner.

The S-Compact Coder has been designed to operate efficiently with the minimum of maintenance attention, however the following schedule is recommended to ensure maximum reliability.

Overview of maintenance activities:

Maintenance interval	Unit	Activity
Daily	Coder and associated components	Visually inspect the coder and associated components for security, vibration, wear and damage. Report any problems to the person responsible for maintenance
Daily	Printing system	During operation regularly check the print quality and efficient use of the foil making adjustments as necessary. Respond to audible and visual alarms as they occur.
Daily	Backing pad	Check the position and condition of the backing pad, adjust the position or replace as necessary.
Daily	Magazine Rubber drive roller	When loading foil, wipe the magazine clean of any dust or debris, paying particular attention to the rubber drive roller.
Weekly	Coder Control unit Power supply, Air service unit External wiring Mountings	Visually check the coder, control unit, power supply, air service unit, external wiring and all mountings. Check for security, vibration, wear and damage rectifying any problems that may be found.
Weekly	Air service unit	Drain by pressing the manual drain valve in the bottom of the bowl. The frequency of draining the air service unit will depend on the quality of the air supply.
Monthly	Printing system	A full maintenance inspection should be carried out by a suitably qualified and experienced maintenance technician.
Monthly	Printing system	Check internal connections and fasteners, particularly within the coder. Correct any faults found.
Monthly	Printing system	Check the operation of the relays and alarm sensors, making adjustments as necessary.

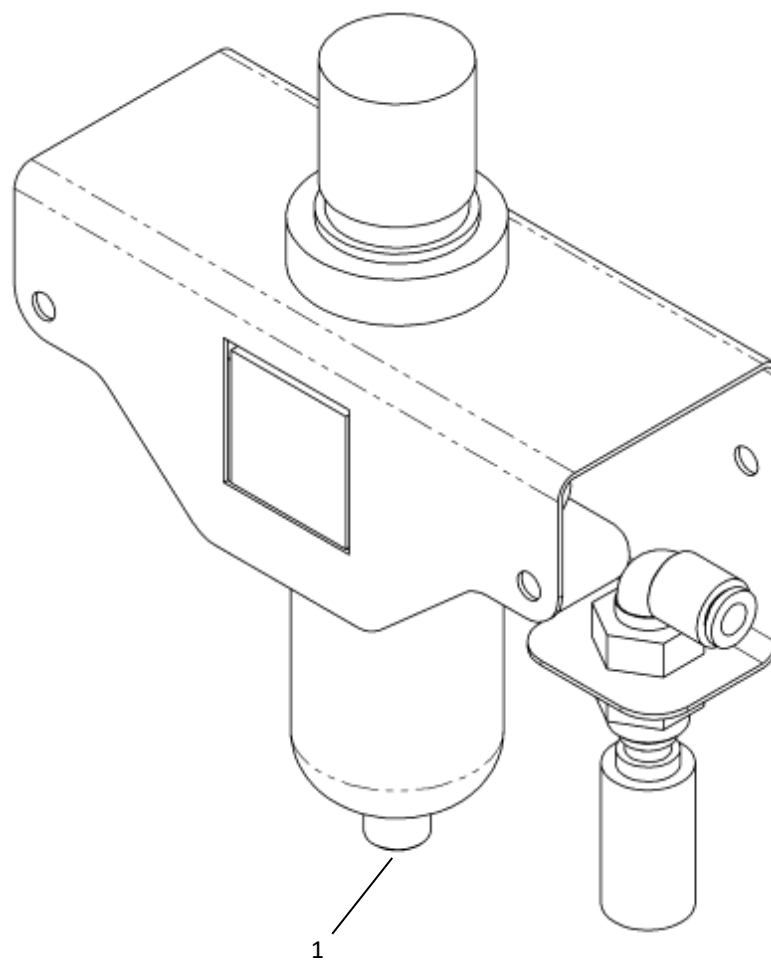
Lubrication

No specific lubrication is required.

Air Service Unit Draining**NOTE****Draining of air service unit**

Before draining the air service unit, ensure that the air supply to the unit is turned off.

The illustration shows the position of the manual drain valve for the pressure regulator bowl. During routine weekly, or at some different time interval determined by operating experience, the maintenance technician should press on the valve to drain the bowl.



1	MANUAL DRAIN VALVE
---	--------------------

9 Maintenance

9.1 Spare parts

Refer to the Spare Parts List under “*Spare parts*” in the Appendix.

