EM binder labels. 30mm Halfwidth *Note! This page is generated **automatically**. using the **variable definitions** made in the **front page** file!!*

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Issue 2002-05 Doc No. EM-81705-0101

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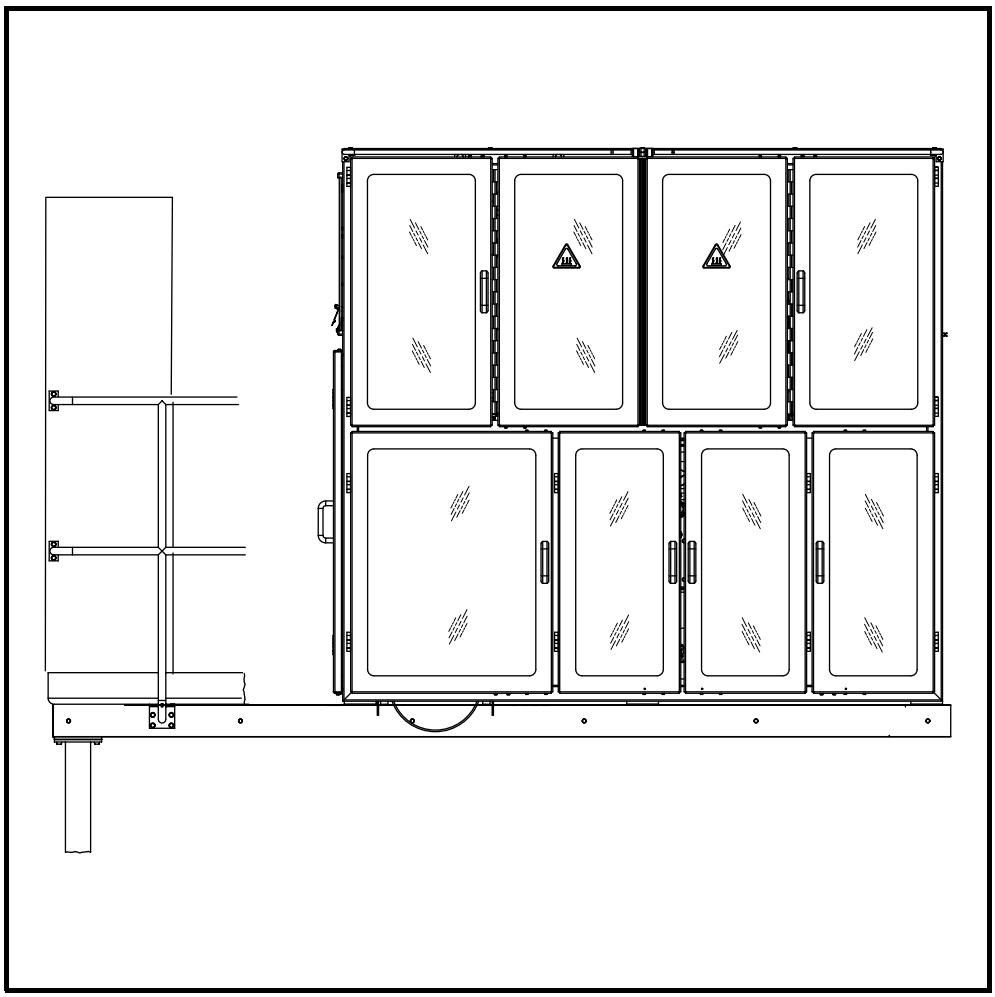
EM

Electrical Manual

PullTab Unit PT8



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Tetra Pak

Doc No. EM-81705-0101

This document is valid for:

Series No/ Machine No Sign.

PullTab Unit
PT8
649456-0200

El. ECM:
30585

Valid from Machine Series No.:

EM3.081705011fro.fm

Issue 2002-05

Doc No. EM-81705-0101

Tetra Pak

Tetra Pak Carton Ambient

1 Introduction

To ensure maximum safety, always read the *Safety precautions* section before doing any work on the equipment or making any adjustments.

Table of contents

Equipment information

Purpose

The purpose of this Tetra Pak equipment is to pack liquid food products.

Manufacturer

This Tetra Pak equipment has been manufactured by:

Tetra Pak Carton Ambient AB
Ruben Rausings gata
221 86 LUND
Sweden

or by:

Tetra Pak Carton Ambient S.p.A.
Via Delfini 1
411 00 MODENA
Italy

Service

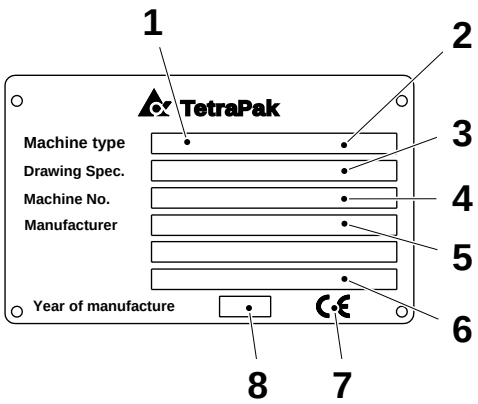
Contact the nearest Tetra Pak service station.

Identification

The figure shows an example of the equipment sign. The sign carries data needed when contacting Tetra Pak concerning this specific equipment.

CE marking

This equipment complies with the basic health and safety regulations of the European Economic Area (EEA).



1 Machine type
2 Volume
3 Drawing specifications
4 Machine serial number
5 Manufacturer
6 (Designed by)
7 CE mark
8 Year of manufacture

Document information

Purpose of Electrical Manual (EM)

The purpose of this Electrical Manual is to provide service technicians and electricians with all information on the electrical equipment required for service and maintenance of this Tetra Pak equipment.

It is important to:

- keep the manual for the life of the equipment,
- pass the manual on to any subsequent holder or user of the equipment.

Design modifications

The directives in this document are in accordance with the design and construction of the equipment at the time it was delivered from the Tetra Pak production plant.

Technical publications

The technical publications for this equipment are:

- Electrical Manual (EM)
- Installation Manual (IM)
- Maintenance Manual (MM)
- Operation Manual (OM)
- Spare Parts Catalogue (SPC)

Additional copies can be ordered from the nearest Tetra Pak service station. When ordering technical publications, always quote the **document number**.

How to use the EM

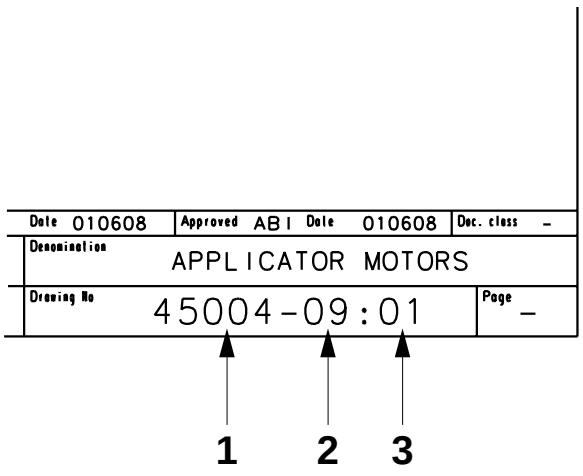
General

How to use the EM is an explanation of how to find your way through the chapters **Circuit diagrams**, **Component location**, **Connection diagrams, Mains connection diagrams** and **Program documents** in the EM.

The first page in each chapter is always a Table of Contents, listing all drawings included in the chapter.

The documents in the above-mentioned chapters are identified by:

- a main number (1)
- a sheet number (2)
- a version number (3)



1 Main number
2 Sheet number
3 Version number

The sheet number is the consecutive numbering of the sheets which belong to the main number and is used as a reference in the diagrams.

In the **Circuit diagrams**, the sheet(s):

- 02 is the position summary
- 03 is the line summary
- 04 is the terminal summary
- 05 - 79 are the drawings
- 98 is the protective boarding circuit

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The **Mains connection** diagram (the second connection diagram) shows how the machine should be connected to the local supply, the dimensions of the connection cable and the connection of the matching transformer (when used).

Caution! Always follow local regulations regarding the dimensions of the connection cable.

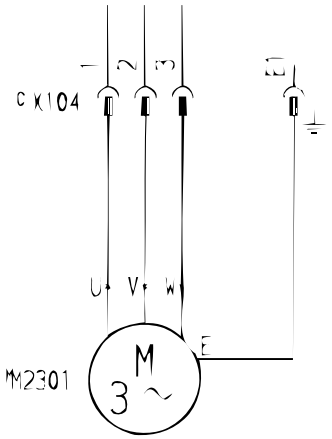
The PLC-listing in the section **Program documents** consists of lists of blocks, lists of addresses and programme lists.

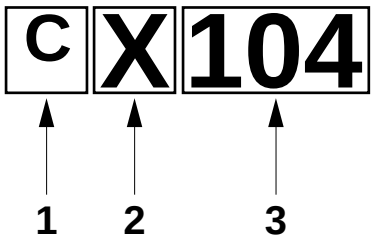
Enclosed are some examples of how to use the EM.

Numbering system for components

The position number is divided into three parts:

- location (1)
- function designation (2)
- running number (3)





1 Location
2 Function designation
3 Running number

Location (1)

This prefix shows the location of the component.

- the prefix M indicates that the component is fitted on the machine, outside the electrical cabinet
- the prefix C indicates that the component is fitted on the electrical cabinet, on TPOP and on the process panel
- the prefix D.O. indicates that the component is fitted on the dairy office

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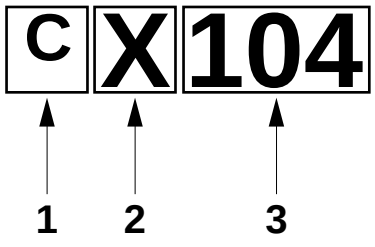
Function designation (2)

The function designation is indicated in accordance with international standards, see table below.

Designation	Signification in electrical diagram
A	Assemblies, Subassemblies
B	Transducers
C	Capacitors
D	Binary element, Delay devices, Storage devices
E	Miscellaneous
F	Protective devices
G	Generators, Power supplies
H	Signalling devices
K	Relays, Contactors
L	Inductors, Reactors
M	Motors
N	Analogue elements
P	Measuring equipment, Testing equipment
Q	Switching devices for power circuits
R	Resistors
S	Switching devices for control circuits selectors
T	Transformers
U	Modulators, Changers
V	Tubes, Semiconductors
W	Transmission paths, Waveguide aerials
X	Terminals, Plugs, Sockets
Y	Electrically operated mechanical devices
Z	Terminations, Hybrids, Filters, Equalizers, Limiters

Running number (3)

The electrical components are given numbers in a consecutive non-logical order.



