Safety automation solutions
Preventa con gurable safety controllers
Type XPS MC


XPS MC16Z


XPS MC32Z


XPS MC16ZC


XPS MC32ZC


XPS MC16ZP


XPS MC32ZP

References

Configurable safety controllers (connector not included)

Number of inputs	Number of outputs		Communication (Link and bus)	Reference	Weight kg
	Relay	Solid-state			
16	**4 (2 x 2)**	**6**	Modbus	**XPS MC16Z**	0.820
			Modbus, CANopen	**XPS MC16ZC**	0.820
			Modbus, Pro bus	**XPS MC16ZP**	0.820
32	**4 (2 x 2)**	**6**	Modbus	**XPS MC32Z**	0.840
			Modbus, CANopen	**XPS MC32ZC**	0.840
			Modbus, Pro bus	**XPS MC32ZP**	0.840

Plug-in connectors for configurable safety controllers *(1)*

Description	For use with	Reference	Weight kg
Screw connectors	XPS MC16Z, MC16ZC, MC16ZP	**XPS MCTS16**	0.080
	XPS MC32Z, MC32ZC, MC32ZP	**XPS MCTS32**	0.110
Spring clip connectors	XPS MC16Z, MC16ZC, MC16ZP	**XPS MCTC16**	0.080
	XPS MC32Z, MC32ZC, MC32ZP	**XPS MCTC32**	0.110

Configuration software

■ Reference XPS MCWIN is the full version of con guration software XPS MCWIN version 2.10 and must be installed if no previous version of this software has been installed.

■ Reference SSVXPSMCWINUP is an update for con guration software XPS MCWIN and can be used if XPS MCWIN has been installed using Safety Suite V1. An update from version 2.0 to 2.10 for the software XPS MCWIN will then be performed.

Description	Operating system	Characteristics *(2)*	Languages	Reference	Weight kg
Configuration software for controllers XPS MC●●Z● CD-ROM + user manual	Windows 2000, Windows XP	Software available on Safety Suite V2 software pack	FR, EN, DE, IT, ES, PT	**XPS MCWIN**	0.520
XPS MCWIN software update CD-ROM + user manual	Windows 2000, Windows XP	Software update available on Safety Suite V2 software pack	FR, EN, DE, IT, ES, PT	**SSVXPSMCWINUP**	0.520

(1) To be ordered separately to the controllers.
(2) EDS and GSD files are available on the XPS MCWIN configuration software CD-ROM.

Presentation: page 38789-EN/2 | Characteristics: page 38789-EN/6 | References: page 38789-EN/8 | Dimensions: page 38789-EN/9 | Functions: page 38788-EN/2

Safety automation solutions
Preventa con gurable safety controllers
Type XPS MC


XPS MCCPC


TSX PCX 1031


490 NT● 000 ●●


TSX CUSB485

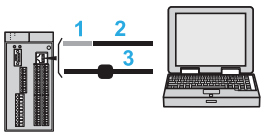

TSX CAN TDM4


ABL 8RPS24100

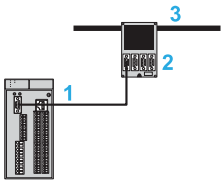
References

Connecting cables (1)

Function			Length m	Reference	Weight kg
Diagnostics using Magelis operator dialogue terminal type XBT GT			3	**VW3 A8 306 R30**	1.130
Configuration software	1	Adaptor: RJ45 socket/PC connection cables	–	**XPS MCCPC**	0.011
	2	Cable to PC serial port (type SUB-D9)	2.5	**TSX PCX 1031**	0.170
	3	Straight shielded twisted pair cables, EIA/TIA 568 standard (RJ45 connector at each end)	2	**490 NTW 000 02**	–
			5	**490 NTW 000 05**	–
			12	**490 NTW 000 12**	–
		Straight shielded twisted pair cables, UL and CSA 22.1 approved (RJ45 connector at each end)	2	**490 NTW 000 02U**	–
			5	**490 NTW 000 05U**	–
			12	**490 NTW 000 12U**	–
	with	RJ45/PC USB port converter (2)	0.4	**TSX CUSB485**	–



Function	Medium	Length m	Reference	Weight kg
Modbus serial link access	Premium automation platform TSX SCY 21601	–	**XPS MCSCY**	–
CANopen bus access	1 CANopen connection cables (tted with: 1 SUB-D 9-pin female connector at each end)	0.3	**TSX CANCADD03**	–
		1	**TSX CANCADD1**	–
		3	**TSX CANCADD3**	–
		5	**TSX CANCADD5**	–
	2 CANopen tap-off box	–	**TSC CANTDM4**	–
	3 Standard CANopen cables	50	**TSX CANCA50**	–
		100	**TSX CANCA100**	–
		300	**TSX CANCA300**	–
Profibus bus access		100	**TSX PBS CA100**	–
		400	**TSX PBS CA400**	–



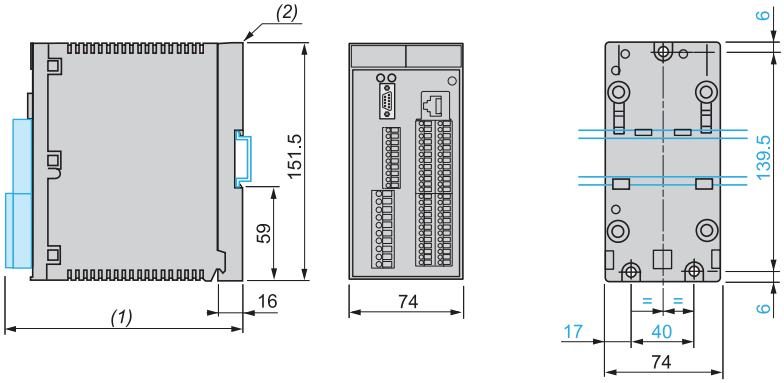
Accessories (1)

Regulated switch mode power supply, single-phase	Output voltage: 24…28.8 V ⎓ Nominal current: 10 A Nominal power: 240 W	**ABL 8RPS24100**	1.000

(1) To be ordered separately.
(2) The converter ***TSX CUSB485*** is installed using ***Driver Pack V2.3***. This "driver" is available on the Safety Suite V2 software or downloadable from our site: www.schneider-electric.com

Dimensions, mounting

XPS MC●●Z●



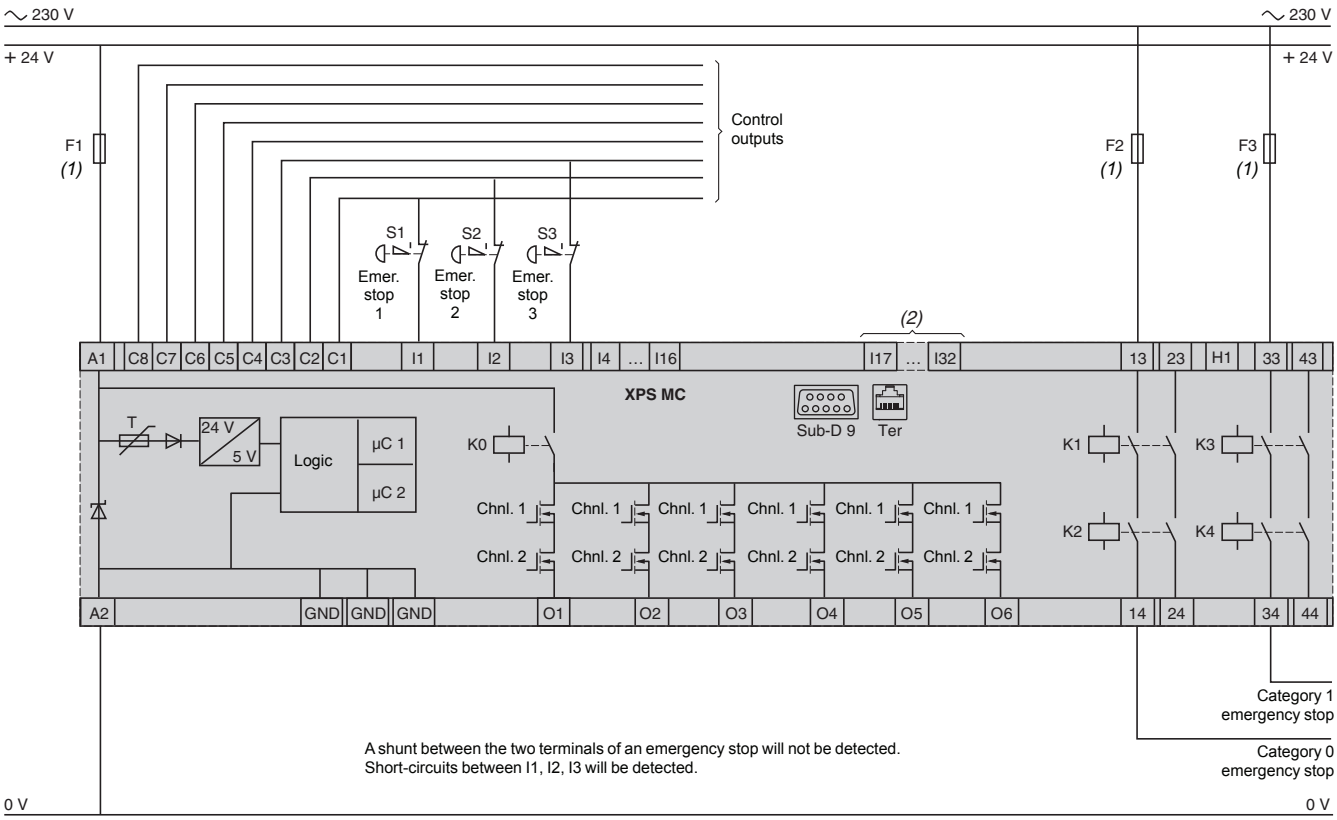
(1) 153 mm with screw connector XPS MCTS●●. 151.4 mm with spring clip connector XPS MCTC●●.
(2) Metal adaptor for fixing on ⊔ 35 mm metal rail.

Safety automation system solutions
Preventa con gurable safety controllers
Type XPS MC

Emergency stop monitoring, with or without time delay, 1-channel wiring, with automatic start

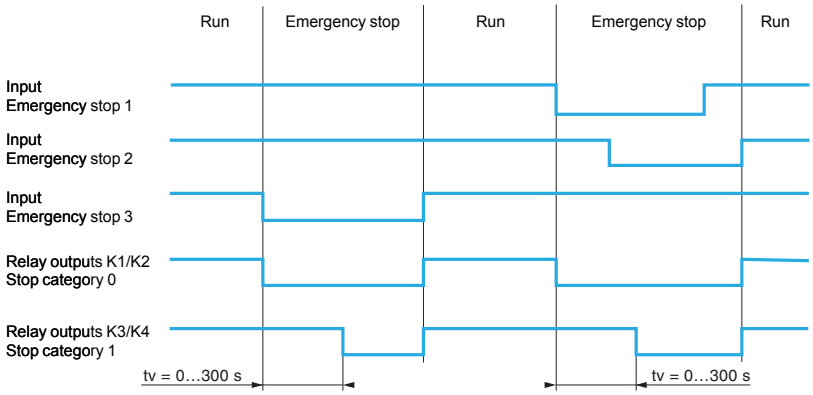
Category 4 achieved with necessary precautions taken to eliminate input circuit faults.

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagram

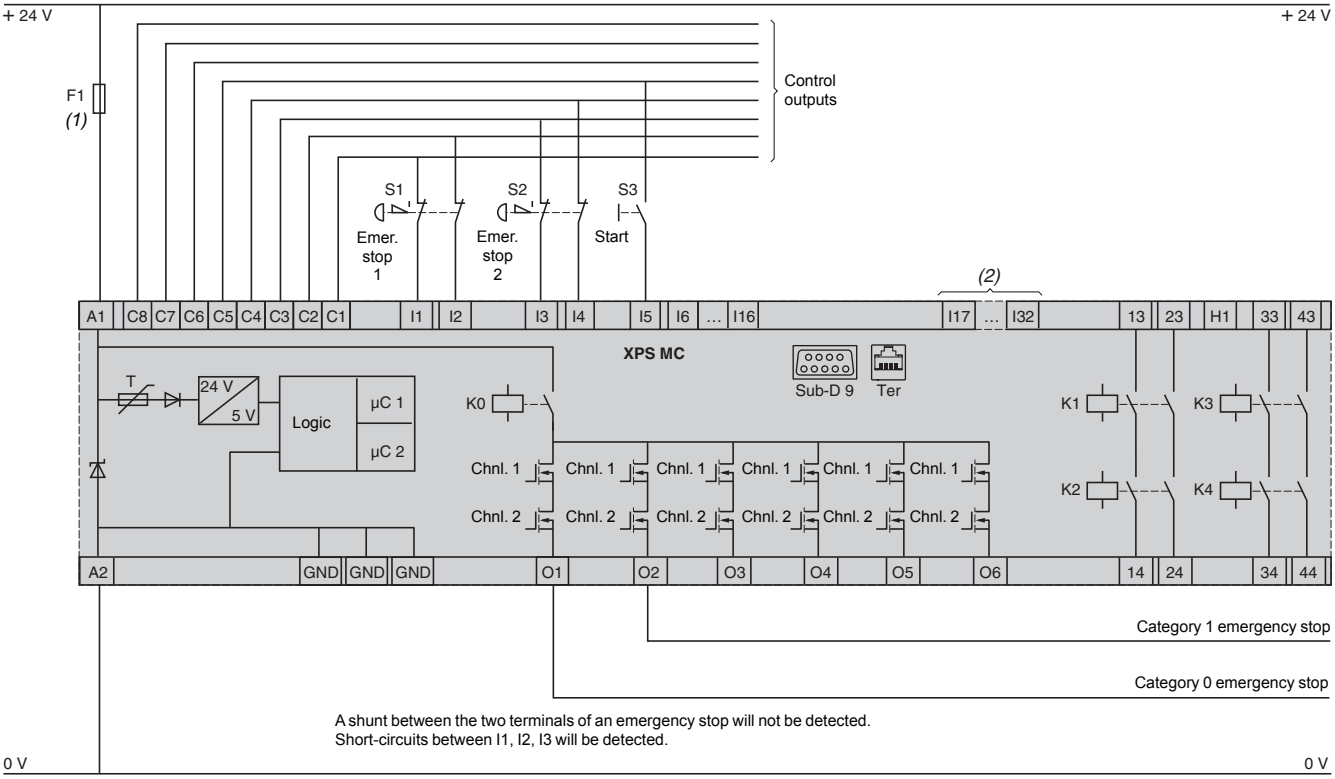


tv = delay time

Emergency stop monitoring, with or without time delay, 2-channel wiring, with start button