9.2 Service address

Germany

ITW Diagraph GmbH
Service Department
Friedrich-Bergius-Ring 30
D-97076 Würzburg
Tel.: +49 931 250 76 - 911
Fax +49 931 250 76 – 50
Email: support@diagraph.de

Website: www.diagraph.de



NOTE

Important information in case of defects

In case of defects in equipment, please provide the following information:

- Serial number
 - Equipment type
 - Description of fault
 - Software- / Firmware-version
 - Any affected components/assemblies
-

10 Transport and storage

10.1 Transport



WARNUNG

Hazard due to improper securing of load

Improper securing of the device during transport can result in unpredictable hazards to persons and/or property damage.

- Secure the device in accordance with instructions.
 - Note also the weight information on the device provided in the Operating Manual.
 - Have the device transported by a company skilled in the process.
-

10.2 Storage

Store the device only under the stated, permissible ambient conditions of temperature and humidity. Relevant information is found in this operating manual under “***Ambient conditions***”. Protect the device against dust and dirt.

11 Disposal

The device consists of various materials which can be recycled and which have to be disposed of separately.

In the event of disposal of the device, follow the relevant legal guidelines. Since the disposal guidelines may differ from country to country, please consult with your supplier as necessary.

Notes to disposal:

- Material types should be disposed of separately. The objective should always be an environmentally compatible disposal which ensures maximum recycling of materials.
- Observe the material and disposal instructions that may be present on certain individual parts.
- Make use of the opportunity to return materials to the manufacturer or supplier.

Appendix

EC-Compliance Statement

EC-Declaration of Conformity

Printer S-Compact 50/30

EC-Declaration of Conformity

according to EC machinery directive 2006/42/EC, Annex II A
(Translation of the EC Declaration of Conformity)

Hereby we declare that the machine named in the following adheres to the basic safety and health requirements of the EC guideline 2006/42/EC in regards to its concept, design and version that is marketed by us. Changes that have not been coordinated with us will invalidate this declaration.

Manufacturer

ITW Diagraph GmbH
Friedrich-Bergius-Ring 30
D-97076 Würzburg

Direct: +49 931 250 76-0
Fax: +49 931 250 76-50
E-Mail: info@diagraph.de
Website: www.diagraph.de

Machine description

Function: Hot Foil Printing System S-Compact 50/30
Type/Model: S-Compact 50/30
Serial number: 5030Lxxxxxx
Year of construction: 2022

The conformity with addition guidelines/regulations that apply to the machine is declared

2014/30/EU (EC-EMC-Directive);
The guideline 2014/35/EU was adhered to in regards to its protection objectives;
(s. Annex, No. 1.5.1 of guideline 2006/42/EC)

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The conformity of the named machine with the rules of the EC guidelines named above is proved by conformity with the following standards:

Applied harmonized standards:

EN ISO 12100:2010;
EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013;
EN ISO 13857:2008; EN 349:1993 + A1:2008;
EN ISO 13732-1:2008;
EN61000-6-2:2005; EN 61000-6-4:2007 + A1:2011;
EN 61000-3-2:2014; EN 61000-3-3:2013;

Additional applied standards:

Authorized person for the technical documentation

Dirk Beseke, Friedrich-Bergius-Ring 30 / D-97076 Würzburg
(Name, Address)

Details of signatory person

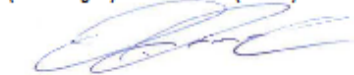
Thomas Franzke Sr. Product Specialist
(Name of signer) (Position)



Signature

Würzburg, 06.07.2021
(Place, Date)

James Hammond Services / Operations Manager
(Name of signer) (Position)



Signature

Würzburg, 06.07.2021
(Place, Date)

ITW Diagraph GmbH
Friedrich-Bergius-Ring 30
D-97076 Würzburg

Tel. +49 931 250 76-0
Fax +49 931 250 76-50

info@diagraph.de
www.diagraph.de

Page 1 / 1
Version: V1.06
Stand: 06.Jul 2021

Spare parts

This Section provides an illustrated parts list for the S-Compact Coder.