1 Location
2 Function designation
3 Running number

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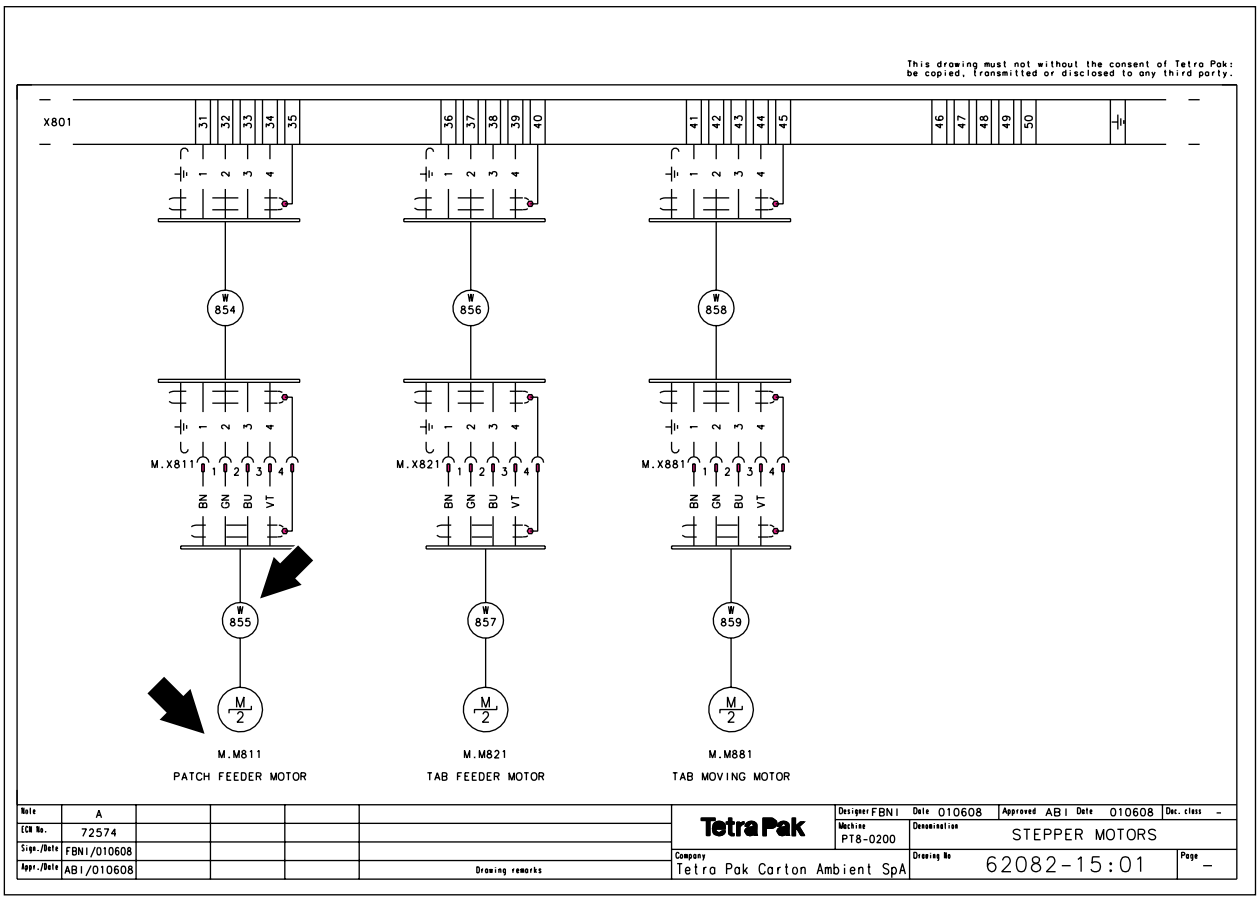
How to trace a cable

Example: How to trace cable No. W855

a) Go to the **Connection diagrams** chapter.

b) Find cable No. W855.

c) Note the component connected to the cable (M.M811).



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d) Go to the **Circuit diagrams** chapter.

e) Go to the **Position summary** (first page(s) in the **Circuit diagrams)**.

f) The sheet No. is located opposite the component No. (pos. M.M811). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

Position	Sheet	Position	Sheet	Position	Sheet	Position	Sheet	Position	Sheet
A800	70:01	A8113	68:01	M.B822	17:01	M.E800	14:01	K811	60:01
A801	73:01	A8114	56:01	M.B823A	30:01	M.E801	14:01	K812	52:01
A802	74:01	A8114	57:01	M.B823B	30:01	E804	14:01	K821	11:01
A804	76:01	A8114	68:01	M.B824	17:01			K822	11:01
A806	79:01	A8115	58:01	M.B825	31:01	F801	14:01	K823	11:01
A809	26:01	A8115	59:01	M.B826	31:01	F802	14:01	K830	52:01
A8101	30:01	A8115	68:01	M.B827	35:01	F804	15:01	K831	49:01
A8101	31:01	A8116	60:01	M.B831A	30:01	F810	15:01	K834	56:01
A8101	68:01	A8116	61:01	M.B831B	30:01	F811	15:01		
A8102	32:01	A8116	68:01	M.B832A	30:01	F830	13:01	M030	13:01
A8102	33:01	A821	17:01	M.B832B	30:01	F831A	06:01	M.M811	09:01
A8102	68:01	A822	17:01	M.B833A	30:01	F831B	06:01	M.M821	09:01
A8103	34:01	A823	17:01	M.B833B	30:01	F831C	06:01	M831	13:01
A8103	35:01	A831	06:01	M.B834A	30:01	F834	08:01	M.M831	06:01
A8103	68:01	A831B	76:01	M.B834B	30:01	F855A	15:01	M832	13:01
A8104	36:01	A832	07:01	M.B835A	29:01	F855B	15:01	M.M832	07:01
A8104	37:01	A832B	77:01	M.B835B	29:01	F855C	15:01	M.M834	08:01
A8104	68:01	A850	68:01	M.B841	30:01			M.M881	10:01
A8105	38:01	A851	68:01	M.B842	73:01	G800	68:01		
A8105	39:01	A855	09:01	M.B843	73:01	G801	68:01	P801	52:01
A8105	68:01	A857	09:01	M.B851	31:01	G834	08:01		
A8110	48:01	A859	10:01	M.B852	29:01			Q800	05:01
A8110	49:01			M.B861	26:01	H801S	61:01	Q802	15:01
A8110	68:01	B030	32:01	M.B862	26:01	H802S	61:01		
A8111	50:01	B031	32:01	M.B863	26:01	H803S	61:01	R802	74:01
A8111	51:01	M.B801	31:01	M.B866	26:01	H804S	61:01	M.R812	11:01
A8111	68:01	M.B812	17:01	M.B867	26:01	H805S	61:01	M.R822	11:01
A8112	52:01	M.B813A	30:01	M.B868	26:01	H806S	61:01	M.R824	11:01
A8112	53:01	M.B813B	30:01	M.B869	26:01	H807S	61:01	M.R882	74:01
A8112	68:01	M.B815	30:01			H808S	61:01		
A8113	54:01	M.B816	31:01	D800	68:01			S801H	38:01
A8113	55:01	M.B817	35:01			K803	52:01	S802H	38:01

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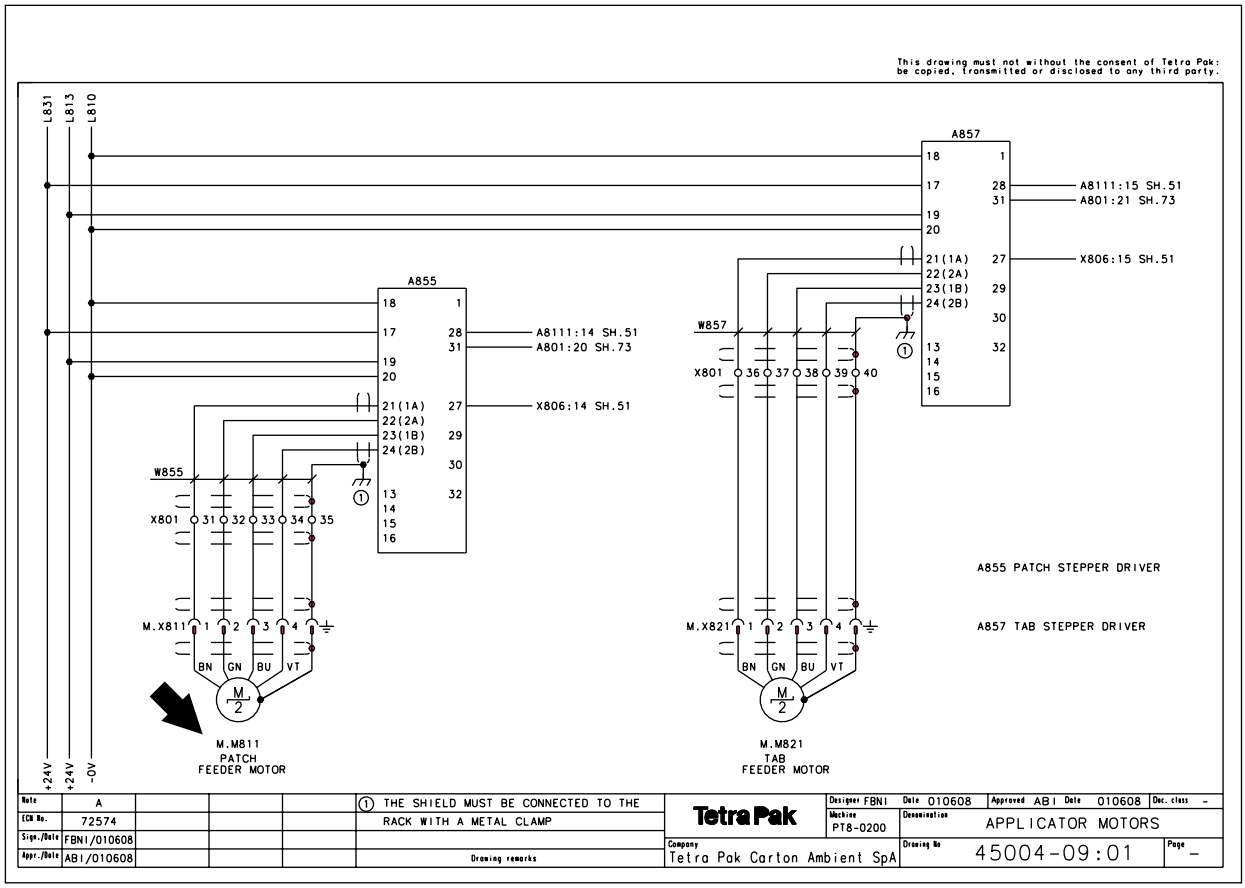
g) Go to sheet 9 in the **Circuit diagrams**.

h) Find the component (M.M811).



i) If the component is controlled by a separate component, the sheet reference for this component is found in the **Circuit diagrams**.

j) Go to the **Circuit diagrams**.

k) Find the controlling component.

l) The location M indicates that the component is fitted on the machine.