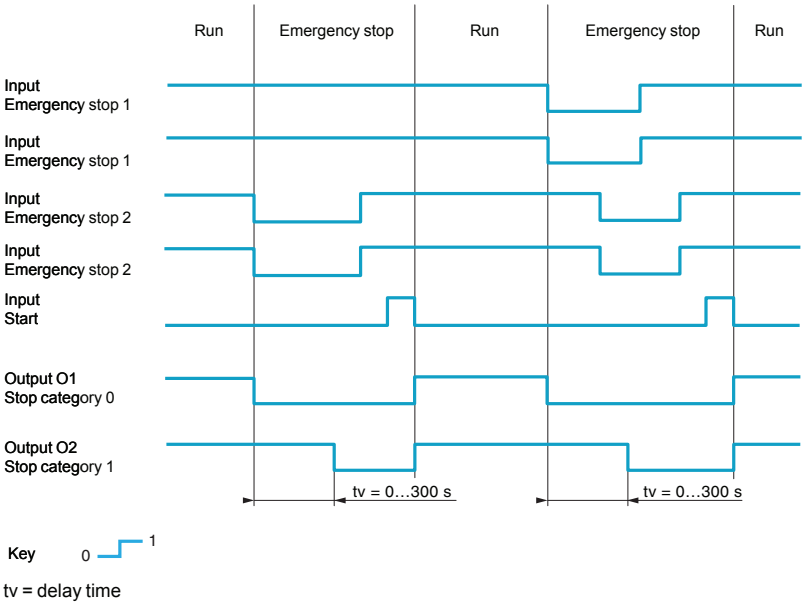
Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

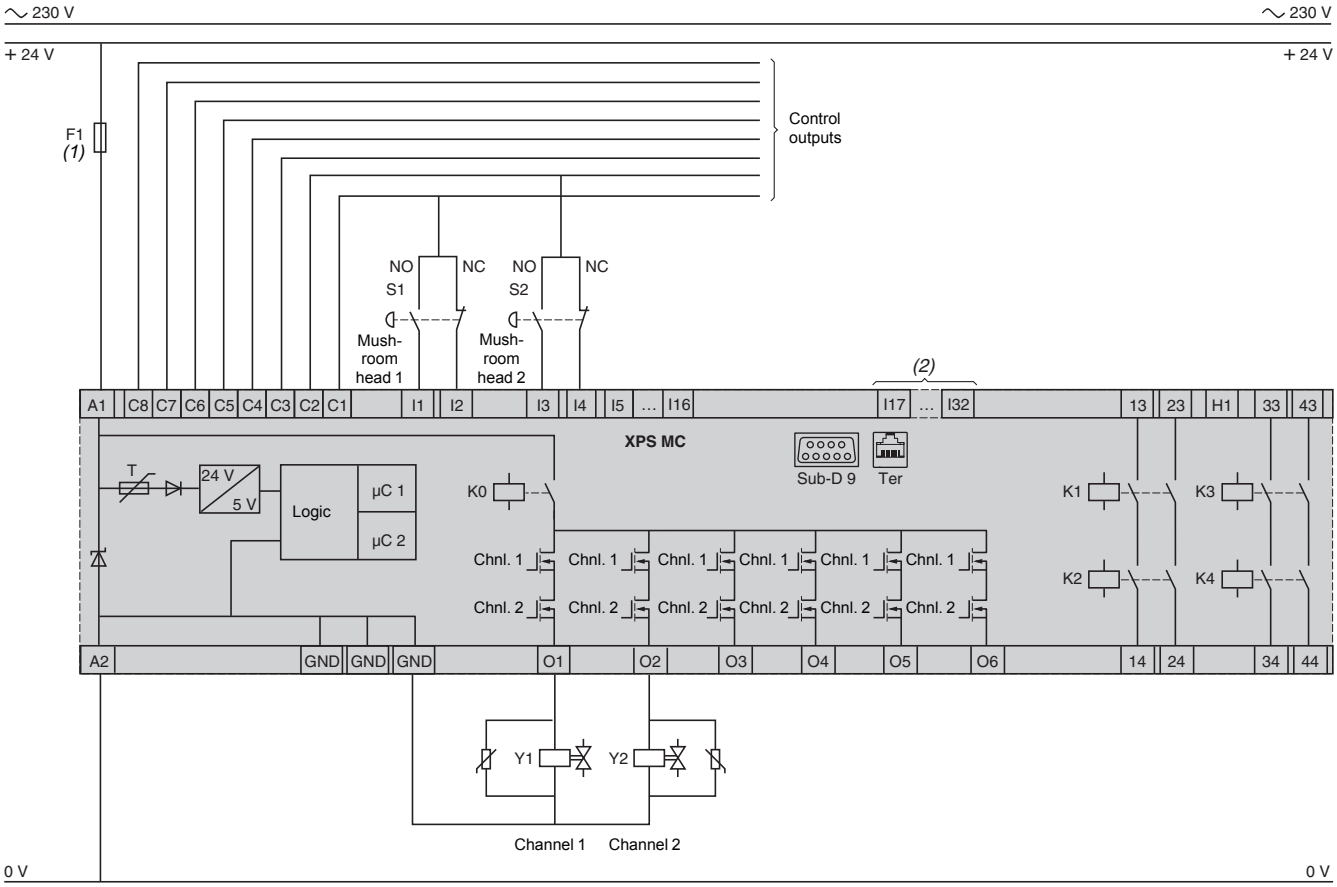
Functional diagram



Two-hand control (type III-C conforming to EN 574-1)

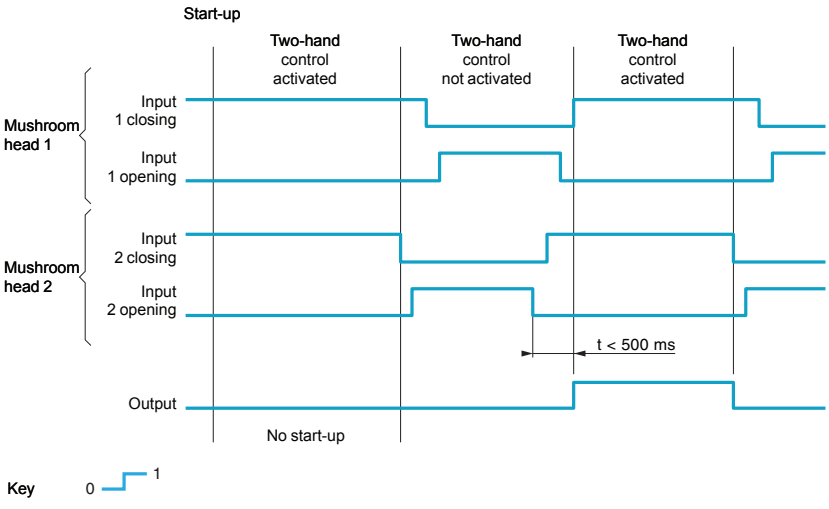
Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagram

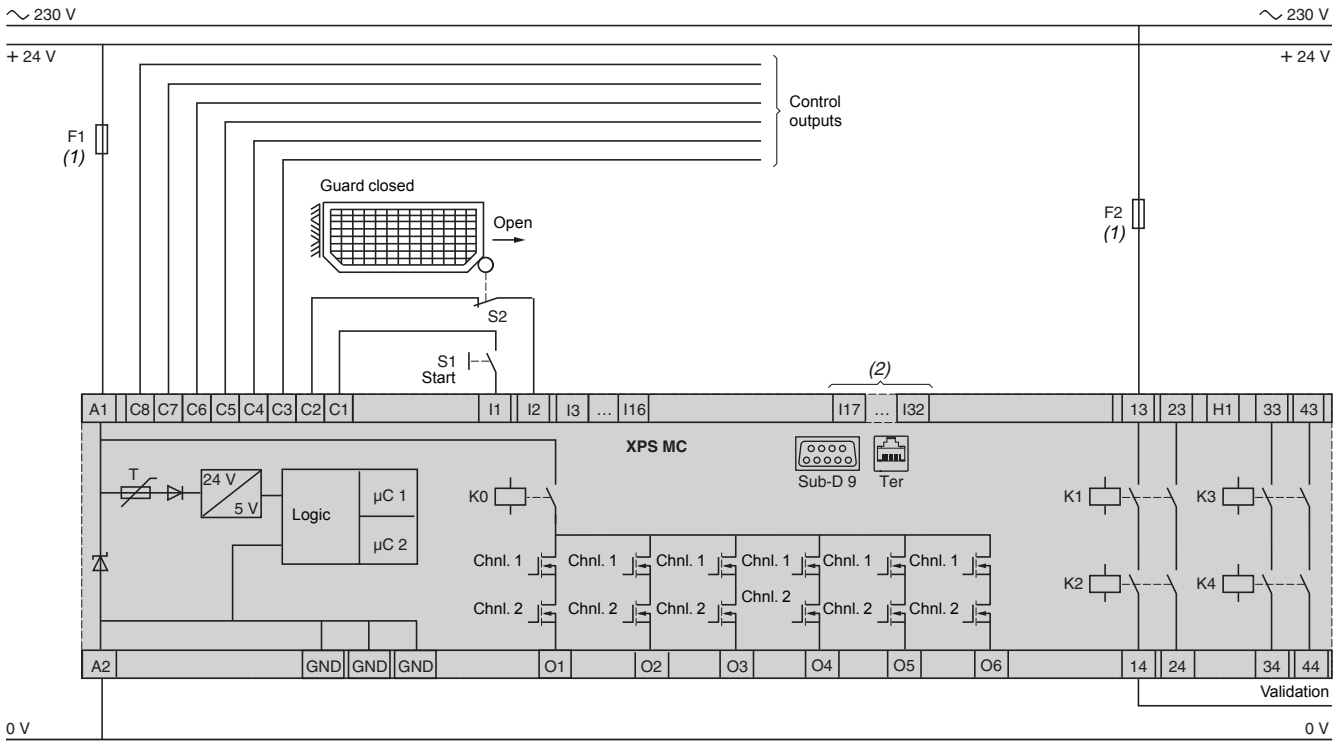


tv = delay time

Guard monitoring with 1 limit switch

Category 1 conforming to standard EN/ISO 13849-1.