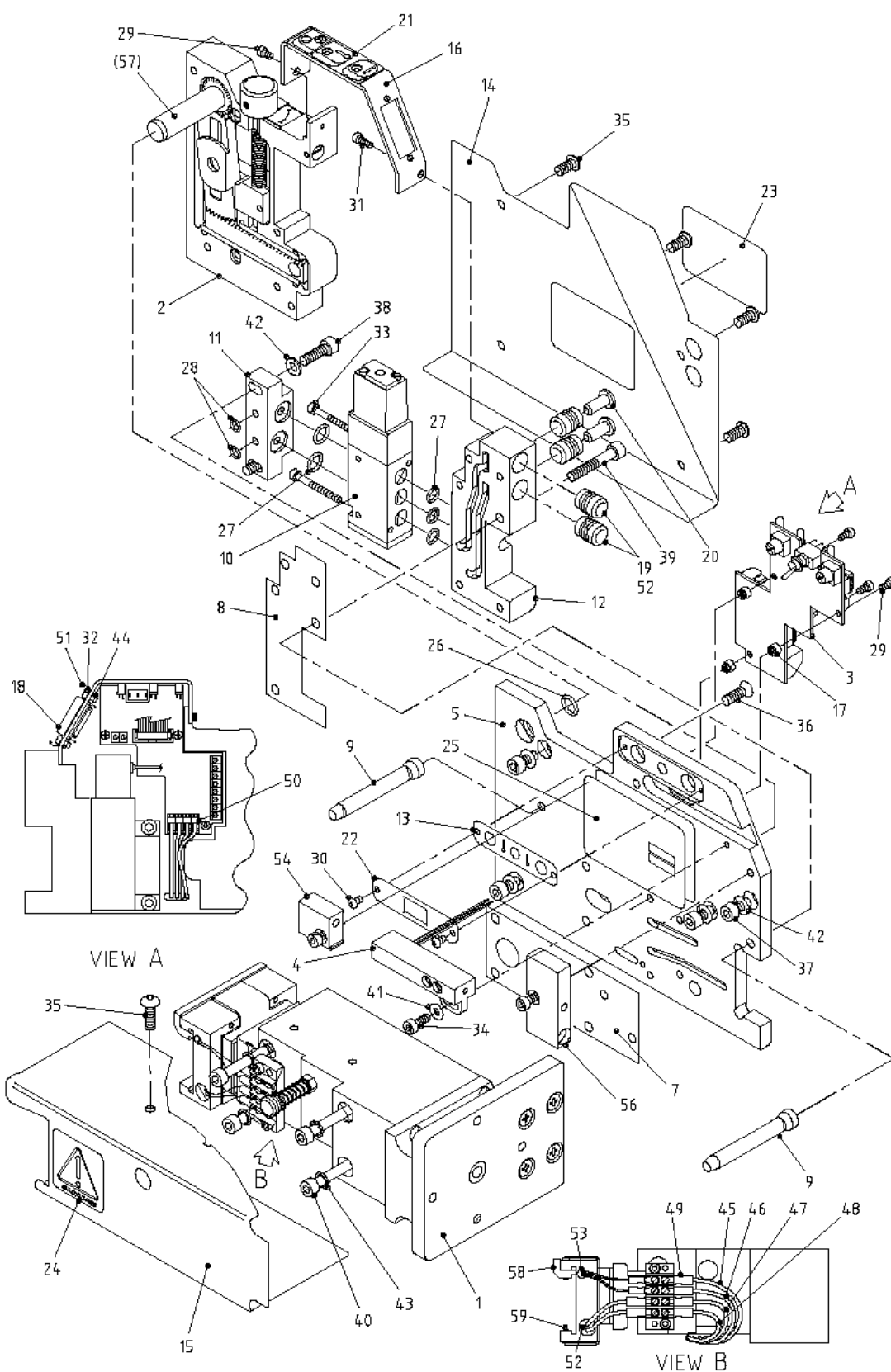
For each of the major units, details are provided in the form of a list, providing part numbers for recommended spares, description and total quantity used per assembly. This list is referenced, by item numbers, to the accompanying illustration.

Orders for replacement parts should include the coder model type name and serial number, the required part number, description and quantity.

For printing accessories, i.e. type holder, types and hot printing foil, please contact your local distributor of ITW Diagraph GmbH.

Orders for type holders should additionally include a drawing or a description of the desired layout and the type in use.