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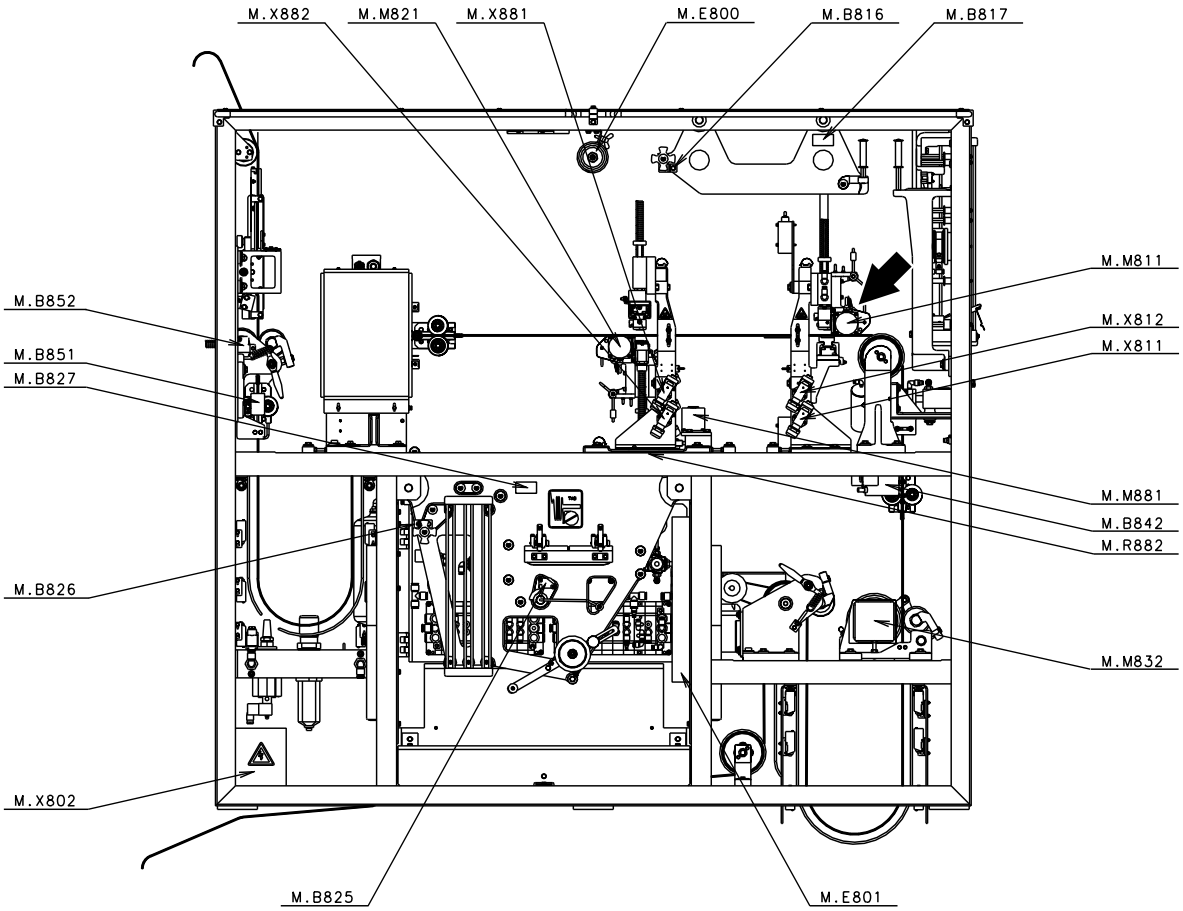
m) Go to the **Component location** chapter to find the position of the component (M.M811).



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How to trace a component

Example: How to trace sensor M.B841

a) Go to the **Circuit diagrams** chapter.

b) Go to the **Position summary** (first page(s) in the **Circuit diagrams**).

c) The sheet No. (sh.30) is located opposite the component No. (pos M.B841). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

Position	Sheet	Position	Sheet	Position	Sheet	Position	Sheet	Position	Sheet
A800	70:01	A8113	68:01	M.B822	17:01	M.E800	14:01	K811	60:01
A801	73:01	A8114	56:01	M.B823A	30:01	M.E801	14:01	K812	52:01
A802	74:01	A8114	57:01	M.B823B	30:01	E804	14:01	K821	11:01
A804	76:01	A8114	68:01	M.B824	17:01			K822	11:01
A806	79:01	A8115	58:01	M.B825	31:01	F801	14:01	K823	11:01
A809	26:01	A8115	59:01	M.B826	31:01	F802	14:01	K830	52:01
A8101	30:01	A8115	68:01	M.B827	35:01	F804	15:01	K831	49:01
A8101	31:01	A8116	60:01	M.B831A	30:01	F810	15:01	K834	56:01
A8101	68:01	A8116	61:01	M.B831B	30:01	F811	15:01		
A8102	32:01	A8116	68:01	M.B832A	30:01	F830	13:01	M030	13:01
A8102	33:01	A821	17:01	M.B832B	30:01	F831A	06:01	M.M811	09:01
A8102	68:01	A822	17:01	M.B833A	30:01	F831B	06:01	M.M821	09:01
A8103	34:01	A823	17:01	M.B833B	30:01	F831C	06:01	M831	13:01
A8103	35:01	A831	06:01	M.B834A	30:01	F834	08:01	M.M831	06:01
A8103	68:01	A831B	76:01	M.B834B	30:01	F855A	15:01	M832	13:01
A8104	36:01	A832	07:01	M.B835A	29:01	F855B	15:01	M.M832	07:01
A8104	37:01	A832B	77:01	M.B835B	29:01	F855C	15:01	M.M834	08:01
A8104	68:01	A850	68:01	M.B841	30:01			M.M881	10:01
A8105	38:01	A851	68:01	M.B842	73:01	G800	68:01		
A8105	39:01	A855	09:01	M.B843	73:01	G801	68:01	P801	52:01
A8105	68:01	A857	09:01	M.B851	31:01	G834	08:01		
A8110	48:01	A859	10:01	M.B852	29:01			Q800	05:01
A8110	49:01			M.B861	26:01	H801S	61:01	Q802	15:01
A8110	68:01	B030	32:01	M.B862	26:01	H802S	61:01		
A8111	50:01	B031	32:01	M.B863	26:01	H803S	61:01	R802	74:01
A8111	51:01	M.B801	31:01	M.B866	26:01	H804S	61:01	M.R812	11:01
A8111	68:01	M.B812	17:01	M.B867	26:01	H805S	61:01	M.R822	11:01
A8112	52:01	M.B813A	30:01	M.B868	26:01	H806S	61:01	M.R824	11:01
A8112	53:01	M.B813B	30:01	M.B869	26:01	H807S	61:01	M.R882	74:01
A8112	68:01	M.B815	30:01			H808S	61:01		
A8113	54:01	M.B816	31:01	D800	68:01			S801H	38:01
A8113	55:01	M.B817	35:01			K803	52:01	S802H	38:01

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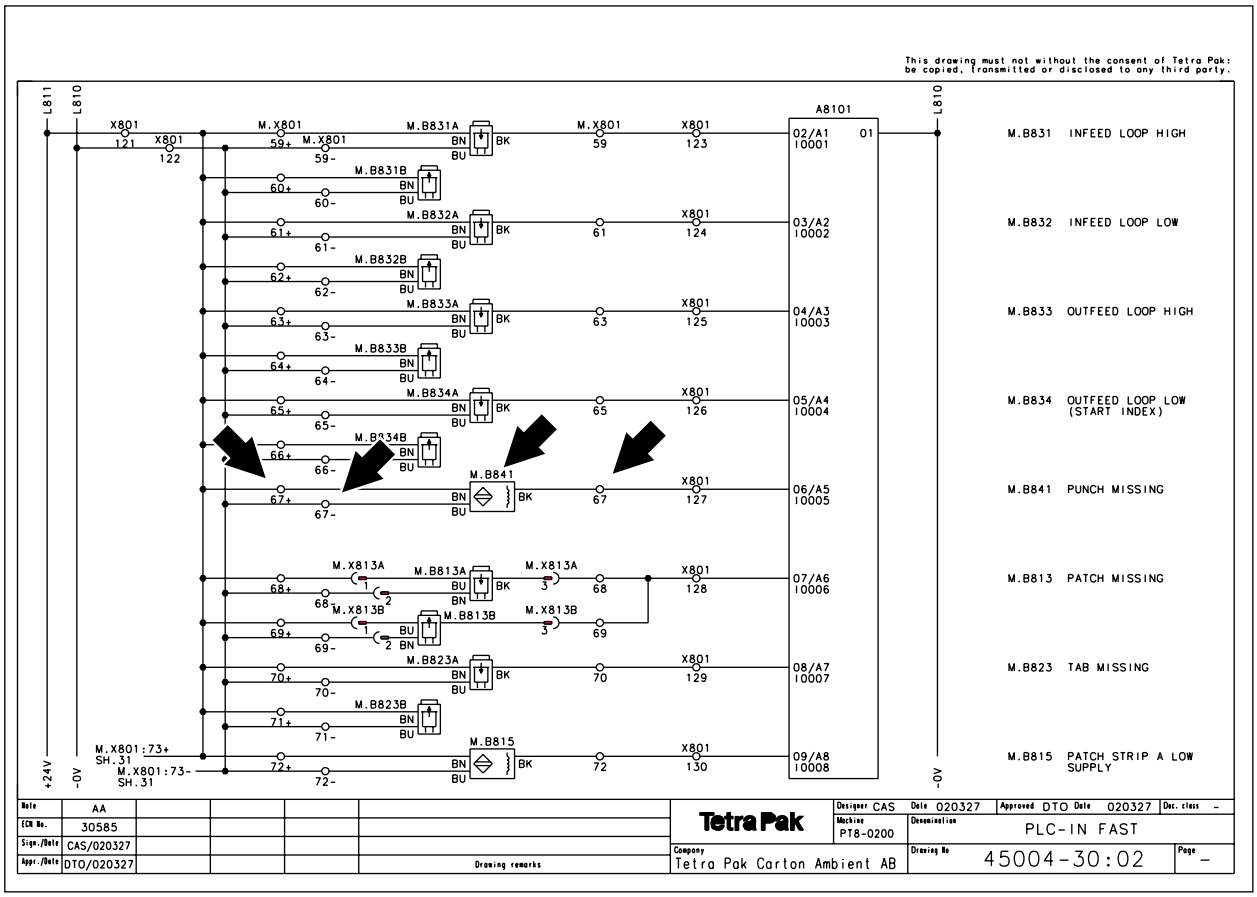
d) Go to sheet 30 in the **Circuit diagrams**.