Application scheme

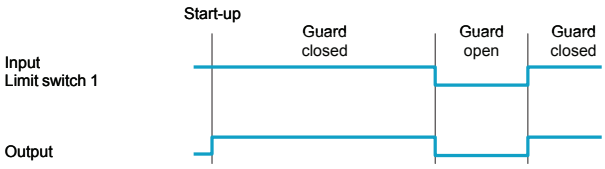


(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

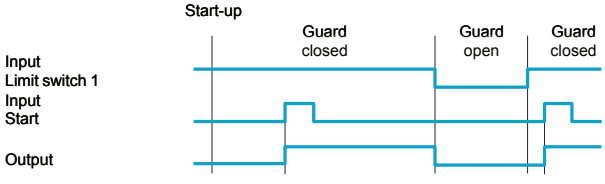
Functional diagrams

Start test = NO

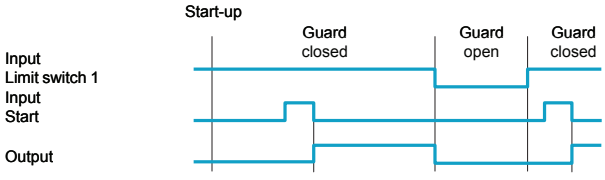
Automatic start



Rising edge monitored start

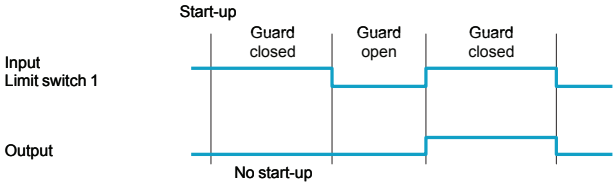


Falling edge monitored start

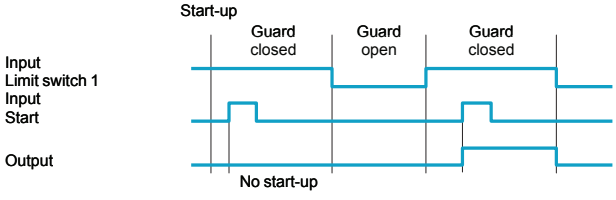


Start test = YES

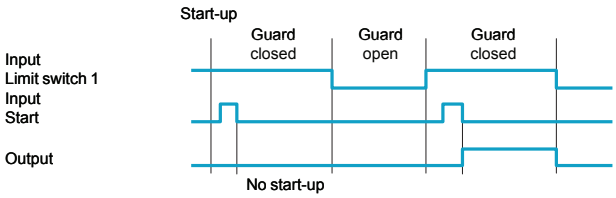
Automatic start



Rising edge monitored start



Falling edge monitored start

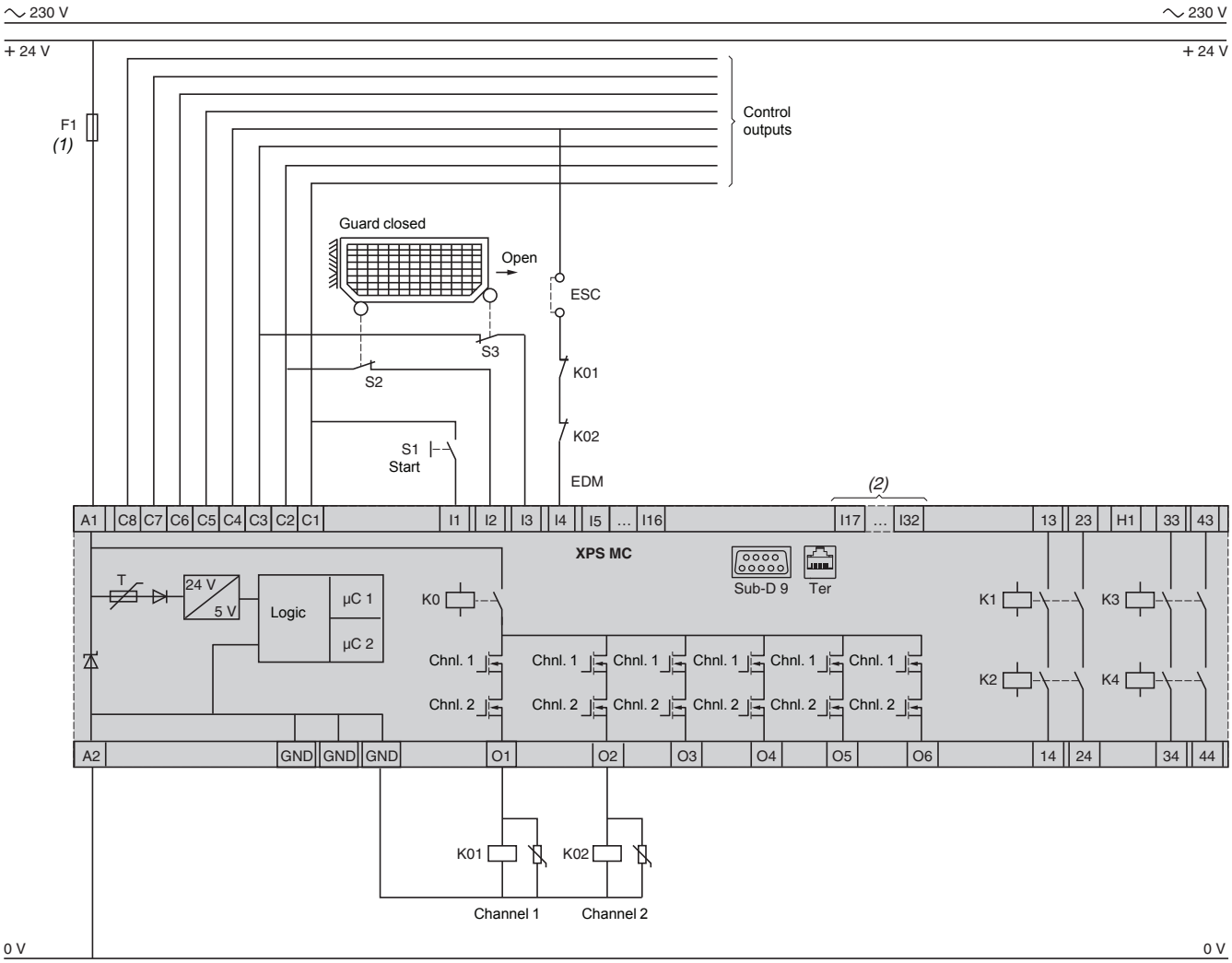


Key 0 1

Guard monitoring with 2 limit switches

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



ESC = external start conditions
EDM = external devices monitoring

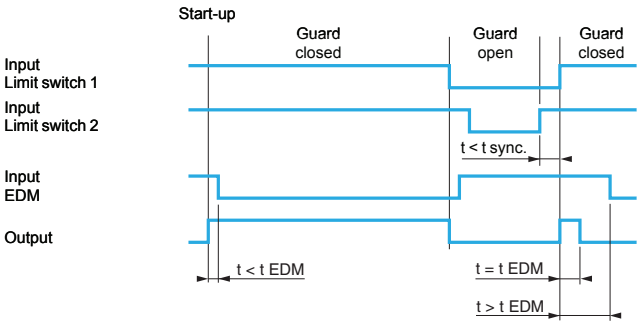
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Guard monitoring with 2 limit switches (continued)

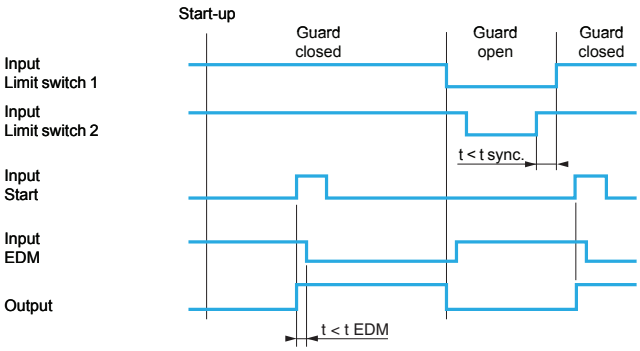
Functional diagrams

Start test = NO

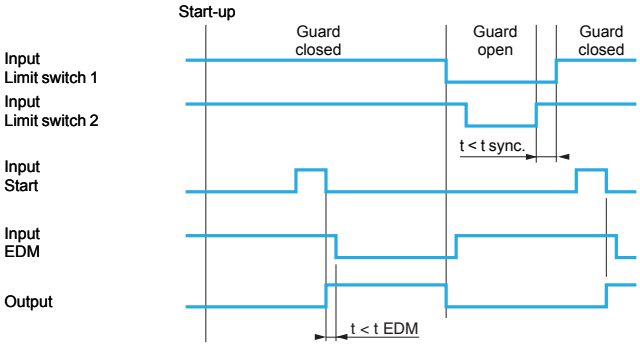
Automatic start



Rising edge monitored start

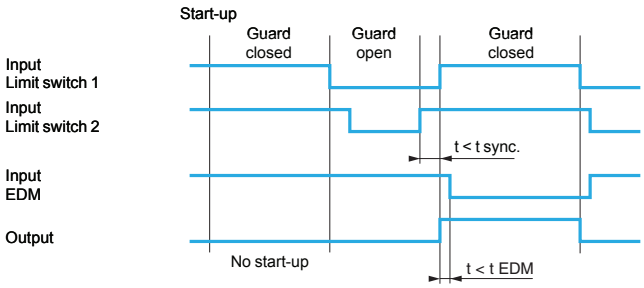


Falling edge monitored start

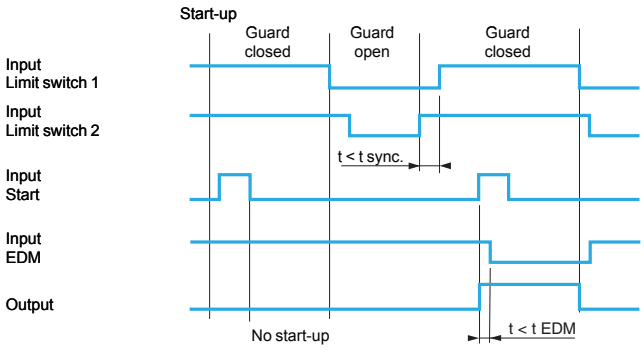


Start test = YES

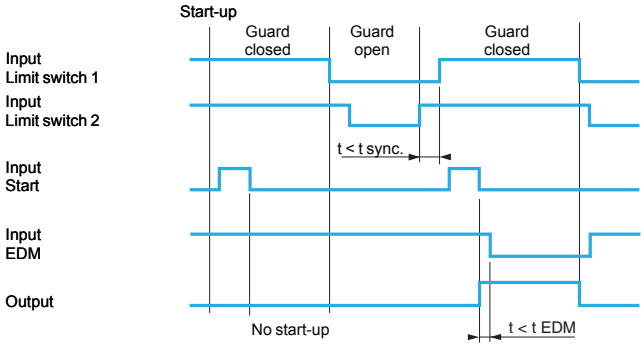
Automatic start



Rising edge monitored start



Falling edge monitored start



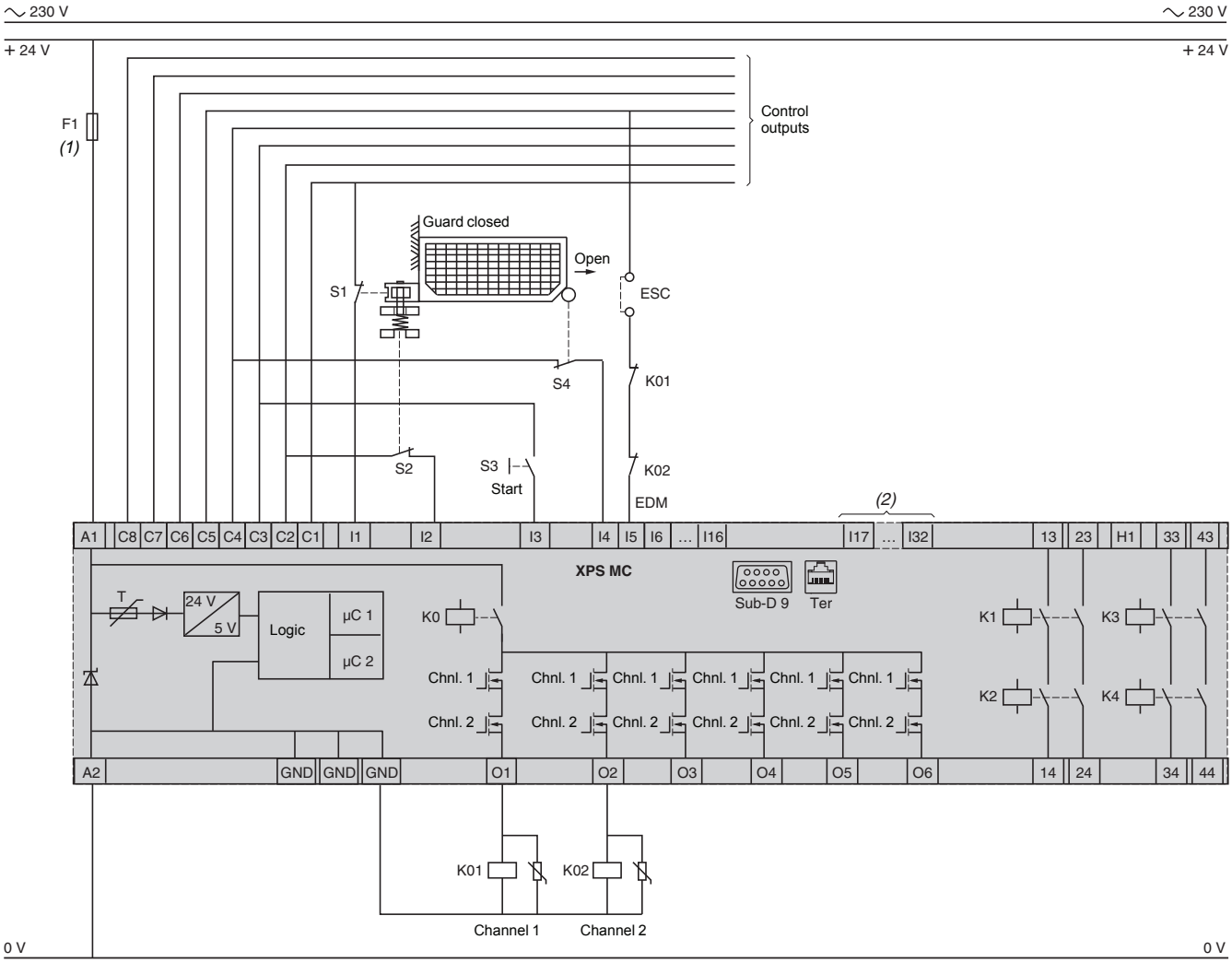
Key 0 — 1

EDM = external devices monitoring
t EDM = maximum monitoring time of external devices
t sync. = synchronisation time

Guard monitoring with 2 limit switches, with guard locking

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



ESC = external start conditions
EDM = external devices monitoring

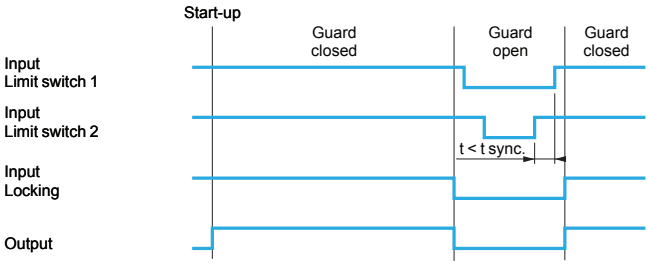
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Guard monitoring with 2 limit switches, with guard locking (continued)