Coder Body: Part No.: 0.G000.08620



APPENDIX

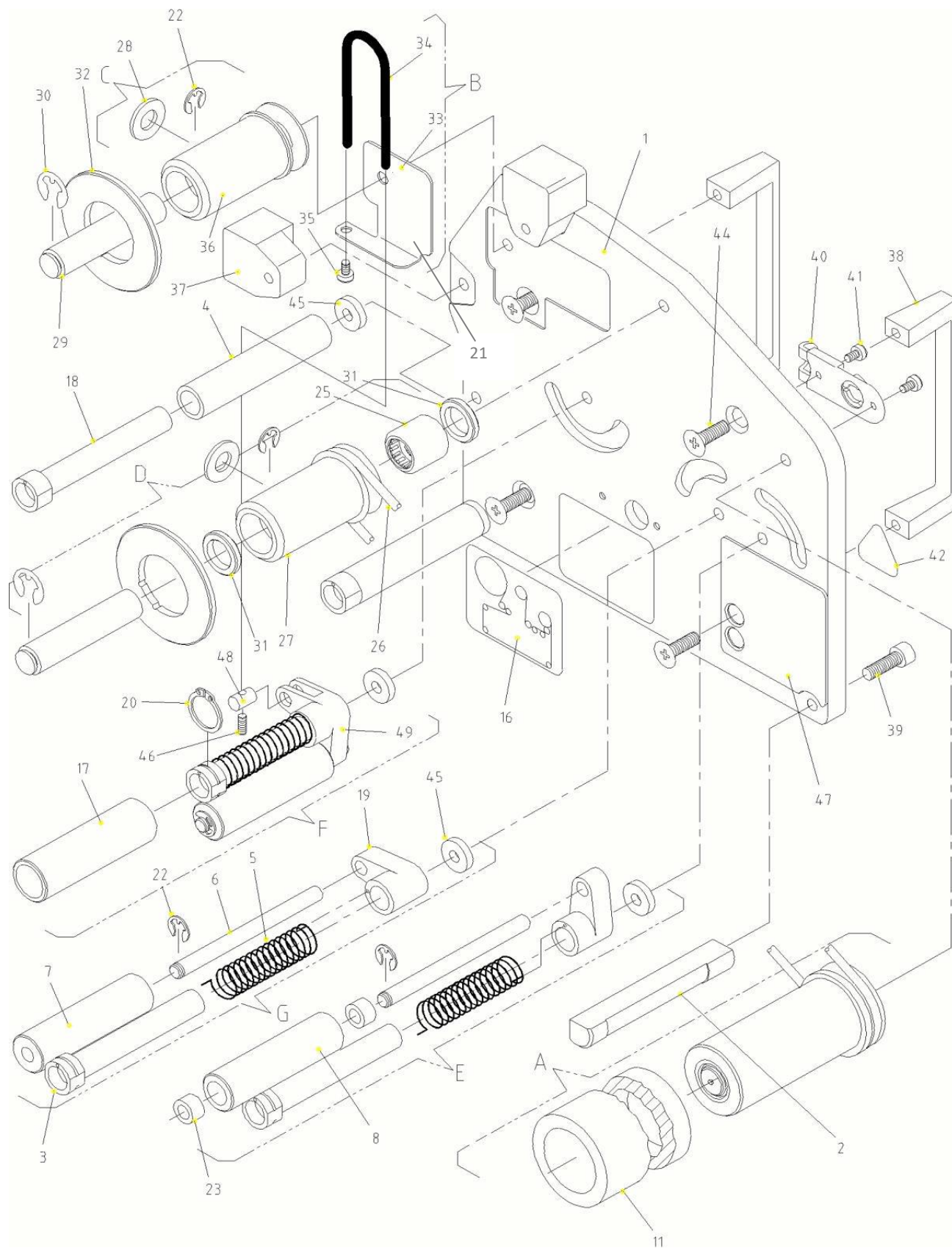
Coder Body Parts List

No.	Art.-number	Description	Quantity
1	0.0000.08625	Cylinder and Heater Block Assembly	1
2	0.0000.08590	Tape Index Assembly	1
3	0.0000.08644	PCB Print Head	1
4	0.0000.K1037	Low Foil Sensor	1
5	0.0000.08580	Main Plate	1
7	0.0000.08675	Gasket and Seal Set	1
9	0.0000.08575	Stub for Magazine Location	2
10	0.0000.08672	Solenoid Valve	1
11	0.0000.08576	Valve Manifold Block	1
12	0.0000.09953	Rear Manifold Block Fabrication	1
13	0.0000.08647	Label for Heat Settings	1
14	0.0000.08579	Back Cover	1
15	0.0000.08629	Guard for Heater Block	1
16	0.0000.08570	Socket Mounting U-Piece	1
17	0.0000.08577	Support Pillar for PCB	3
18	1.0001.08682	Connection plug assembly including cable	1
19	0.0000.08565	Air Fitting Cartridge	4
20	0.0000.08574	Air Fitting Plug	2
21	0.0000.08646	Label for LED Indicators	1
22	0.0000.08578	Potentiometer Cover Plate	1
23	0.0000.03987	Label for High Voltage Warning	1
24	3.0000.30386	Label for 'Hot' Warning	1
26	0.0000.02211	O-Ring 12 id x 2.5mm	1
27	0.0000.02207	O-Ring 8 id x 2mm	3
28	0.0000.02209	O-Ring 4 id x 2mm	2
29	100228	Screw M3 x 5 Socket Cap	5
30	0.0000.02552	Screw M3 x 5 Pozi Pan	2
32	100019	Screw M3 x 8 Socket Cap	2
33	0.0000.02623	Screw M3 x 30 Socket Cap	2
34	100197	Screw M4 x 10 Socket Cap	1
35	100020	Screw M5 x 10 Socket Button	6
36	100278	Screw M5 x 12 Countersunk Pozi	1
37	100074	Screw M5 x 12 Socket Cap	5
38	100227	Screw M5 x 18 Socket Cap	2
39	100078	Screw M5 x 30 Socket Cap	1
40	100083	Screw M5 x 60 Socket Cap	4