e) Find the component (M.B841).

f) Note the connections (M.X801:67, :67+, :67-).



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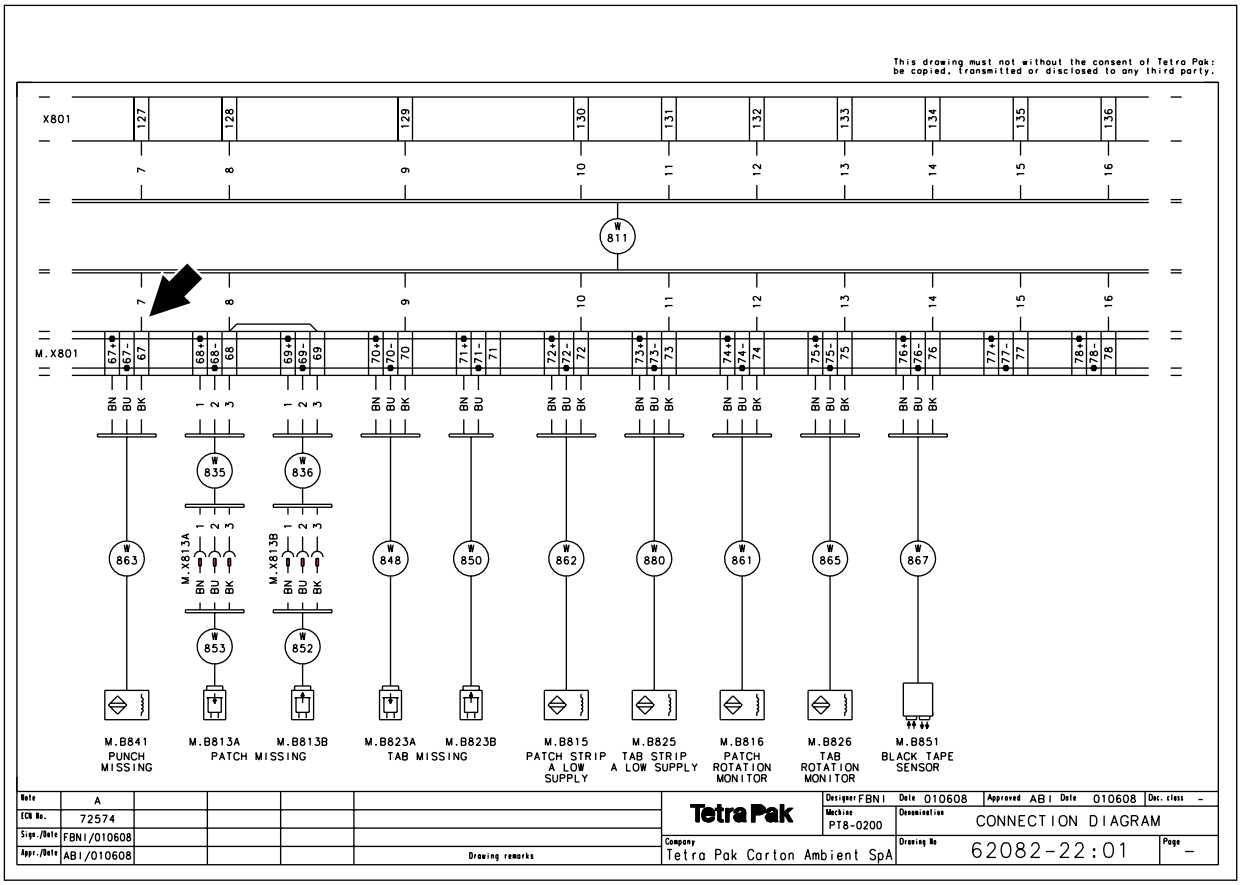
g) Go to the **Connection diagrams** chapter.

h) Find the connection (M.X801:67, :67+, :67-).

i) The **Connection diagram** shows how the sensor is connected (in this case via a connection box).



Supply voltage/Line connection order

The supply voltage in the electrical cabinet is named:

- L01 - L09: Power voltage
- L810 - : Control voltage

  L810 is reserved for 0V, control voltage.
  L811 is reserved for 24V, control voltage.
  L812 is reserved for 24V, control voltage.
  L813 is reserved for 24V, control voltage.
  L831 is reserved for 24V, control voltage.
  L850 is reserved for 0V, control voltage.
  L851 is reserved for 220V, control voltage.
  L852 is reserved for 220V, control voltage.

In the **Circuit diagrams** chapter the line connection order is shown in the **Line summary** (sheet 003).

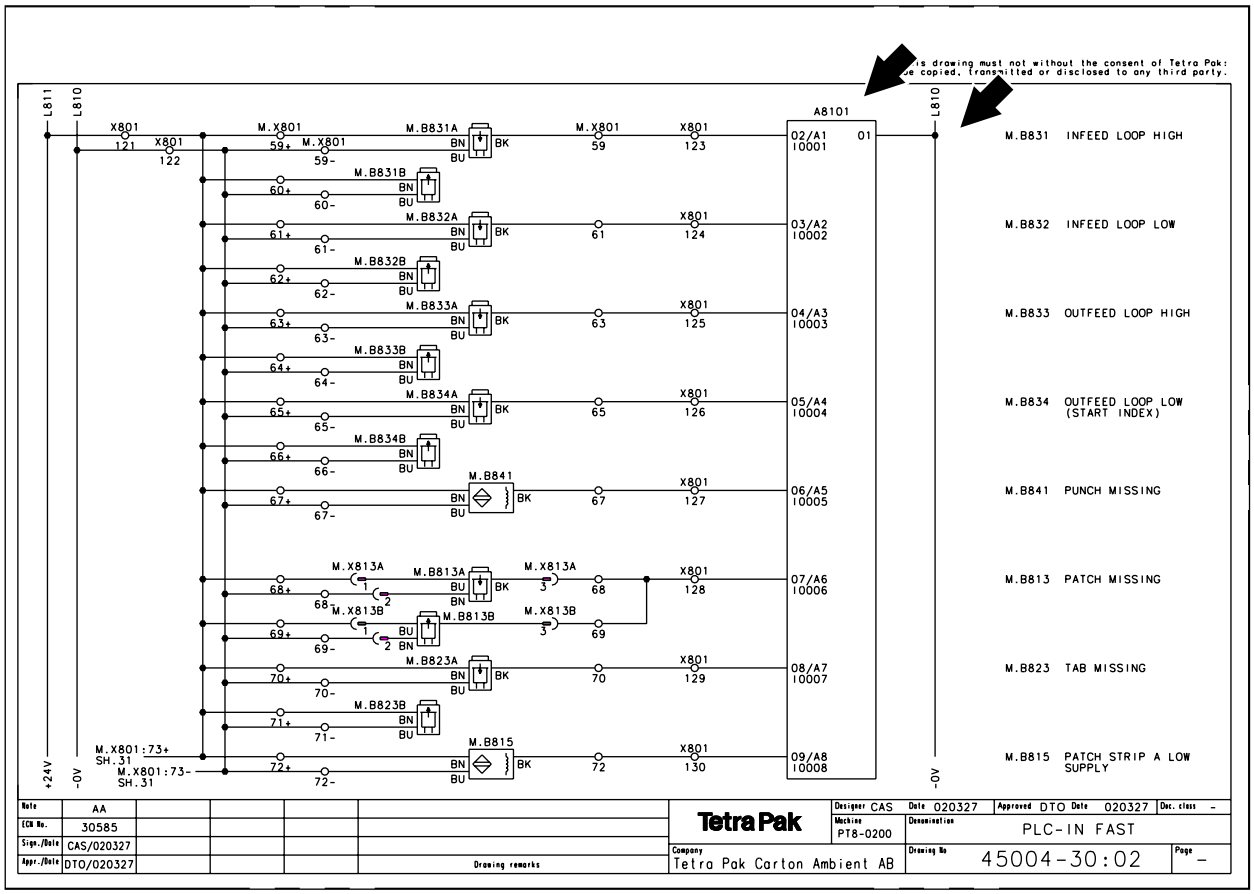
How to trace a line

Example: Line connection L810 to the component A8101

a) Go to the **Circuit diagrams** chapter

b) Find the component A8101 (Input module)

c) Note the line connection (L810 to pin 01)



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d) Go to the **Line summary** (sheet 003)

e) Find the component A8101:01

f) Note the relative line terminal connection order (XL810:21)