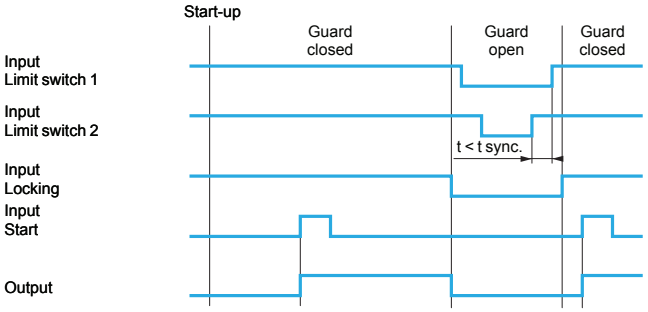
Functional diagrams

Start test = NO

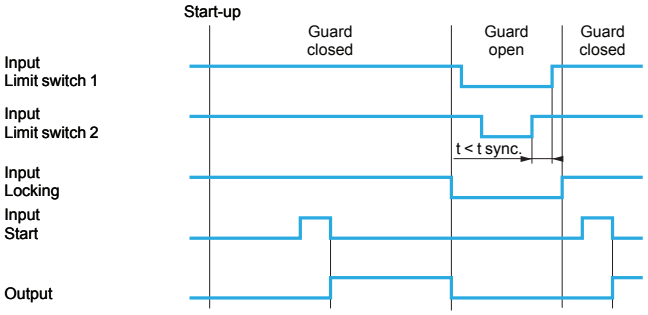
Automatic start



Rising edge monitored start

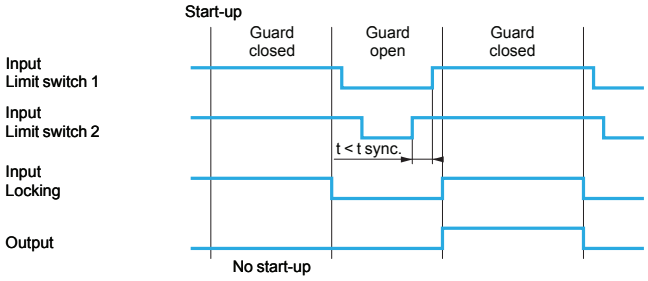


Falling edge monitored start

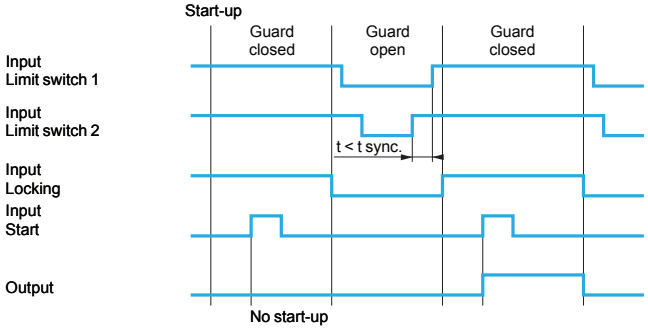


Start test = YES

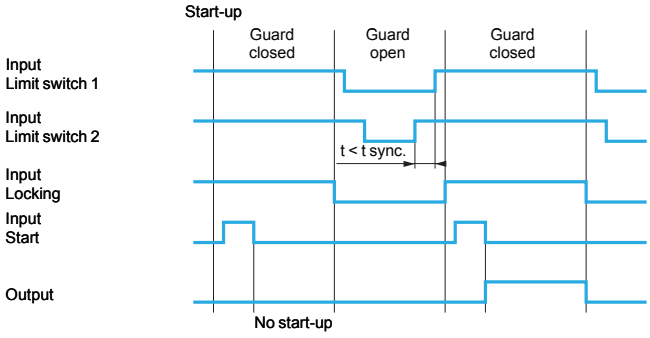
Automatic start



Rising edge monitored start



Falling edge monitored start



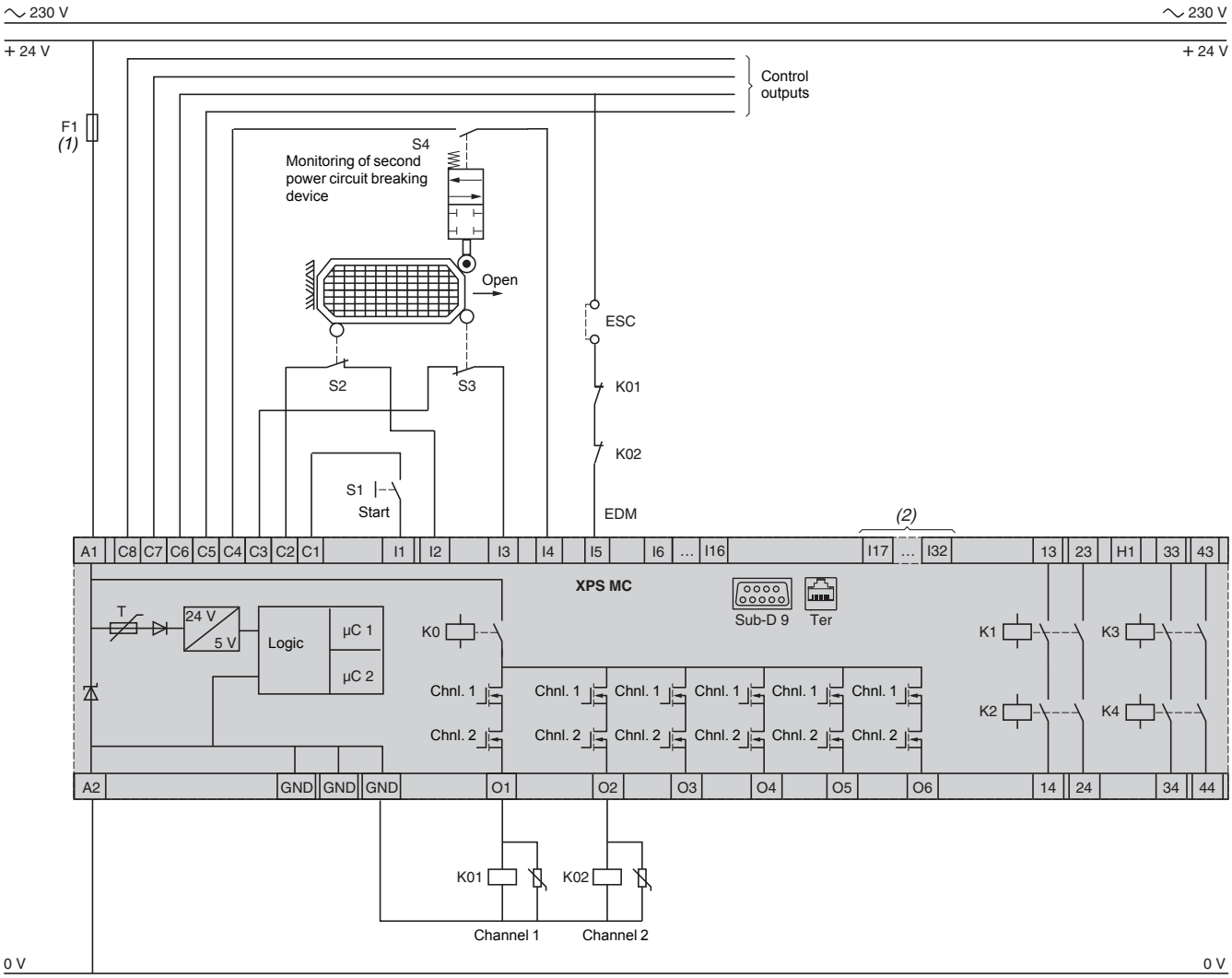
Key 0 — 1

t sync. = synchronisation time

Guard monitoring for injection presses and blowing machines

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



ESC = external start conditions
EDM = external devices monitoring

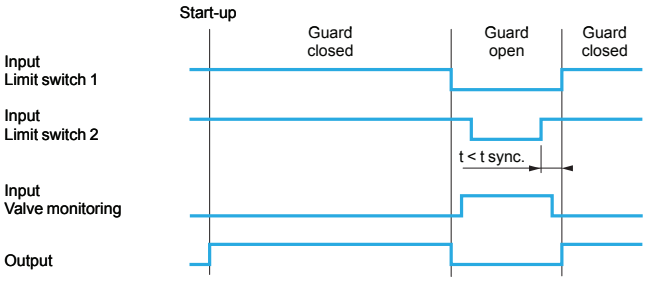
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Guard monitoring for injection presses and blowing machines (continued)