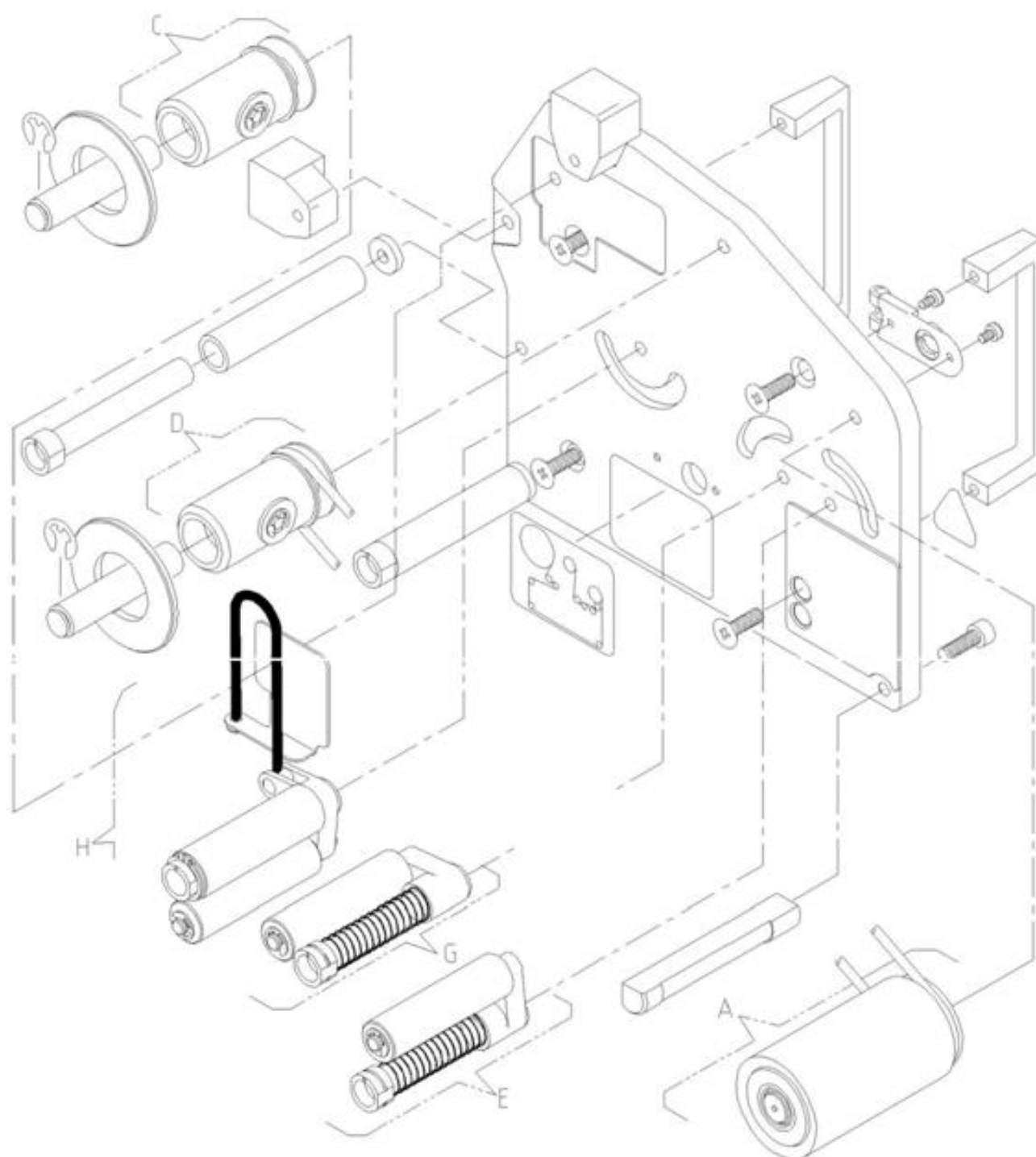
41	100198	Washer M4	1
42	100027	Washer M5	2
43	100033	Washer M5 Shakeproof	15
44	100036	Nut M3	2
51	0.0000.08662	L-Clip, Retaining Clip for Power Socket	2
52	0.0000.08669	Heater	1
53	3.0001.08670	Thermocouple	1
54	0.0000.08812	Foil Support Block 25/50mm	1
56	0.0000.08811	Foil Support Block 25/50mm	1
57	0.0000.08961	Stub Fabrication (part of item 2)	1
58	0.0000.08861	Heater Block Insert Bar	1
59	0.0000.08967	Detent Set	1
Additional Spares and Spares Assemblies			
45 46 47 48	0.0000.K0667	Lead Fabn Set Flexible 50/35 (Items 45-48)	1
--	0.0000.08893	Heater Block Assembly	1
--	0.0000.02197	Slotted Foil Index Gear – LH (part of item 2)	1
--	0.0A00.K0195	Collet for Air Fitting (part of item 19)	-
--	0.0A00.K0196	O-Ring for Air Fitting (part of item 19)	-
--	0.0000.08671	Micro switch (FRO)	1
--	0.0000.08582	Lower Bearing Strip (part of item 2)	1
--	0.0000.08583	Upper Bearing Strip (part of item 2)	1
--	0.0000.08584	Foil Index Rack (part of item 2)	1