Line	Position	Sheet	Area	Colour
L810	A832B,04	77:01		
	,05	77:01		
L810	XL810,20		0,75	BU
	X806,36	32:01		
	,37	32:01		
L810	XL810,21		0,75	BU
	A8101,01	30:01		
L810	XL810,22		0,75	BU
	A8102,01	32:01		
L810	XL810,23		0,75	BU
	A8103,01	34:01		
L810	XL810,24		0,75	BU
	A8104,01	36:01		
L810	XL810,25		0,75	BU
	A8105,01	38:01		
L810	XL810,27		0,75	BU
	A8110,10	48:01		
	,20	49:01		
L810	XL810,28		0,75	BU
	A8111,10	50:01		
	,20	51:01		
L810	XL810,29		0,75	BU
	A8112,10	52:01		
	,20	53:01		
L810	XL810,30		0,75	BU
	A8113,10	54:01		
	,20	55:01		
L810	XL810,31		0,75	BU
	A8114,10	56:01		
	,20	57:01		
L810	XL810,32		0,75	BU
	A8115,10	58:01		
	,20	59:01		
L810	XL810,33		0,75	BU
	A8116,10	60:01		
	,20	61:01		
L810	XL810,41		2,5	BU
	XL810,61	15:01		
L810	XL810,42		0,75	BU
	K811,A1	60:01		
L810	XL810,43		0,75	BU
	K830,A1	52:01		
L810	XL810,44		0,75	BU
	K831,A1	49:01		
L810	XL810,45		0,75	BU
	K834,A1	56:01		

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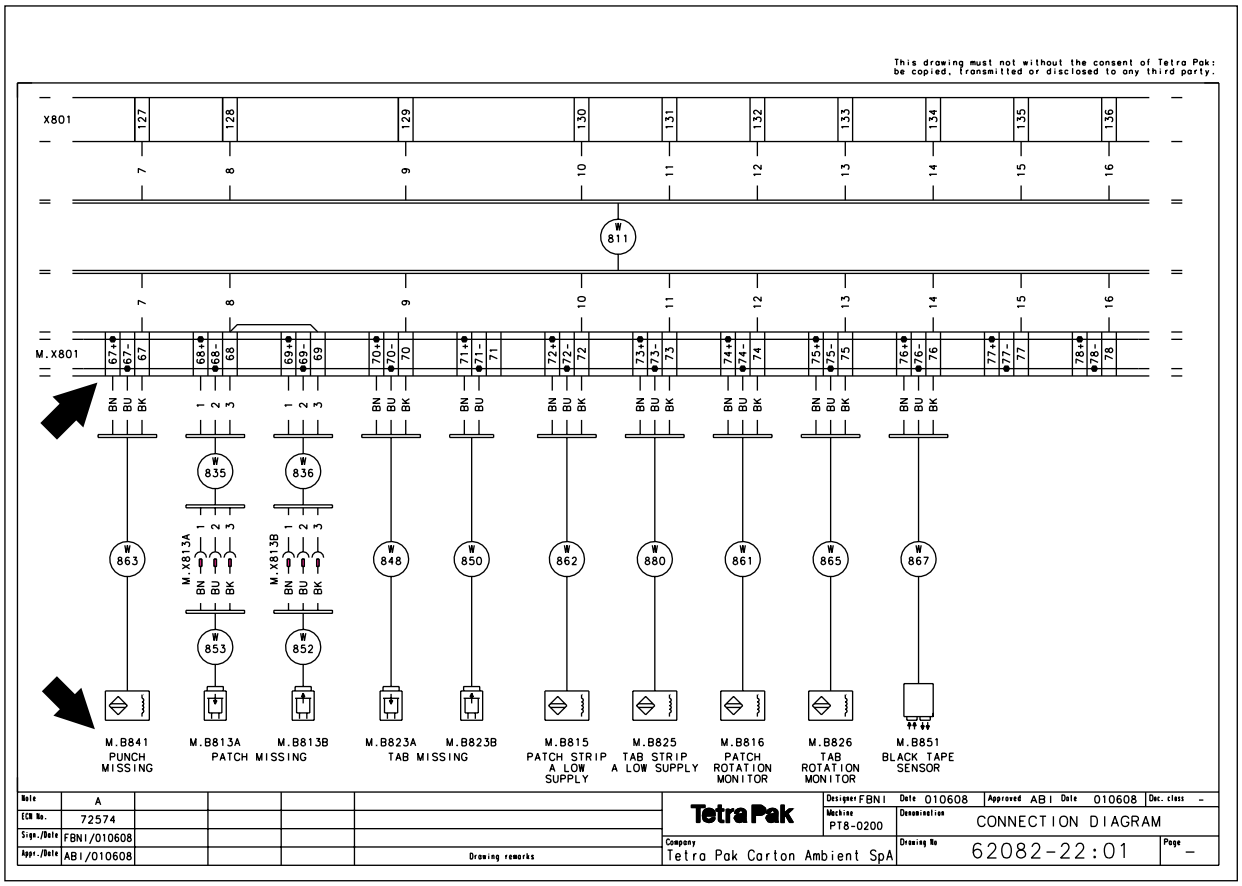
How to trace a terminal

Example: Connection in connection terminal box M.X801, block 67, 67+, 67-

a) Go to the **Connection diagrams** chapter.

b) Find the connection box (M.X801 terminal block 67, 67+, 67-).

c) Note the component connected (M.B841).



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d) Go to the **Circuit diagrams** chapter.

e) Go to the **Terminal summary** (sheet 004).

f) The sheet No. (sh.30) is located opposite the terminal No. (pos. M.X801 terminal block 67, 67+, 67-). This tells you on which sheet in the **Circuit diagrams** the connection is shown.

Position	Sheet	Position	Sheet	Position	Sheet	Position	Sheet
X801,331		M.X801,22	26:01	M.X801,54	73:01	M.X801,68	30:01
,332		,23	26:01	,55	60:01	,68+	30:01
,333		,24	26:01	,56	60:01	,68-	30:01
,334		,25	26:01	,57	79:01	,69	30:01
,335		,26	26:01	,58	79:01	,69+	30:01
,336		,27	26:01	,59	30:01	,69-	30:01
,337		,28	26:01	,59+	30:01	,70	30:01
,338		,29	26:01	,59-	30:01	,70+	30:01
,339		,30	26:01	,60		,70-	30:01
,340		,31	26:01	,60+	30:01	,71	
		,32	26:01	,60-	30:01	,71+	30:01
M.X801,1	23:01	,33	26:01	,61	30:01	,71-	30:01
,2	23:01	,34	26:01	,61+	30:01	,72	30:01
,3	23:01	,35	26:01	,61-	30:01	,72+	30:01
,4	23:01	,36	26:01	,62		,72-	30:01
,5	23:01	,37	26:01	,62+	30:01	,73	31:01
,6	23:01	,38	26:01	,62-	30:01	,73+	31:01
,7	23:01	,39	26:01	,63	30:01	,73-	31:01
,8	23:01	,40	26:01	,63+	30:01	,74	31:01
,9	26:01	,41	26:01	,63-	30:01	,74+	31:01
,10	26:01	,42	26:01	,64		,74-	31:01
,11	26:01	,43	26:01	,64+	30:01	,75	
,12	26:01	,44	26:01	,64-	30:01	,75+	31:01
,13	26:01	,45	73:01	,65	30:01	,75-	31:01
,14	26:01	,46	73:01	,65+	30:01	,76	31:01
,15	26:01	,47	73:01	,65-	30:01	,76+	31:01
,16	26:01	,48	73:01	,66		,76-	31:01
,17	26:01	,49	73:01	,66+	30:01	,77	
,18	26:01	,50	73:01	,66-	30:01	,77+	31:01
,19	26:01	,51	73:01	,67	30:01	,77-	31:01
,20	26:01	,52	73:01	,67+	30:01	,78	
,21	26:01	,53	73:01	,67-	30:01	,78+	31:01

(Cont'd)

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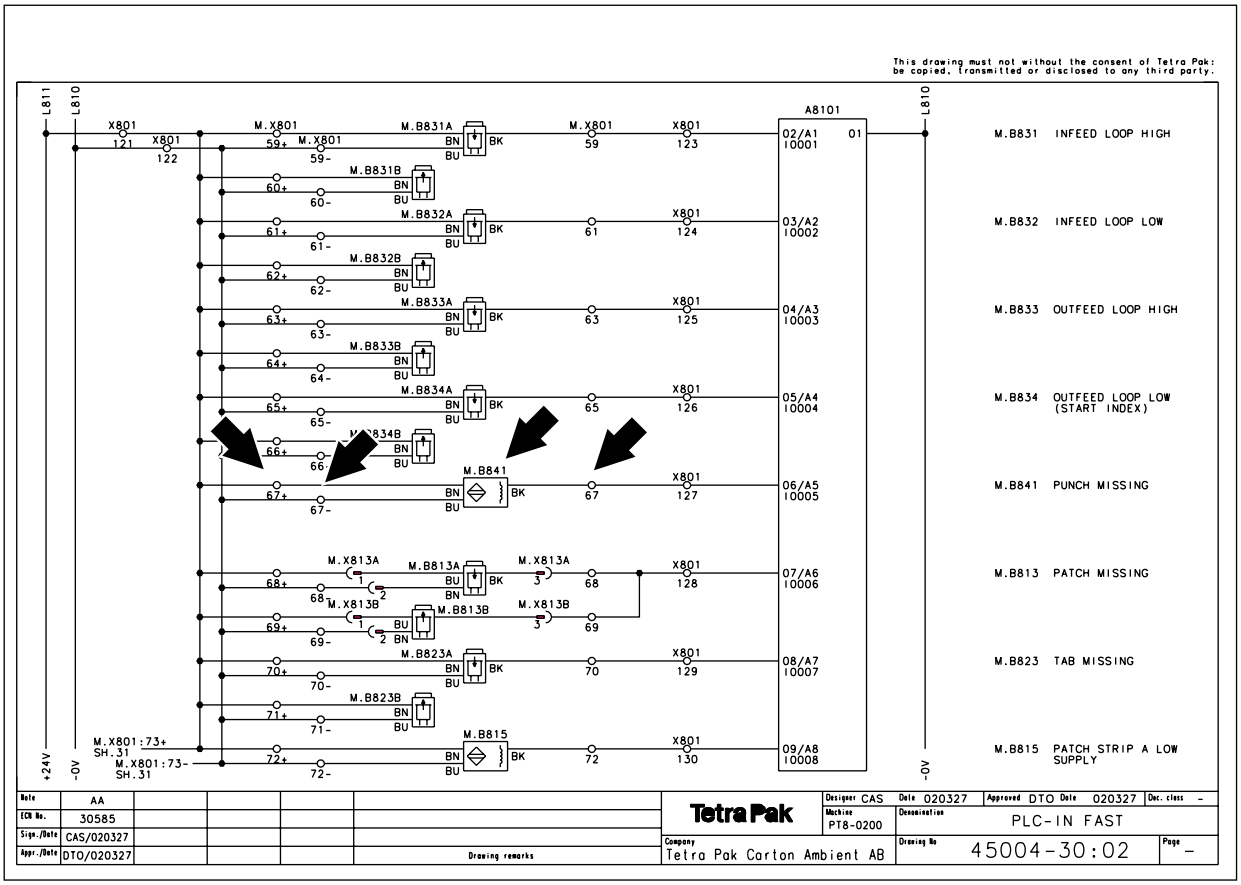
(Cont'd)

g) Go to sheet 30 in the **Circuit diagrams**.

h) Note the connections (M.X801 terminal block 67, 67+, 67-).

i) Find the component (M.B841).

j) The location M indicates that the component is fitted on the machine.