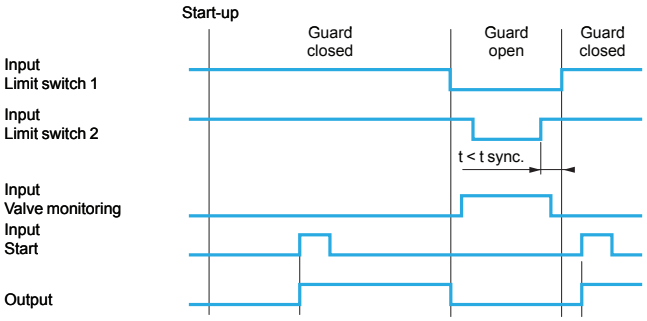
Functional diagrams

Start test = NO

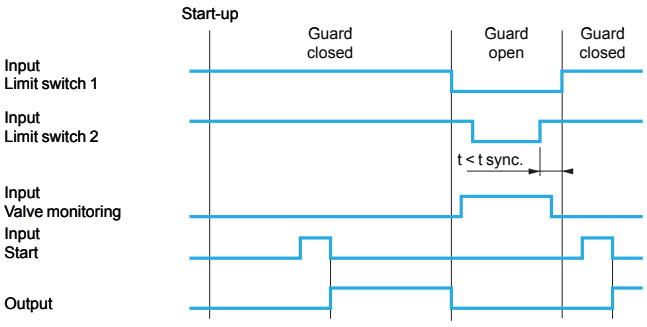
Automatic start



Rising edge monitored start

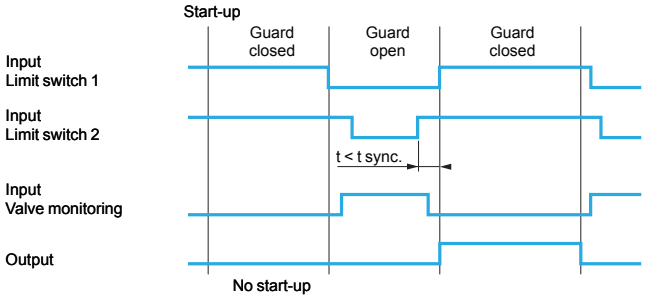


Falling edge monitored start

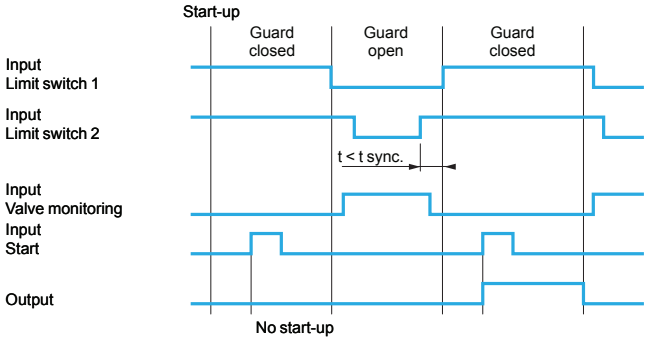


Start test = YES

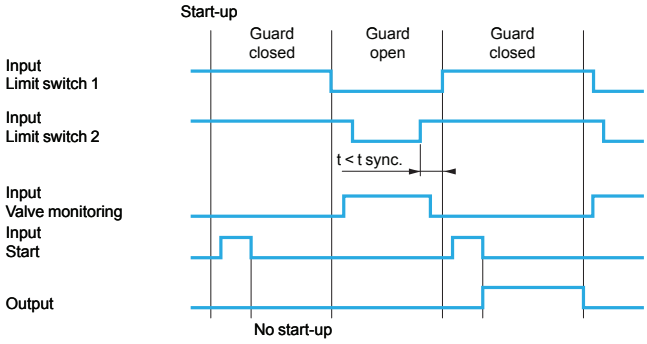
Automatic start



Rising edge monitored start



Falling edge monitored start

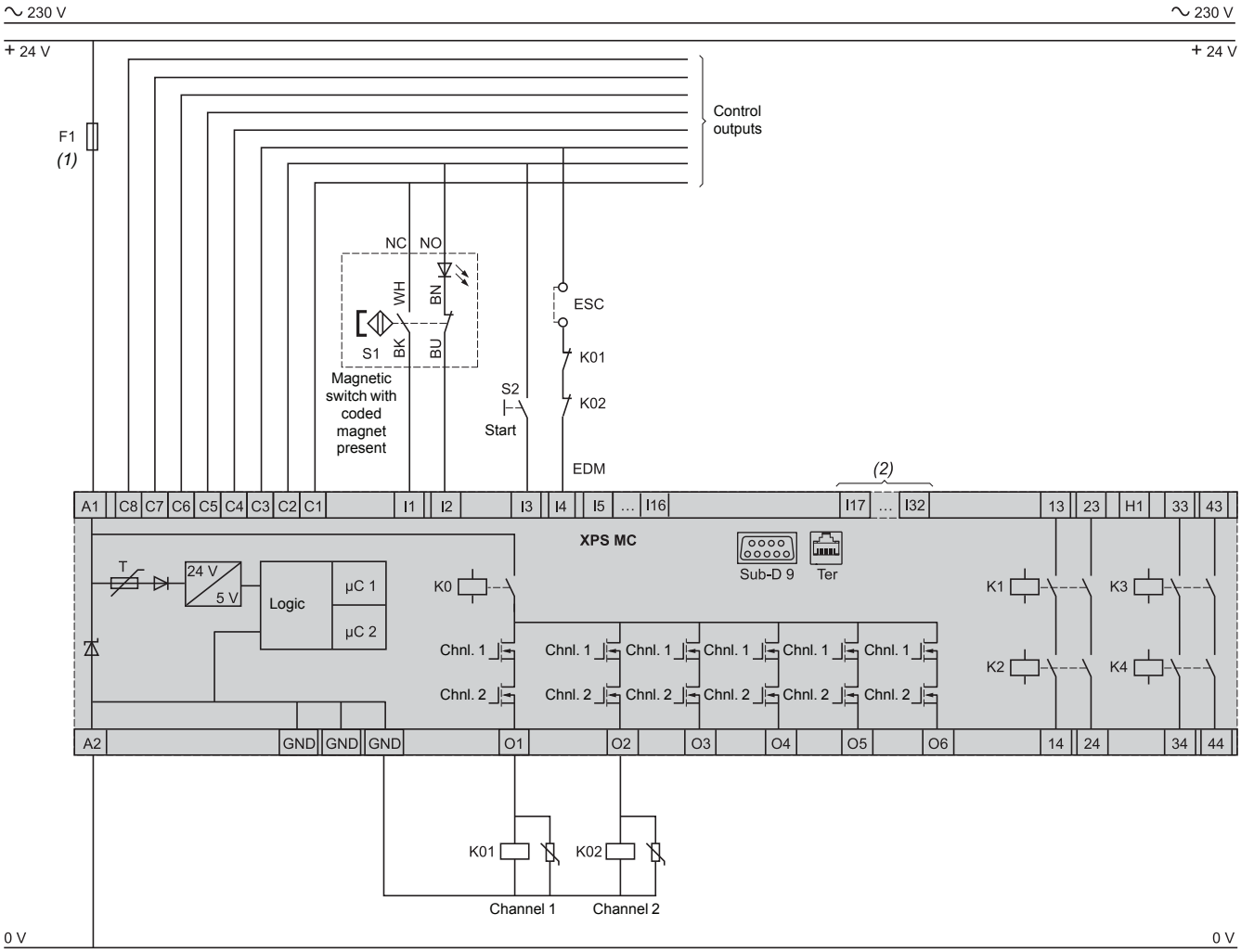


Key 0 1

t sync. = synchronisation time

Magnetic switch monitoring

Application scheme



ESC = external start conditions
EDM = external devices monitoring

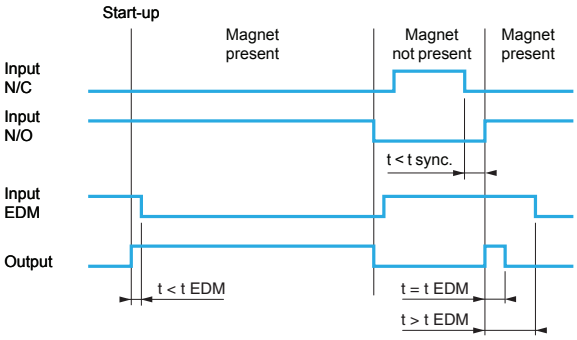
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Magnetic switch monitoring (continued)

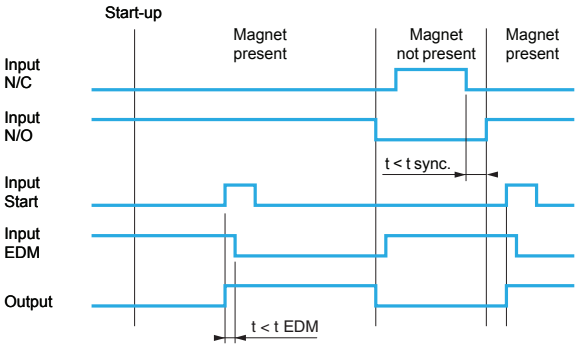
Functional diagrams

Start test = NO

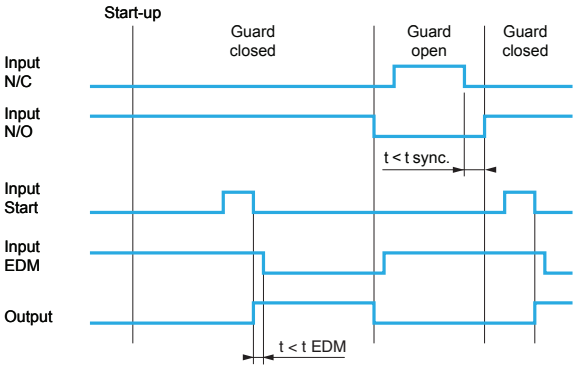
Automatic start



Rising edge monitored start

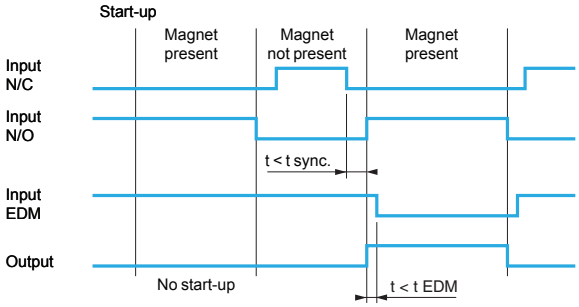


Falling edge monitored start

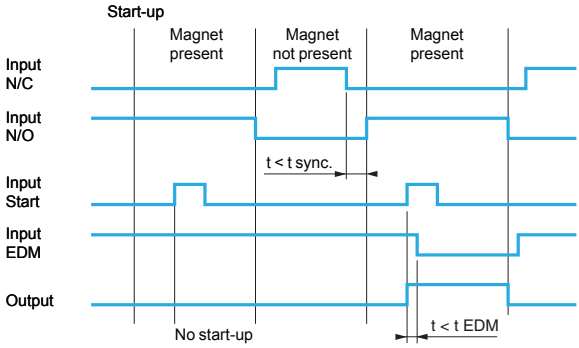


Start test = YES

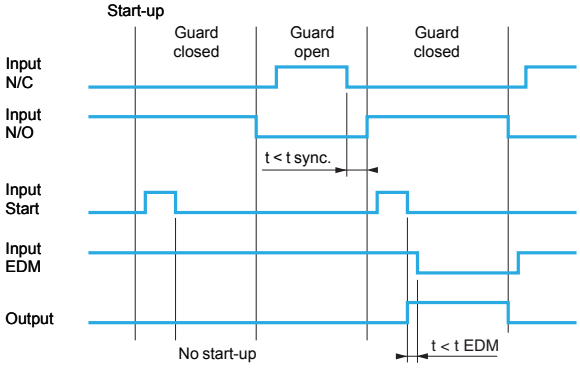
Automatic start



Rising edge monitored start



Falling edge monitored start



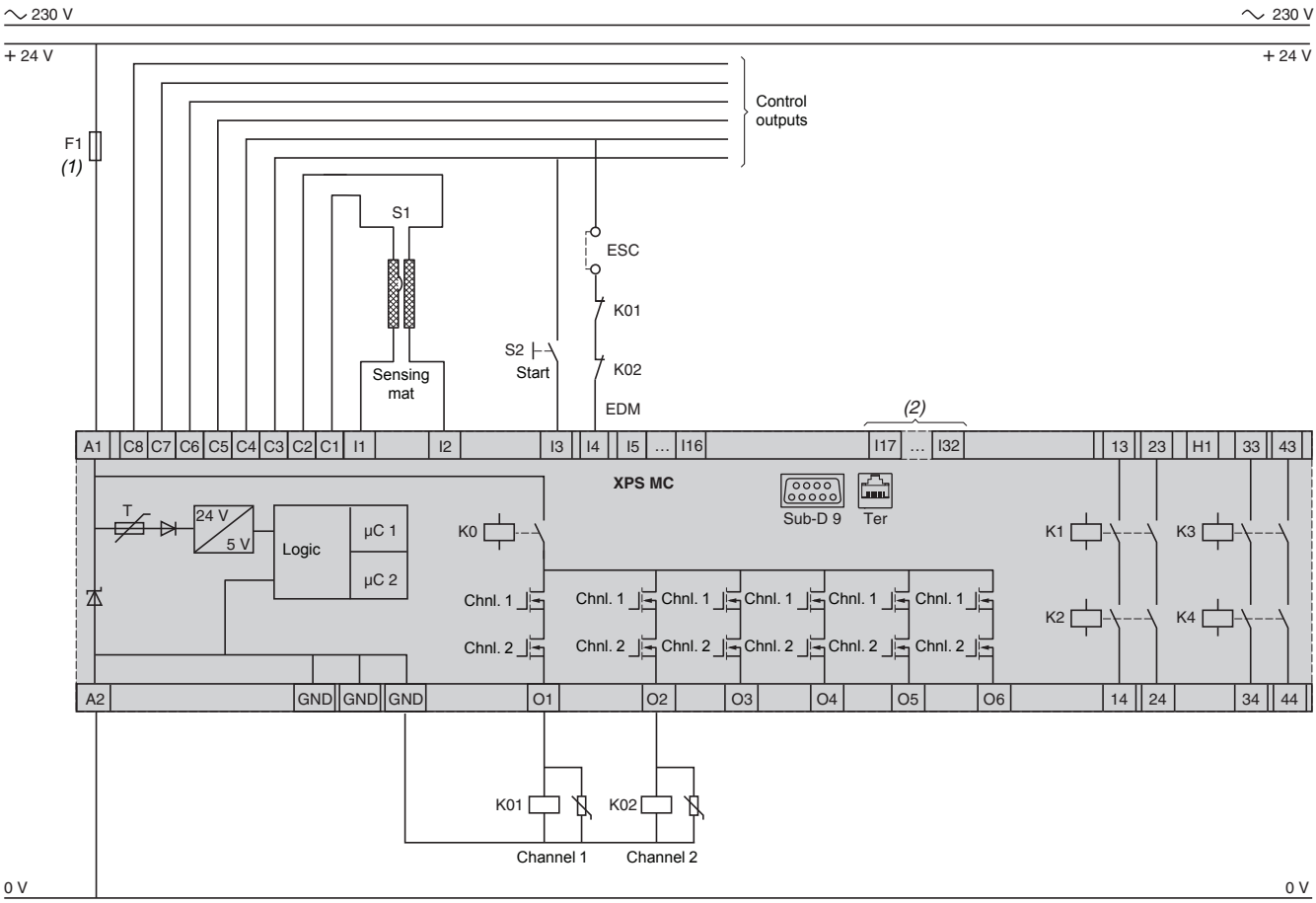
Key 0 1

EDM = external devices monitoring
t EDM = maximum monitoring time of external devices
t sync. = synchronisation time

Sensing mat monitoring

- Category 3 conforming to standard EN/ISO 13849-1.
- Control outputs connected to a sensing mat cannot be used for other items.

Application scheme



ESC = external start conditions
EDM = external devices monitoring

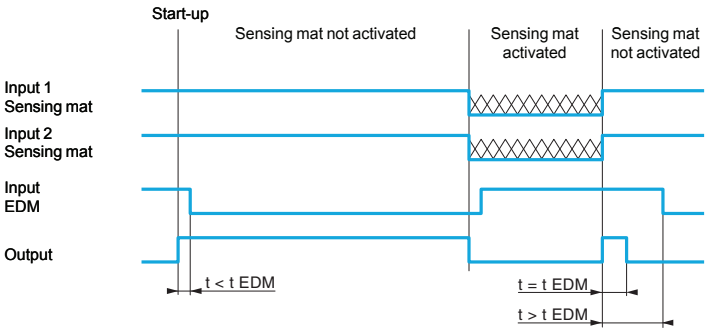
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Sensing mat monitoring (continued)