APPENDIX

Magazine 305m: Part No.: 0.0000.08530



Sub-assembly details



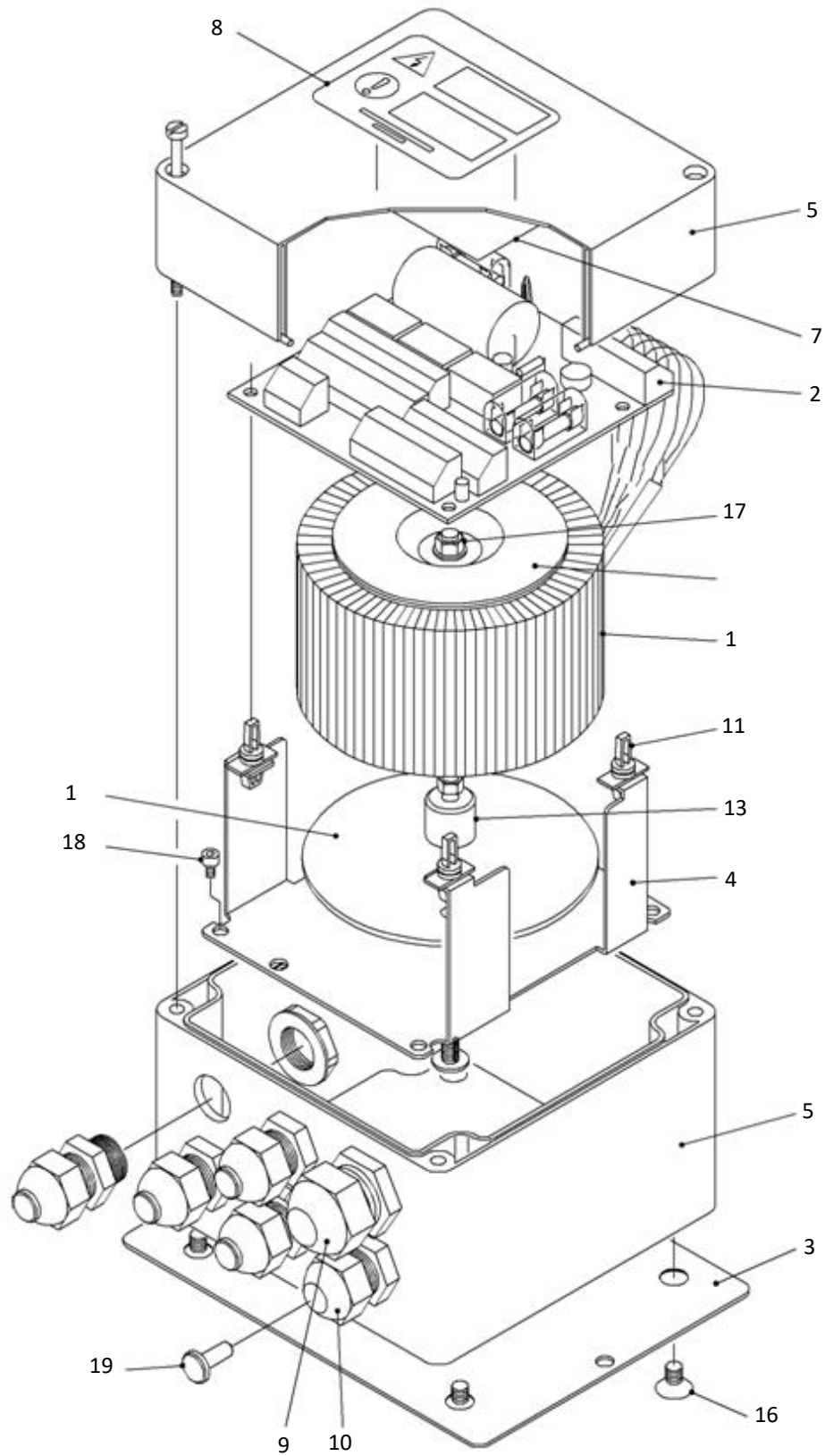
APPENDIX

Magazine 305m Parts List

No.	Art.-number	Description	Quantity
1	0.0000.08532	Magazine Plate	1
2	0.0000.08522	Foil Guide Stub	1
3	0.0000.08521	Sprung Arm Stub	5
4	0.0000.08520	Magazine Roller Sleeve	2
5	0.0000.08519	Nip Roller Spring	3
6	0.0000.08518	Nip Roller Rod	3
7	0.0000.08517	Roller Sleeve	2
8	0.0000.08516	Nip Roller Sleeve	1
11	3.0000.08524	Drive Roller Sleeve Rubber	1
16	0.0000.08531	Foil Route Nameplate	1
17	0.0000.08533	Sprung Arm Sleeve	1
18		Siehe Position 3	
19	0.0000.08535	Sprung Roller Arm	2
20	0.0000.08537	Circlip	1
21	0.0000.08538	Sensor Reflector	1
22	100061	E-Clip	5
23	N.0000.00322	Bearing Bush	2
25	0.0000.02263	Roller Clutch	3
26	0.0000.07966	Drive Band (Poly cord)	1
27	0.0000.08155	Take-up Roller	1
28	0.0000.K1002	Washer M8	2
29	0.0000.04241	Roller Stub	2
30	0.0000.02261	E-Clip	3
31	0.0000.08154	Thrust Washer	2
32	0.0000.04158	Foil Support Disc	2