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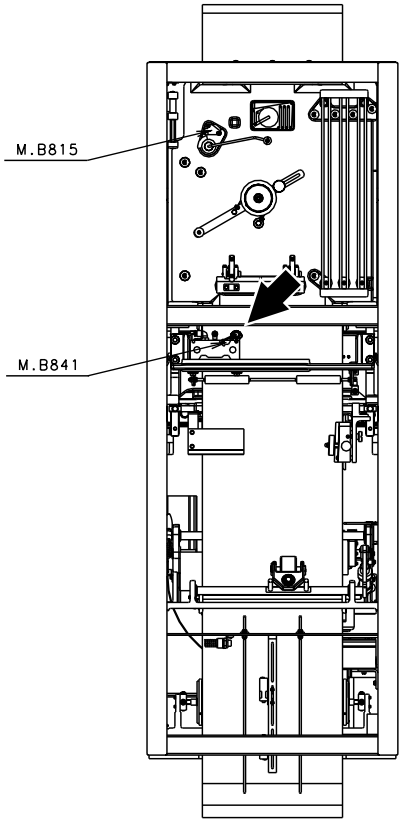
(Cont'd)

k) Go to the **Component location** chapter to find the position of the component (M.B841) on the machine.



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Abbreviations and terminology

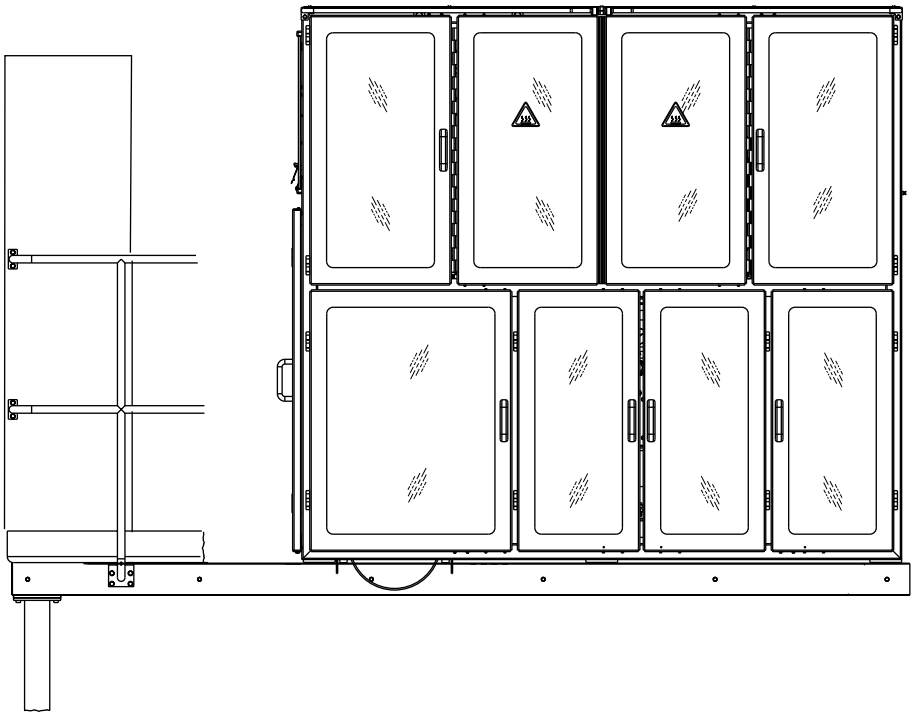
Abbreviations and terminology used in this manual.

Abbreviation	Explanation
EM	Electrical Manual
EN	Norme Europeénne (European standard)
IM	Installation Manual
LH	Left Hand
MM	Maintenance Manual
OM	Operation Manual
PLC	Programmable Logic Controller (GE-Fanuc)
RH	Right hand
SPC	Spare Parts Catalogue
SW	Software
TPOP	Tetra Pak Operator Panel
PT	PullTab

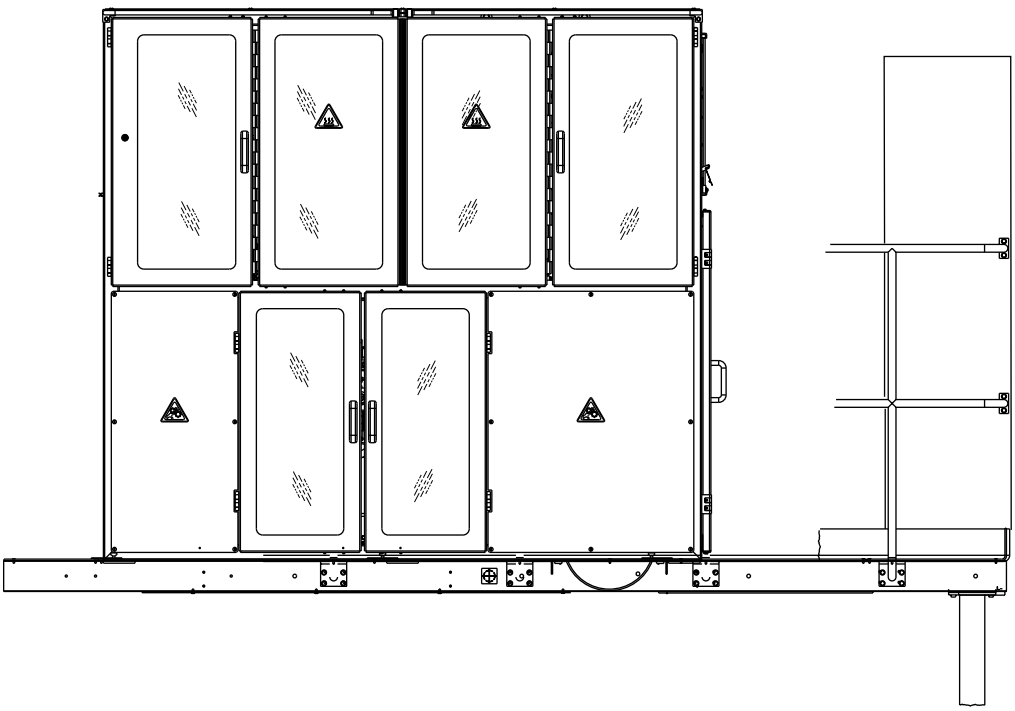
PullTab 020V orientation

Throughout this manual the terms LH and RH refer to the equipment and all its part as seen from the front of the filling machine.

LH side



RH side



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2 Safety precautions

To ensure maximum safety, always read this section carefully before doing any work on the equipment or making any adjustments.

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Hazard information

General

Failure to observe information marked “DANGER!” **puts your life in danger**.

Failure to observe information marked “WARNING!” can result in **personal injury and/or serious damage to or destruction of equipment**.

Caution! Failure to observe information marked “Caution!” can result in **damage to equipment**.

Mandatory signs

 **Wear eye protection**	 **Wear hearing protection**
 **Wear head protection**	 **Wear protective gloves**
 **Disinfect hands/gloves**	

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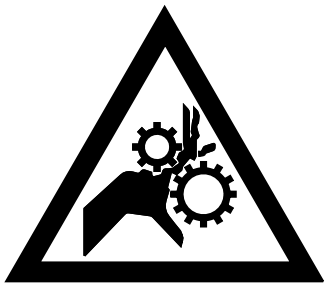
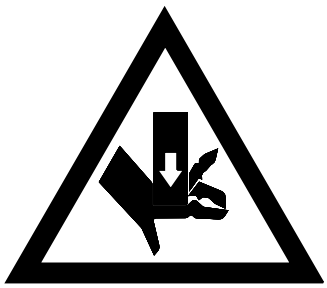
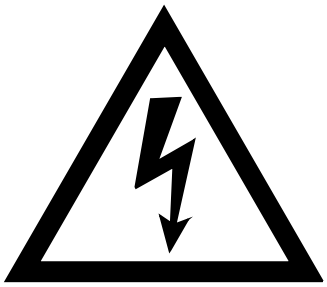
Warning signs

 **Risk of entanglement!**	 **Risk of corrosion!**
 **Risk of crushing!**	 **Risk of cutting/amputation!**
 **Risk of burns!**	 **Risk of electrocution!**

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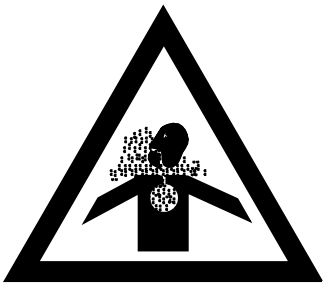
 **Risk of falling objects!**	 **Risk of intoxication!**
 **Risk of falling!**	 **Risk of personal injury!** **(general)**

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Requirements on personnel

Risk of immediate danger to life!
Failure to obey the Safety precautions will put your life in danger.
All personnel must regard all electrical equipment as live.

The work is to be carried out in such a way that there is no risk of injury to personnel.

General

During maintenance or service work, the service technician and the electrician are responsible not only for the machine, but for the safety of the personnel in the vicinity of the machine as well!

It is also the responsibility of the service technician and the electrician to ensure that the machine safety devices are fully operational before he/she finishes the maintenance or service work.