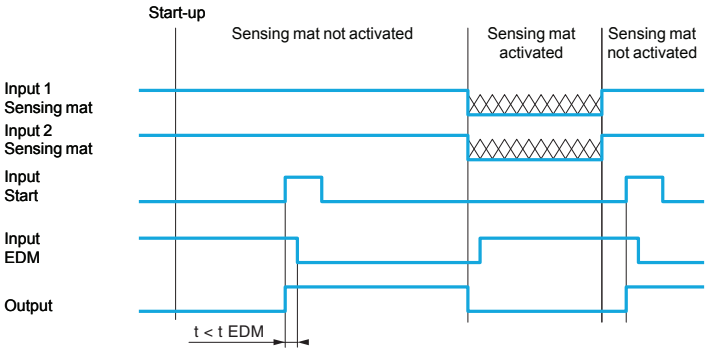
Functional diagrams

Start-up test

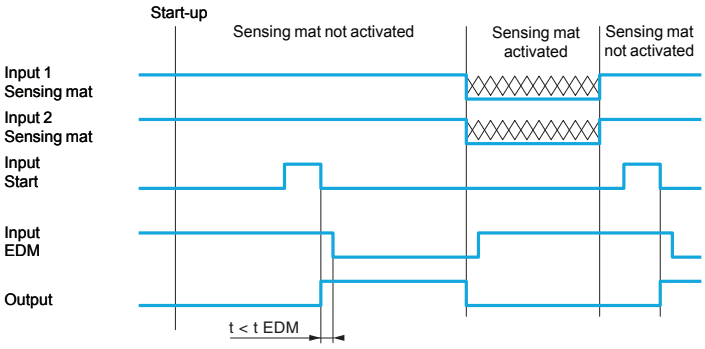
Automatic start



Rising edge monitored start



Falling edge monitored start



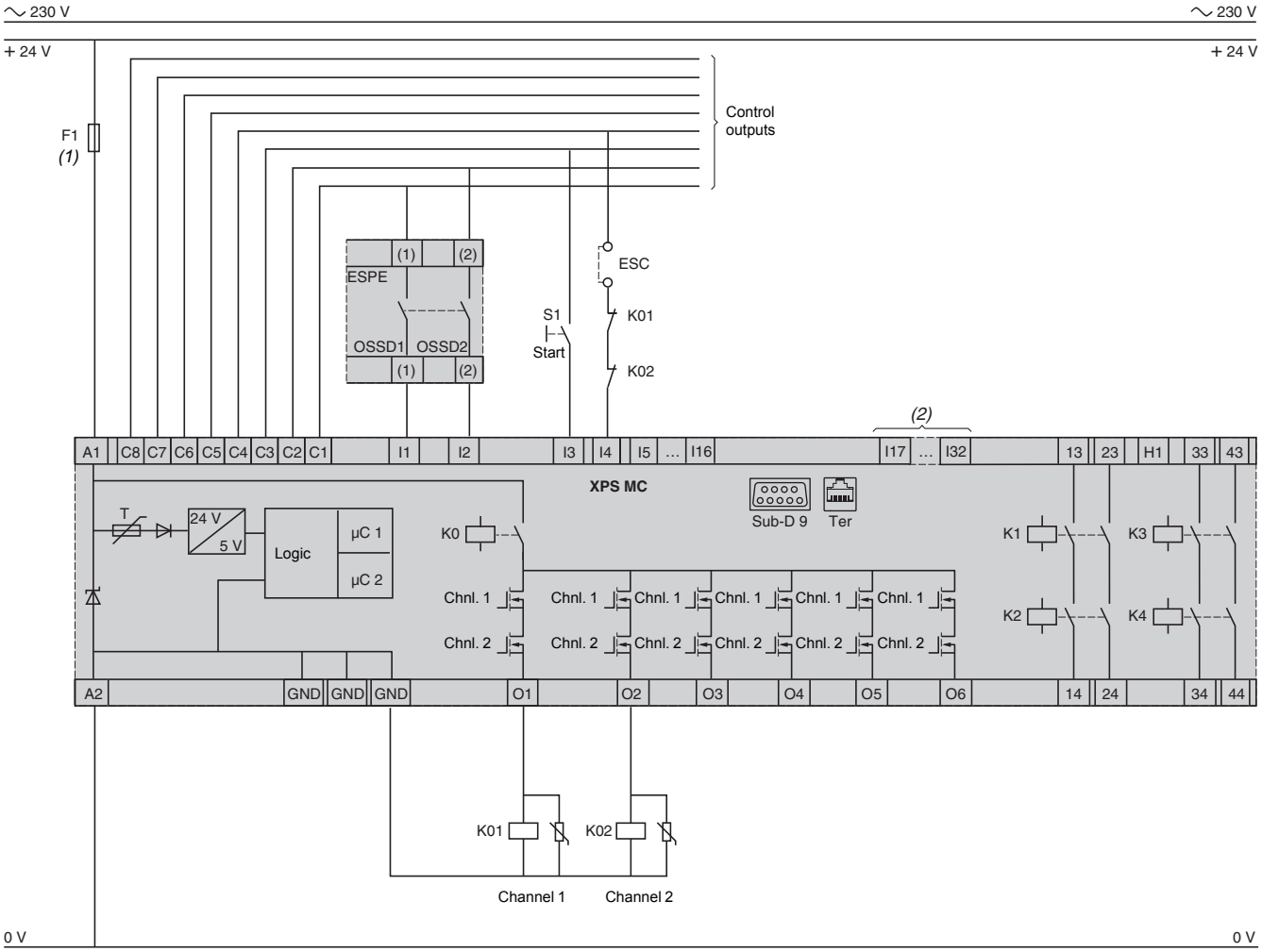
Key 0 1

EDM = external devices monitoring
t EDM = maximum monitoring time of external devices

Light curtain monitoring, relay output type

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



ESC = external start conditions
ESPE = electro-sensitive protection equipment
OSSD1/OSSD2 = output signal switching device

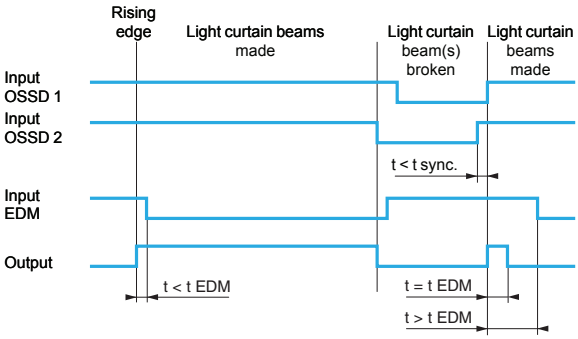
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Light curtain monitoring, relay output type (continued)

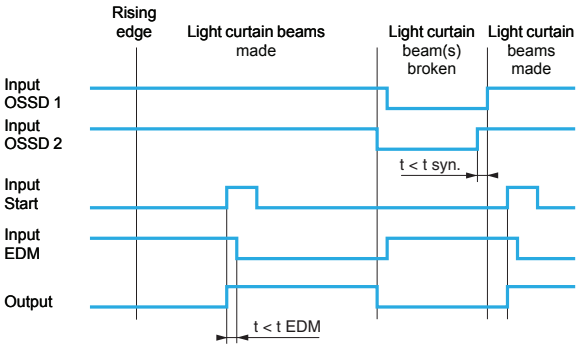
Functional diagrams

Start test = NO

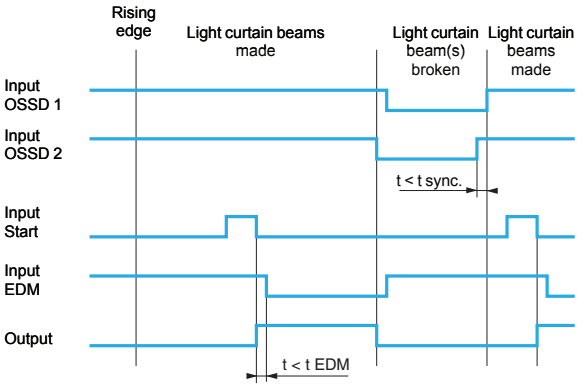
Automatic start



Rising edge monitored start

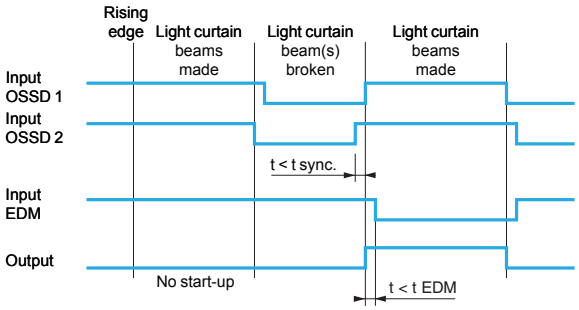


Falling edge monitored start

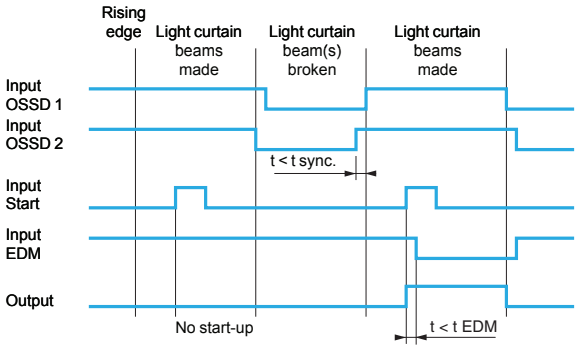


Start test = YES

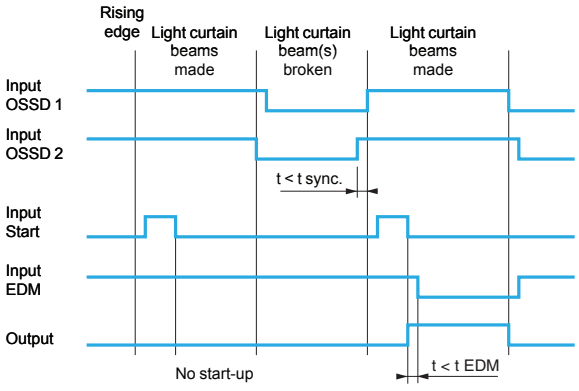
Automatic start



Rising edge monitored start



Falling edge monitored start



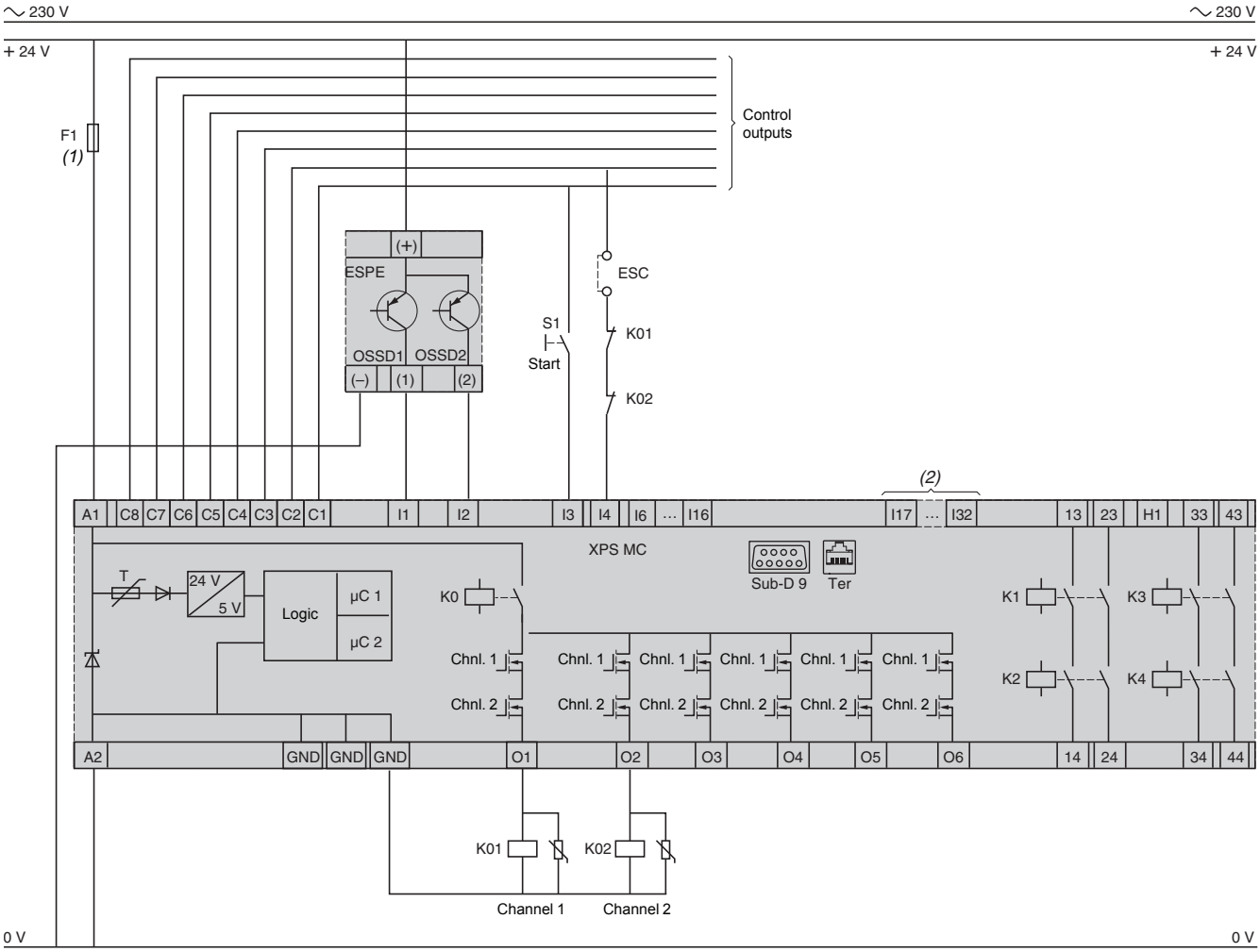
Key 0 ⌐ 1

EDM = external devices monitoring
t EDM = maximum monitoring time of external devices
t sync. = synchronisation time

Light curtain monitoring, solid-state output type

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



ESC = external start conditions
ESPE = electro-sensitive protection equipment
OSSD1/OSSD2 = output signal switching device

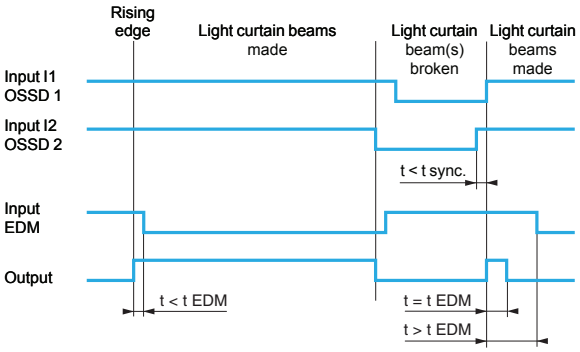
(1) Technical characteristics for maximum rating of fuses, see page38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Light curtain monitoring, solid-state output type (continued)