33	0.0000.K0764	Tension Spring L-Piece	1
34	3.0000.K0763	Extension Spring	1
35	0.0000.02551	Screw M4 x 6 Pozi Pan	1
36	0.0000.05273	Feed-off Roller (cf. Pos. C)	1
37	0.0000.08808	Foil support block	2
38	0.0000.08697	Magazine Handle	2
39	100075	Screw M5 x 16 Socket Cap	11
40	0.0000.M1767	Magazine Latch	1
41	0.0000.02552	Screw M3 x 5 Pozi Pan	2
42	3.0000.30386	Label Caution Hot	1
44	3.0000.07469	Screw M5 x 16 Countersunk Pozi	4
45	0.0000.02255	Stub Spacing Washer	6
46	0.0000.02632	M4x12 Socket Set Screw	1
47	0.0000.08873	Cut-out Guard	1

No.	Art.-number	Description	Quantity
48	0.0000.K0766	Pivot spring	1
49	0.0000.K0767	Arm-Sprung Roller Pivot	1
		Additional Spares and Spares Assemblies	
A	0.0000.08668	Rubber Drive Roller	
B	0.0000.K0769	Tension Spring Assembly	
C	0.0000.05274	Feed-off Roller Assembly	
D	0.0000.07967	Take-up Roller Assembly	
E	0.0000.K0175	Nip Roller Assembly	
F	0.0000.K0771	Sprung Roller Assembly	
G	0.0000.K0760	Mag Roller Assembly	
H	0.0000.K0774	Assembly-Sprung Roller-Brake Tension	