Service technician

Service technicians may be:

- technicians employed by **Tetra Pak**

  Tetra Pak technicians are Tetra Pak employees who have completed training courses at the Tetra Pak Technical Training Centres or have equivalent knowledge.
- technicians employed by the **customer**

  Technicians employed by the customer must have the following skills:
  - capable of reading (English or native) technical information
  - able to understand technical drawings
  - basic knowledge of mechanics and electronics
  - basic knowledge of mathematics
  - capable of handling (special) tools

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Electrician

Electricians should:

- be certified according to local regulations
- have experience of similar types of installations
- have proven skills in reading and working from drawings and cable lists
- have knowledge of local safety regulations for power and automation

Only skilled or instructed persons are allowed to work on the electrical equipment.

According to EN 60204-1:1997 clause 3.52 a skilled person is:

– a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which electricity can create.

According to EN 60204-1:1997 clause 3.28 an instructed person is:

– a person adequately advised or supervised by an electrically skilled person to enable him or her to perceive risks and to avoid hazards which electricity can create.

Machine operator

Only trained or instructed persons are allowed to operate the machine.

The machine operator is an individual that has enough training and/or knowledge to run the equipment in the correct way.

Fork lift driver

Fork lift driver should be certified according to local regulations.

The fork lift driver's role during installation is:

- to unload transport vehicle
- to plan and transport the machine or machine parts within the plant in a safe and smooth way

to assist when assembling Tetra Pak equipment

General safety precautions

Wear hearing protection while the equipment is running.

Hygiene

It is important to keep hands and/or gloves clean.

Disinfect hands and/or gloves before touching the packaging material, the strip(s) or any other equipment part that may come into contact with the product.

Clean the platforms, the ladder and the area around the equipment.

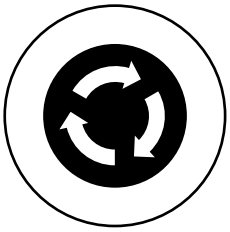
To avoid production faults, it is important that the packaging material and the strip(s) never touch the floor, the platform or the area around the equipment.

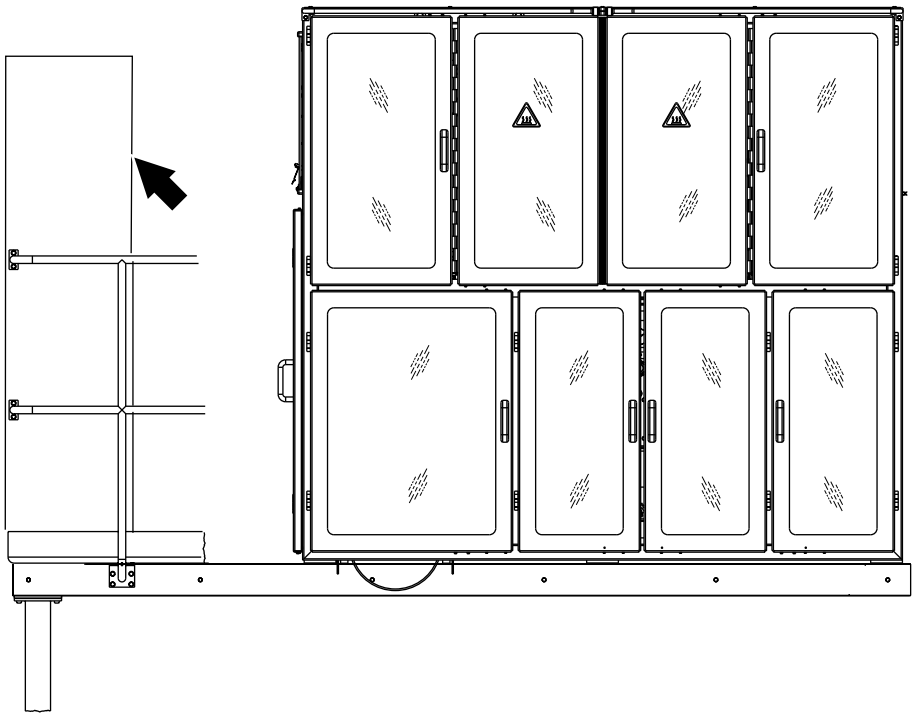
Electrical cabinet

Risk of electrocution!
There is high voltage in the electrical cabinet (up to 400 V).
In case of accident call for medical attention immediately.

Work inside the electrical cabinet must be performed by skilled or instructed persons only.

Electrical cabinet doors locked with screws may be opened only by skilled or instructed persons.





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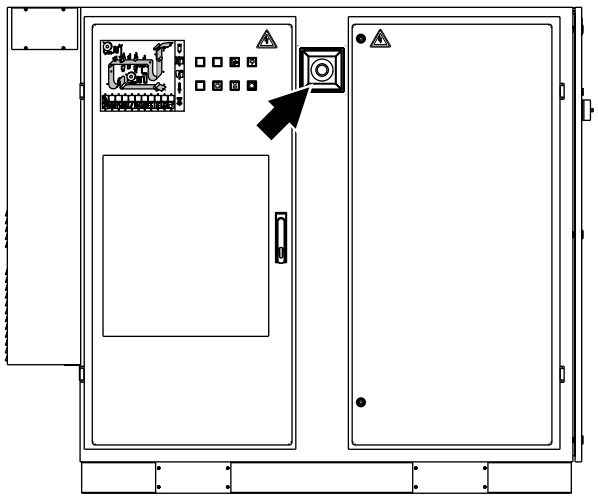
Machine safety devices

Emergency stop buttons

Learn the position of the **Emergency stop** buttons in order to stop the equipment immediately in case of danger to people or damage to the equipment.

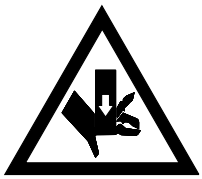
The **Emergency stop** buttons do not switch off the power at the mains power switch.

Pushing the **Emergency stop** button resets the PullTab program to **Zero** and deactivates all pneumatic cylinders. Pushing the **Emergency stop** button resets the filling machine program to **Zero** and **Venting**.



Doors, covers and guards

WARNING!



WARNING!

Make sure that all doors, covers and guards are in place and functioning.

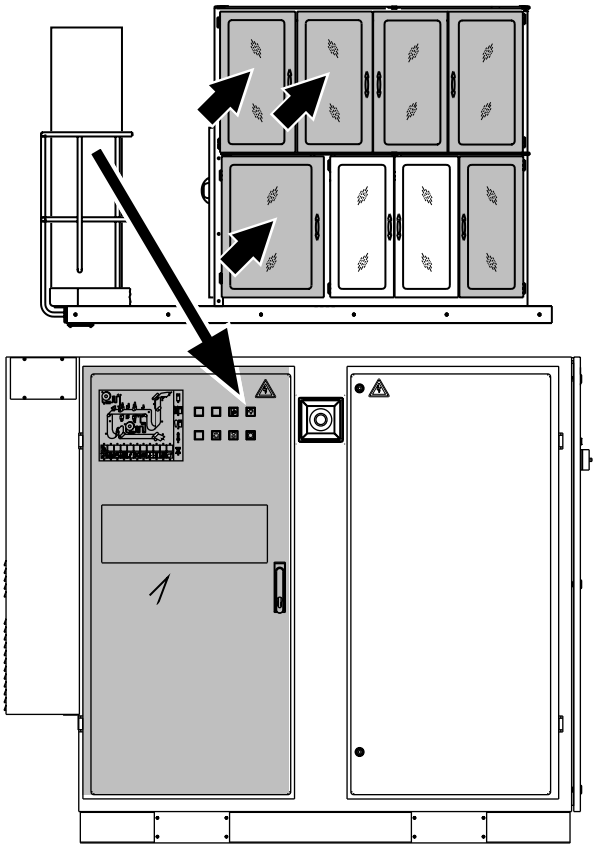
Never remove covers or guards while the equipment is operating.

Certain doors, covers and guards are fitted with safety switches. These switches are part of the safety system and must **never** be bridged, by-passed or otherwise made non-operational.

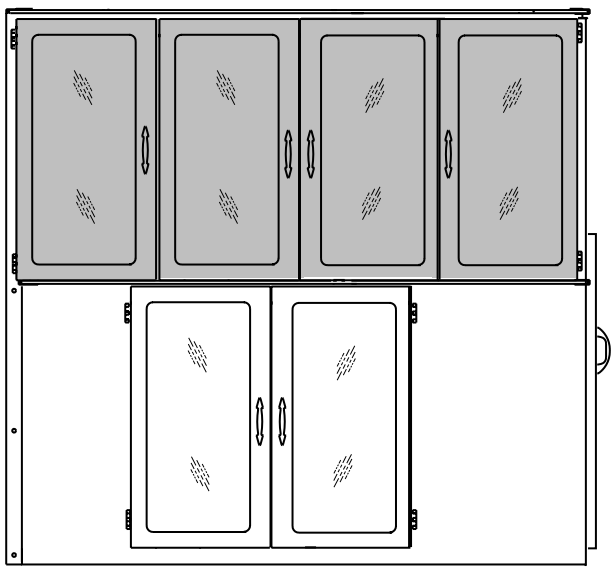
Never stop the equipment by opening a door or cover fitted with a safety switch.

The equipment may still move during the first few seconds after a stop. Some equipment parts may also be hot.

In case of accident, call for medical attention.



LH side



RH side

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Chemical products

Risk of personal injury!
Certain chemical products are toxic and/or inflammable.
Carefully follow the instructions on the container label.

Follow the supplier's instructions for handling and disposal of the chemical products.

Personal protective equipment

- **Protective goggles**, TP No. 90303-0011
- **Apron**, TP No. 90303-0013
- **Shoes** made of PVC, PE plastic or rubber
- **Protective gloves** made of neoprene, TP No. 90303-0012

Before starting work with any chemical products, make sure that:

- the showers work
- a portable, TP No. 90303-6, or wall-mounted eyewash device is available at or near each machine site
- there are additional washing facilities

General emergency procedures

If you accidentally **swallow** chemical products, drink large amounts of lukewarm water.

If you get splashes or vapour from chemical products in your **eyes**, wash your eyes thoroughly with lukewarm water for 15 minutes (keeping eyelids wide apart).

If chemical products come into contact with **skin** or **clothes**:

- rinse immediately with plenty of water
- if skin burns appear, call for medical attention immediately
- thoroughly wash clothes before wearing them again

If you experience irritation or pain due to having **inhaled** chemical products vapour:

- leave the affected area and get some fresh air
- if the symptoms get worse, call for medical attention

Equipment for lifting and moving loads

WARNING!