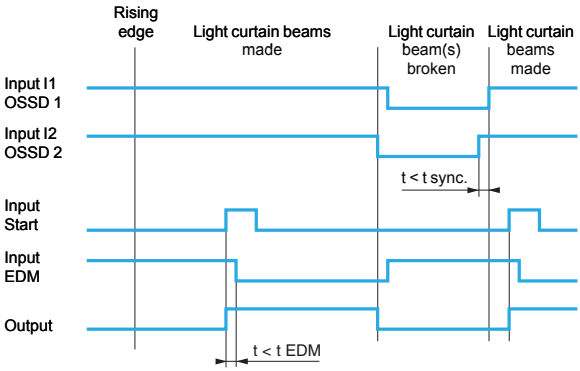
Functional diagrams

Start test = NO

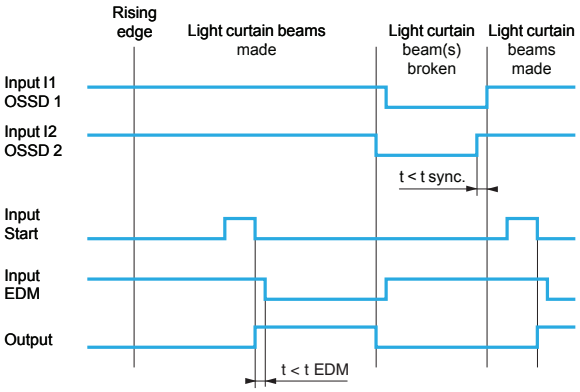
Automatic start



Rising edge monitored start

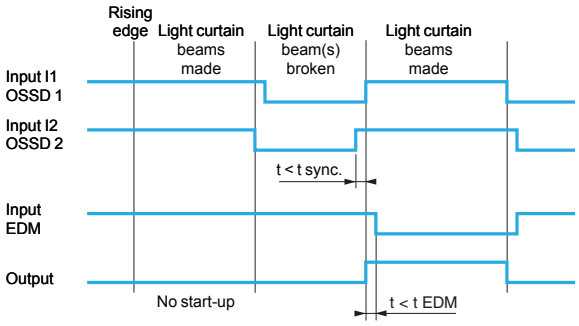


Falling edge monitored start

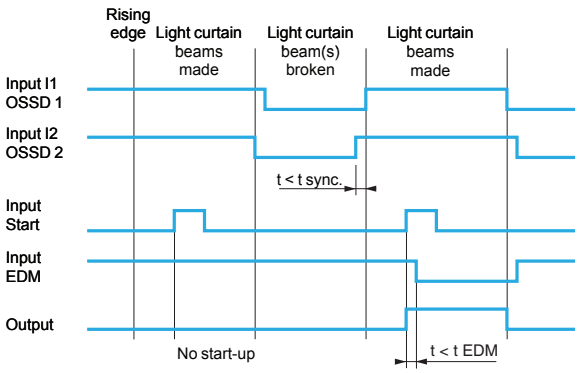


Start test = YES

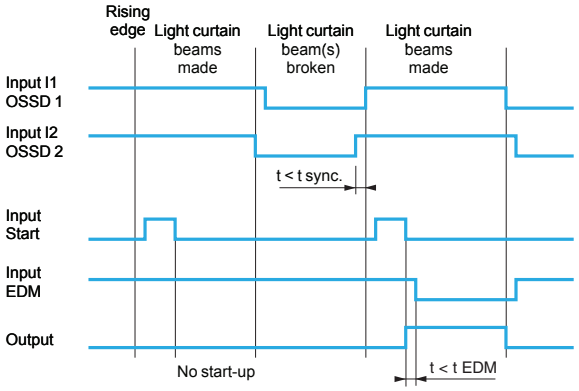
Automatic start



Rising edge monitored start



Falling edge monitored start



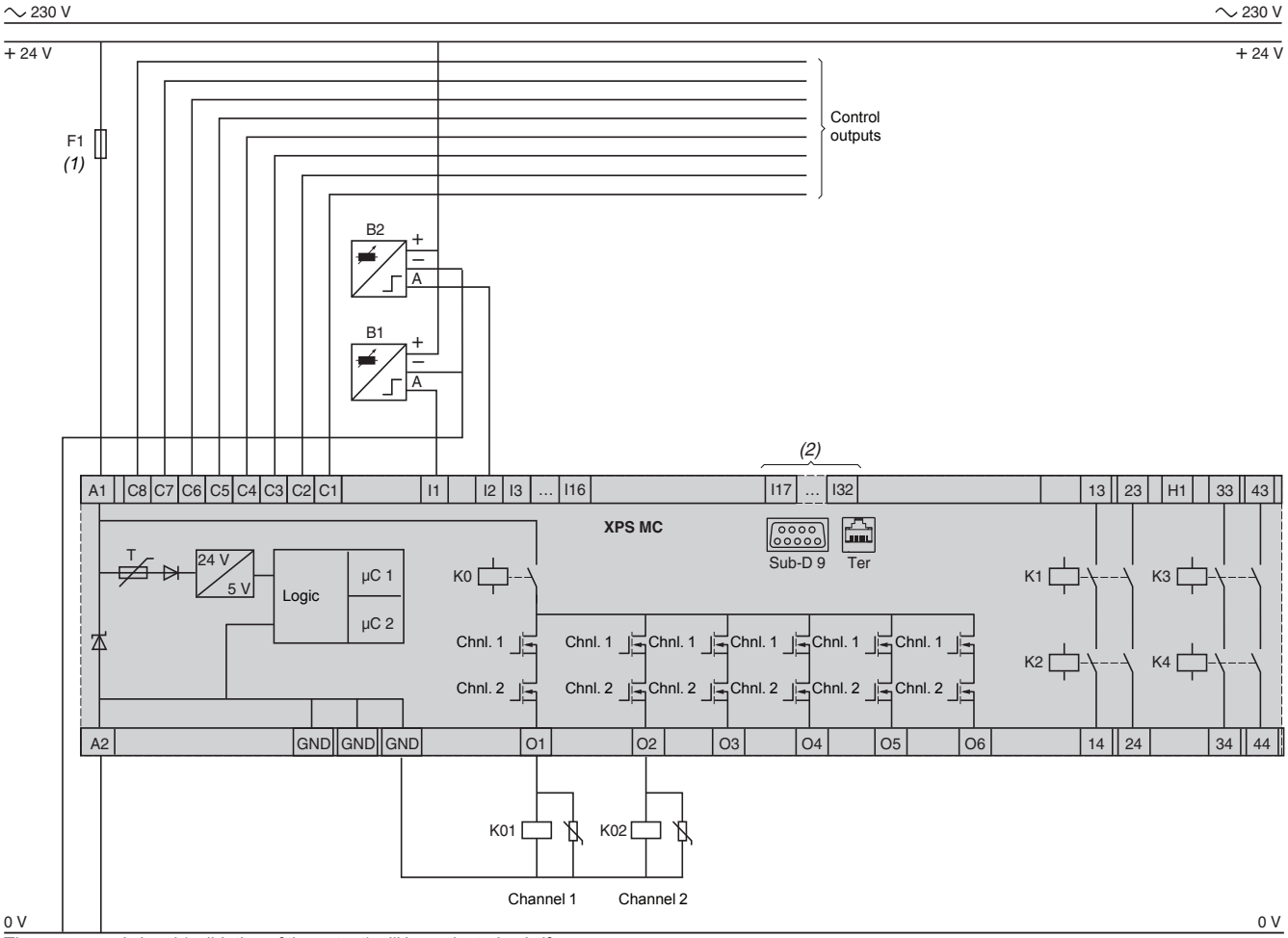
Key 0 1

EDM = external devices monitoring
t EDM = maximum monitoring time of external devices
t sync. = synchronisation time

Zero speed detection

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme

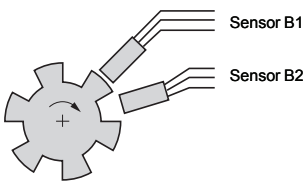


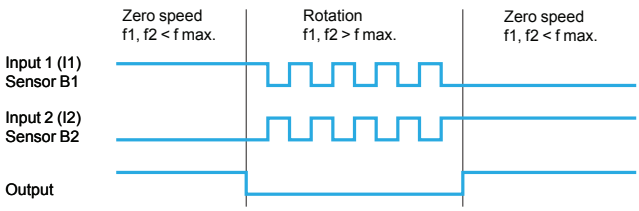
The zero speed signal (validation of the output) will be activated only if:
1: one input is in a high state,
2: the other input is in a low state,
3: the frequency of the two inputs is less than the stated value.

(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.
(3) Only one "Zero speed detection" function can be connected to an XPS MC controller, and only to the inputs i1 and i2.