Power Pack: Part No.: 0.0000.08540

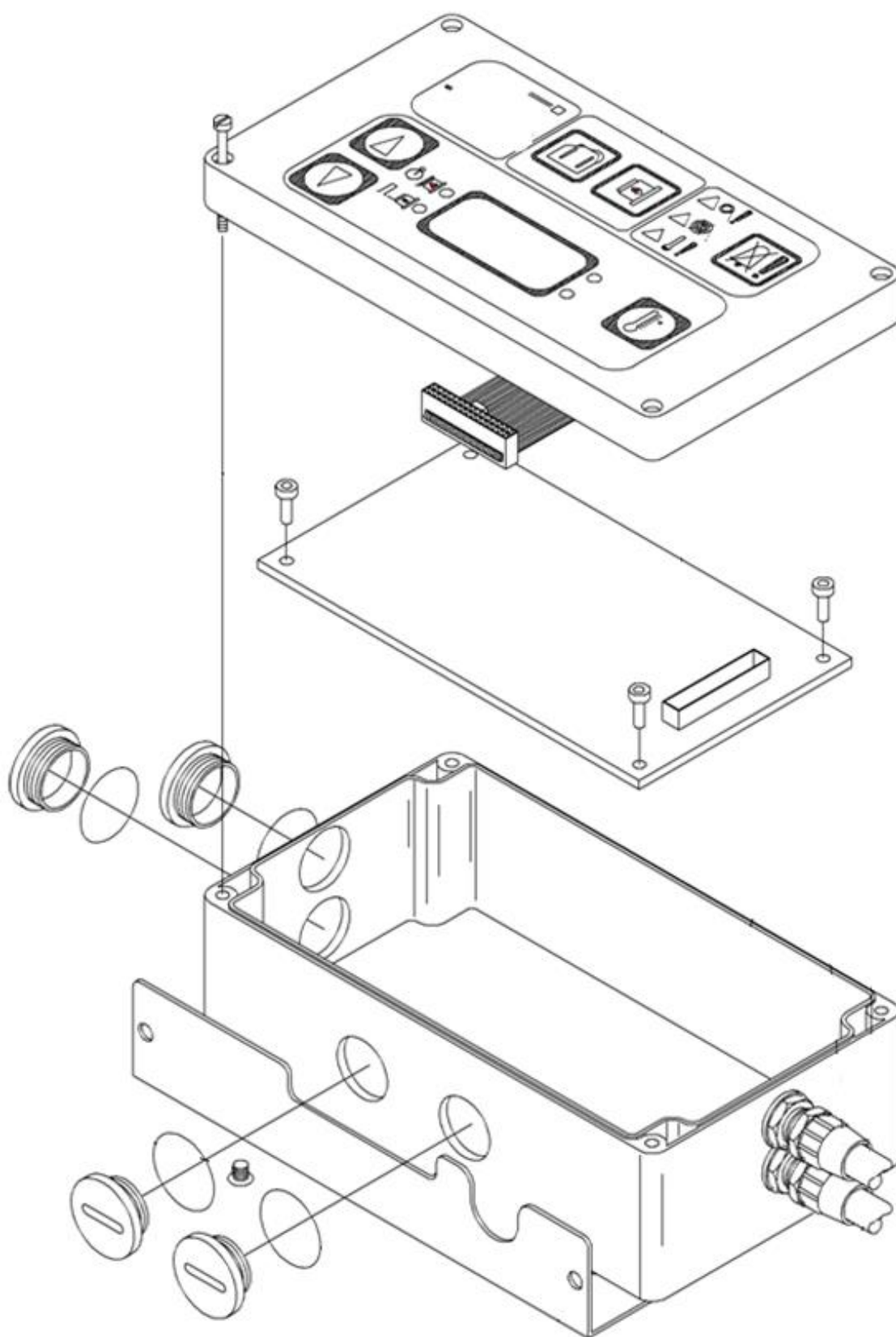


Power Pack Parts List

No.	Art.-number	Description	Quantity
1	0.0000.08712	Transformer	1
2	0.0000.08541	Power Pack PCB	1
3	0.0000.08542	Base Plate for Power Pack	1
4	0.0000.08543	Chassis U-Piece	1
5	100335	Box	1
7	0.0000.K0252	Label for Power Pack Wiring Used with PCB 0.0000.08541	
9	0.0000.08547	Cable Gland IP68 PG13.5	1
10	0.0000.07137	Cable Gland IP68 PG9	4
11	0.0000.07787	Support for PCB	4
13	0.0000.03473	Spacer Sleeve	1
16	100314	Screw M5 x 8 Countersunk Pozi	4
17	100037	Nut M5	2
18	100228	Screw M3 x 5 Socket Cap	4
	0.0000.K0276	Fuse Set ('Plug-in' fuses.) Use with PCB 0.0000.08541	1

APPENDIX

Electronic Module: Part No.: 0.0000.08705



Air Service Unit Part No.: 3.0000.08564