Risk of falling objects!
Make sure that the capacity of the lifting equipment is adequate and that the equipment itself is in good working order.

If lifting tackle has to be joined to make up the necessary lengths, make sure that the joins are secure and have the same lifting capacity as the rest of the tackle.

Always engage the safety clip on lifting hooks to prevent the tackle from slipping off.

Use ropes or poles to steady and manoeuvre loads. Do **not** use hands or feet.

Make sure that the route and the destination are free from obstacles before moving a suspended load. It must be possible to lower the load to the floor quickly and safely in an emergency.

When depositing loads, keep the lifting equipment in place until the stability of the load has been checked.

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3 Electrical system description

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Safety system

The safety system is controlled by three safety relay modules plus an emergency stop time relay to take advantage of an active breaking in the servo motor system. When the modules are not in a safety condition, the relay outputs contacts are logically true.

An emergency condition is created by pressing the emergency stop buttons. A safety condition is created by opening a door fitted with a safety switch, see the *Safety precautions* section.

To reset the machine from the emergency condition, release the emergency stop buttons and push **Alarm reset**.

To reset the machine from the safety condition, close the door and push **Alarm reset**.

Some motors are provided with the double safety feature of electronic and electromechanical cutouts.

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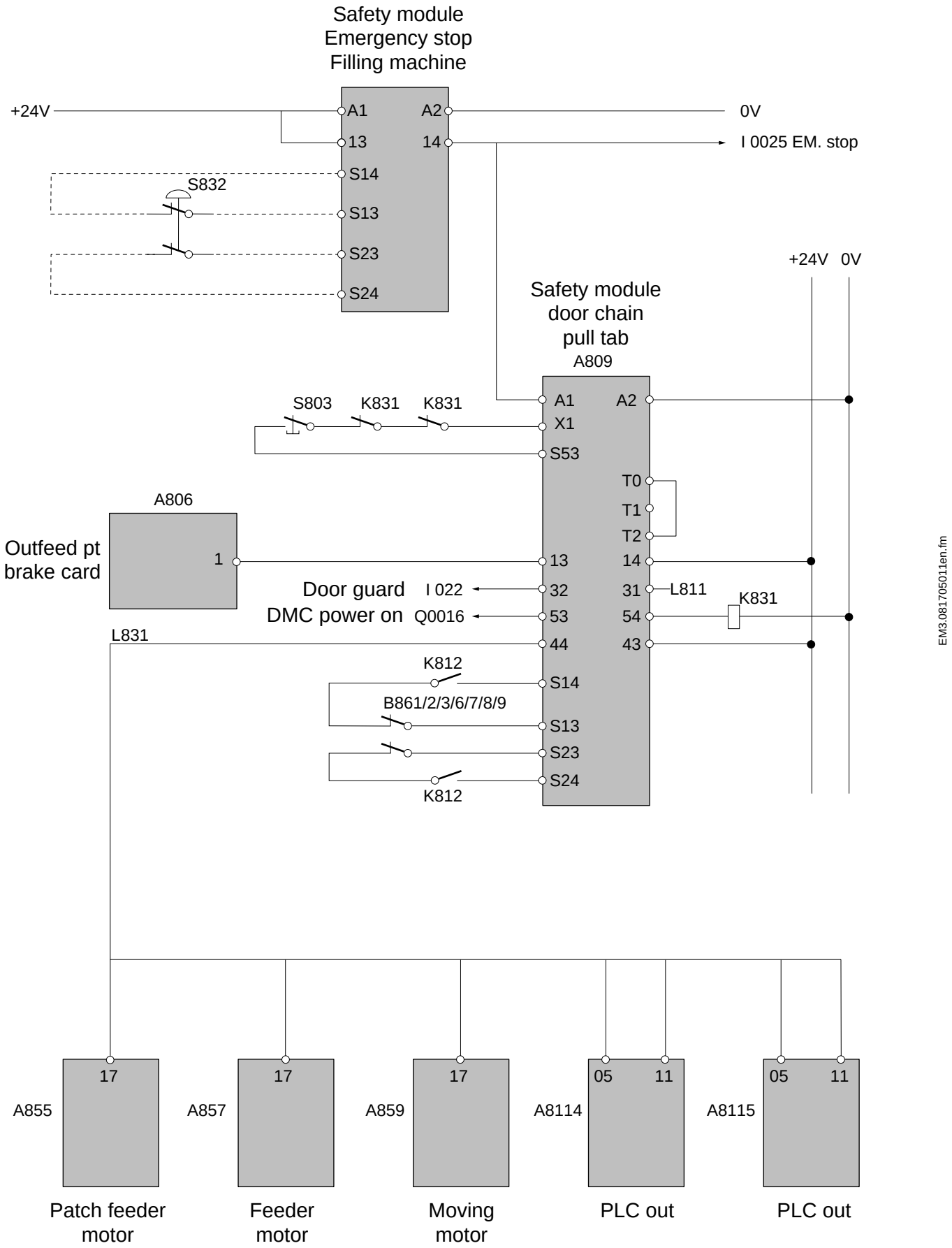
Safety module
Emergency stop
Filling machine
+24V
A1
A2
0V
13
14
I 0025 EM. stop
S14
S832
S13
S23
S24
+24V 0V
Safety module
door chain
pull tab
A809
S803
K831
K831
A1
A2
X1
S53
T0
T1
T2
A806
Outfeed pt
brake card
1
13
14
Door guard
I 022
32
31
L811
K831
DMC power on
Q0016
53
54
L831
44
43
K812
S14
B861/2/3/6/7/8/9
S13
S23
S24
K812
EM3.081705011en.fm
17
17
17
05
11
05
11
A855
A857
A859
A8114
A8115
Patch feeder
motor
Feeder
motor
Moving
motor
PLC out
PLC out

4 Component location

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Components on the machine

Comp.	Description	Drawing No.	Part n°	Option
B801	Air pressure switch	2506059	10:01	
M811	Patch feeder motor	2506059	11:01	
B812	Patch temp. sealing	2506059	10:01	
B813A	Patch missing	2506059	10:01	
B813B	Patch missing	2506059	10:01	
B815	Patch strip a low supply	2506059	12:01	
B816	Patch rotation monitor	2506059	11:01	
B817	Patch splice	2506059	11:01	
M821	Tab feeder motor	2506059	11:01	
B822	Tab temp. sealing	2506059	10:01	
B823A	Tab missing	2506059	10:01	
B823B	Tab missing	2506059	10:01	
B824	Tab temp. counter jaw	2506059	10:01	
B825	Tab strip a low supply	2506059	11:01	
B826	Tab rotation monitor	2506059	11:01	
B827	Tab splice	2506059	11:01	
B831A	Infeed loop high	2506059	10:01	
B831B	Infeed loop high	2506059	10:01	
M832	Infeed tension motor	2506059	11:01	
B832A	Infeed loop low	2506059	10:01	
B832B	Infeed loop low	2506059	10:01	
B834A	Outfeed loop high	2506059	10:01	
B833A	Outfeed loop low	2506059	10:01	
B834B	Outfeed loop high	2506059	10:01	
B833B	Outfeed loop low	2506059	10:01	
B835A	Paper in by-pass	2506059	10:01	
B835B	Paper in by-pass	2506059	10:01	
B841	Punch missing	2506059	12:01	
B842	Printed design adj. data left	2506059	11:01	
B843	Printed design adj. clock right	2506059	10:01	
B851	Black tape	2506059	11:01	
B852	Outfeed rotation monitor	2506059	11:01	
B861	Door switch	2506059	14:01	
B862	Door switch	2506059	14:01	
B863	Door switch	2506059	16:01	
B866	Door switch	2506059	14:01	
B867	Door switch	2506059	14:01	
B868	Door switch	2506059	15:01	
B869	Door switch	2506059	15:01	
M881	Tab moving motor	2506059	11:01	
R882	Tab station positioning	2506059	11:01	

4 Component location

Comp.	Description	Drawing No.	Part n°	Option
E800	Applicators light	2506059	11:01	
E801	Tab magazine light	2506059	11:01	
M831	Main motor	2506059	10:01	
M834	Infeed motor	2506059	10:01	
R812	Patch sealing element	2506059	10:01	
R822	Tab sealing element	2506059	10:01	
R824	Tab counter jaw element	2506059	10:01	
X801	Terminal block	2506059	10:01	
X802	Terminal block	2506059	11:01	
X804	Terminal block	2506059	18:01	
X805	Terminal block	2506059	18:01	
X811	Connector	2506059	11:01	
X812	Connector	2506059	11:01	
X813A	Connector	2506059	10:01	
X813B	Connector	2506059	10:01	
X821	Connector	2506059	10:01	
X822	Connector	2506059	10:01	
X824	Connector	2506059	10:01	
X881	Connector	2506059	11:01	
X882	Connector	2506059	11:01	
Y801	Main air supply	2506059	10:01	
Y811A	Patch cylinders retract	2506059	18:01	
Y811B	Patch cylinders extended	2506059	18:01	
Y813	Patch strip guiding	2506059	18:01	
Y814	Suction	2506059	18:01	
Y819	Production cushions extend	2506059	18:01	
Y821A	Tab cylinders retract	2506059	18:01	
Y821B	Tab cylinders extend	2506059	18:01	
Y823A	Pressure roller infeed extend	2506059	18:01	
Y823A	Tab counter jaw retract	2506059	18:01	
Y823B	Tab counter jaw extend	2506059	18:01	
Y825	Cap blowing	2506059	18:01	
Y831	Pressure roller drive motor	2506059	18:01	
Y832B	Pressure roller infeed retract	2506059	18:01	
Y841	Punch cylinders extended	2506059	18:01	
Y842A	Punch blowing	2506059	18:01	
Y842B	Waste blowing	2506059	18:01	
Y851	Folding air nozzle	2506059	18:01	
Y859	Outfeed magnetic power brake	2506059	10:01	

5 Engineering change description

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6 Circuit diagrams

Table of contents

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7 Connection diagrams

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8 Mains connection diagrams

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9 Program documents

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10 Bills of material

Table of contents

11 Fuse panel label

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12 Optional Equipment and Kits

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13 Other information

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Tetra Pak