Functional diagram

Sensor control

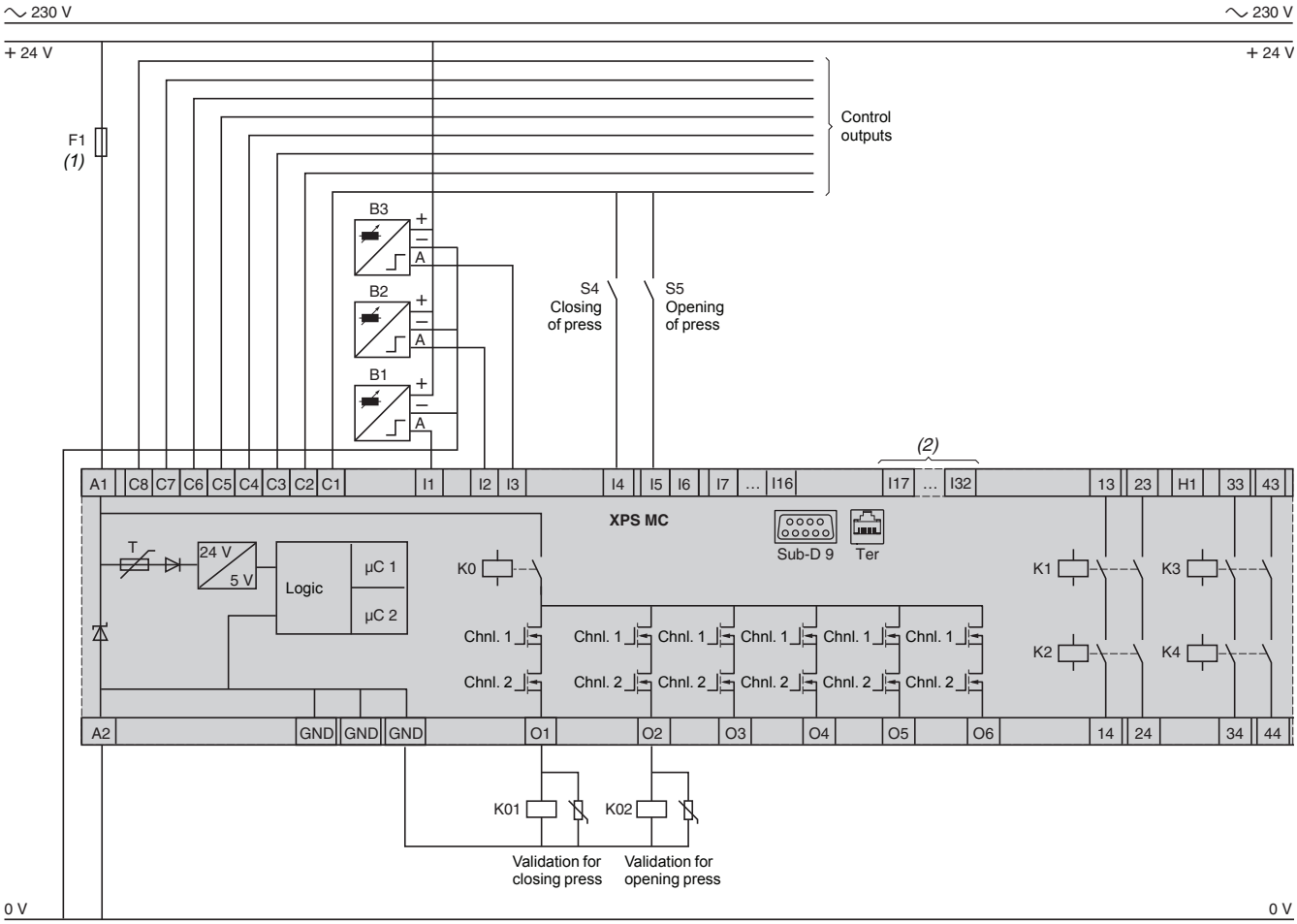




Dynamic monitoring of hydraulic valves on linear presses

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme

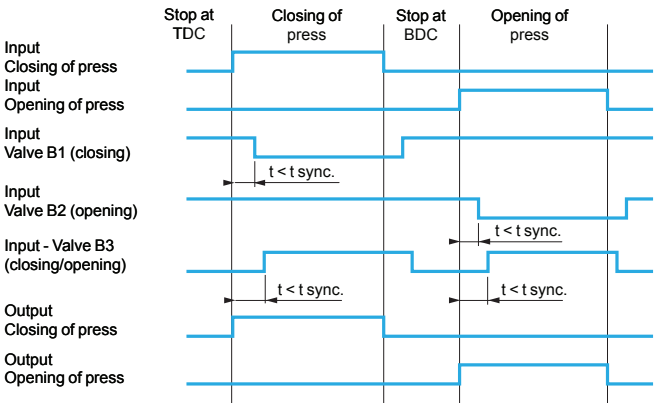


ESC = external start conditions

(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagrams

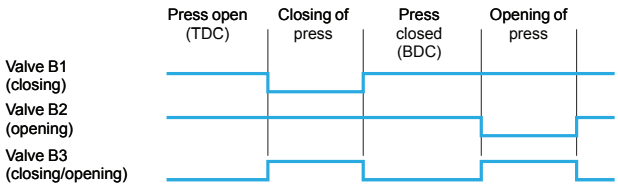
Valve control



Key 0 1

BDC = Bottom Dead Centre
TDC = Top Dead Centre
t sync. = synchronisation time

Valve sensor signals

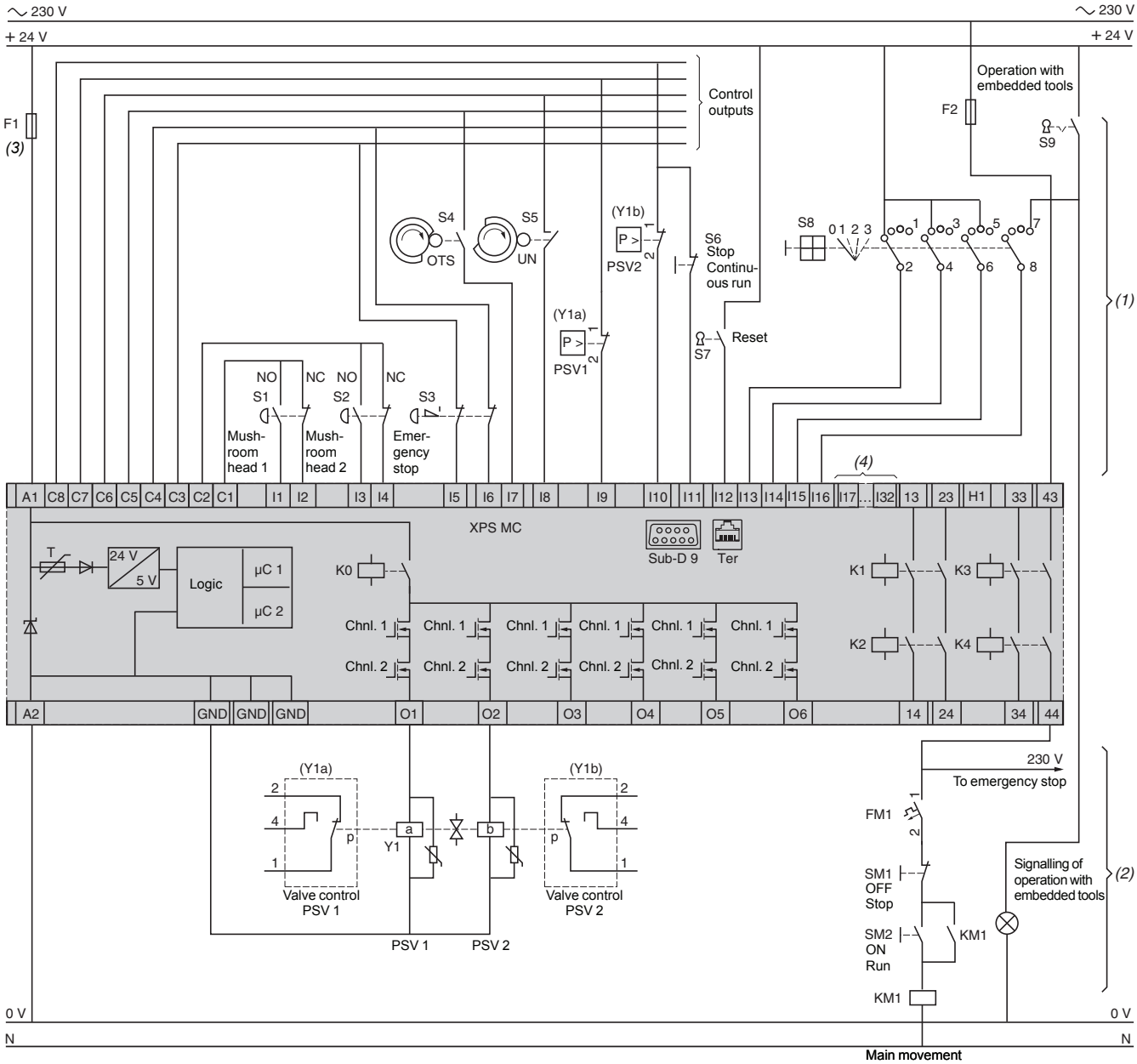


***Note:** The valve sensor signals must function as described above.*

Monitoring safety stop at top dead centre on eccentric press

- Category 4 conforming to standard EN/ISO 13849-1.
- This function comprises several monitoring modes including:
  - Safety stop at top dead centre *(1)*,
  - monitoring braking travel,
  - as an option, dynamic monitoring of doubled-bodied solenoid valves *(2)*.

Application scheme

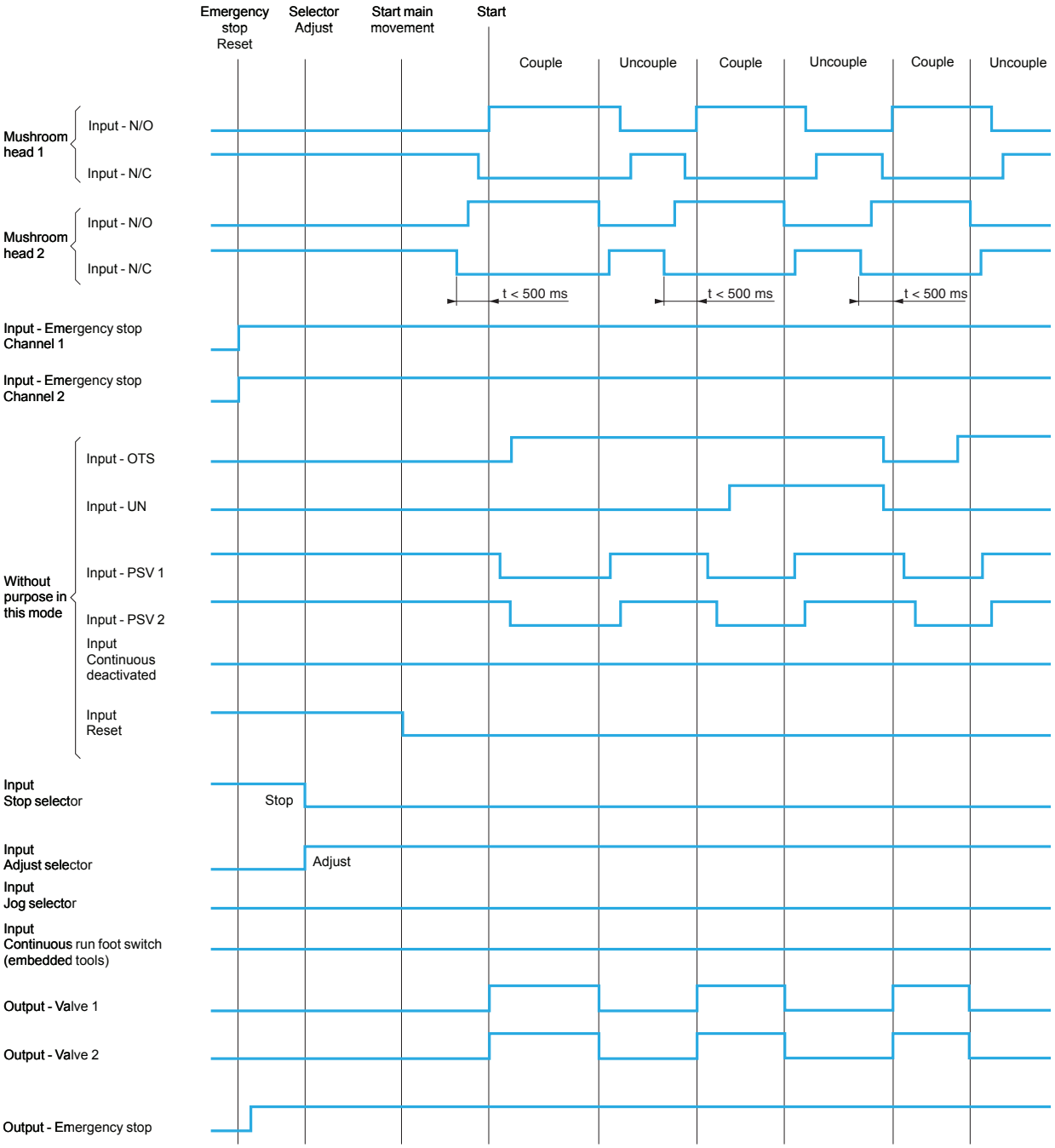


S8: Operating modes:
0 - stop,
1 - adjust,
2 - jog,
3 - automatic continuous run.
OTS = Limit switch associated with top dead centre (TDC)
UN = Limit switch associated with bottom dead centre (BDC)
PSV = safety valve

(3) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(4) Only applicable to XPS MC32Z●.

Monitoring safety stop at top dead centre on eccentric press (continued)

Functional diagram in adjust mode

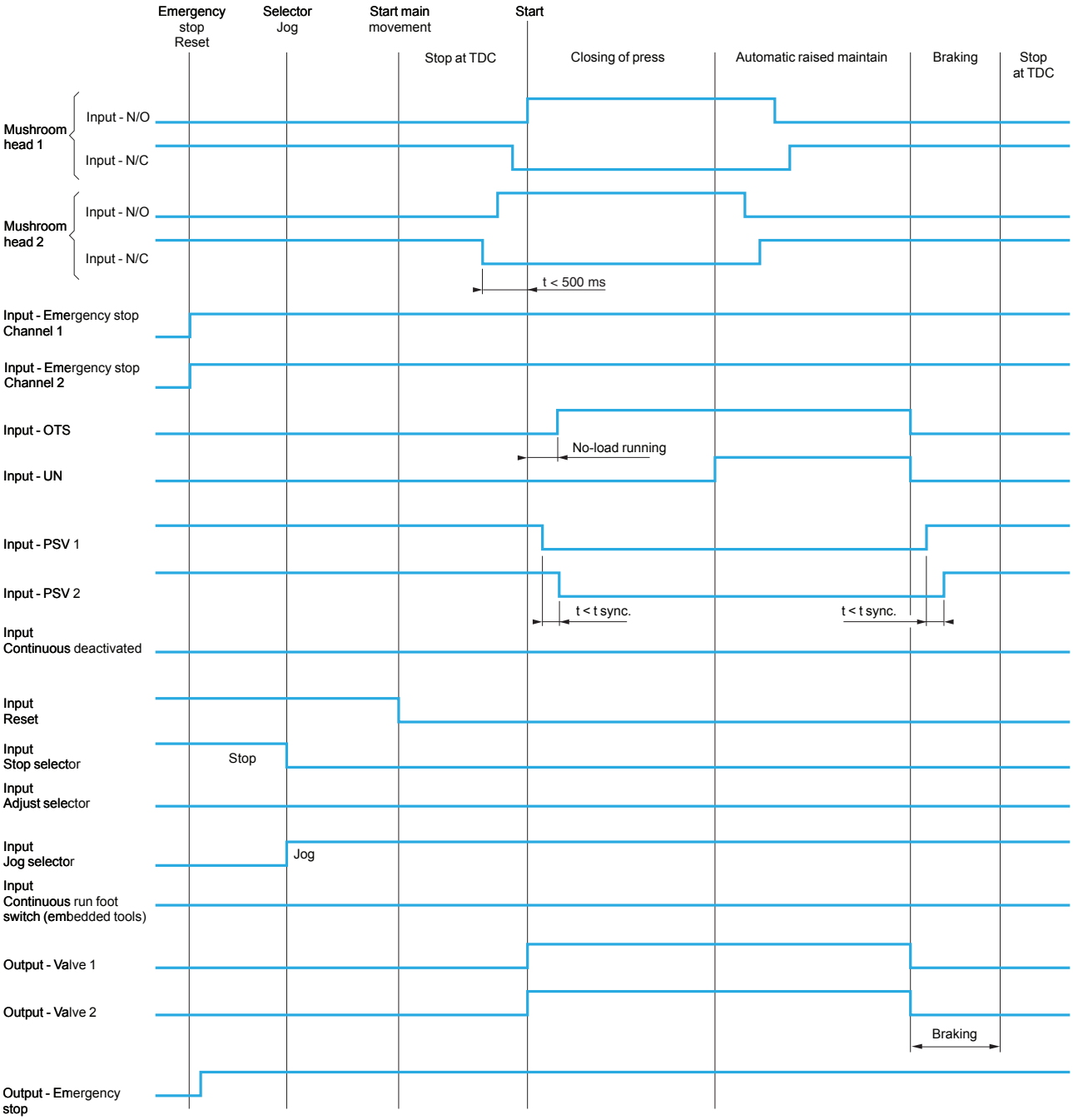


Key 0 — 1

OTS = Limit switch associated with top dead centre (TDC)
UN = Limit switch associated with bottom dead centre (BDC)
PSV = safety valve
t sync = synchronisation time

Monitoring safety stop at top dead centre on eccentric press (continued)

Functional diagram in jog mode

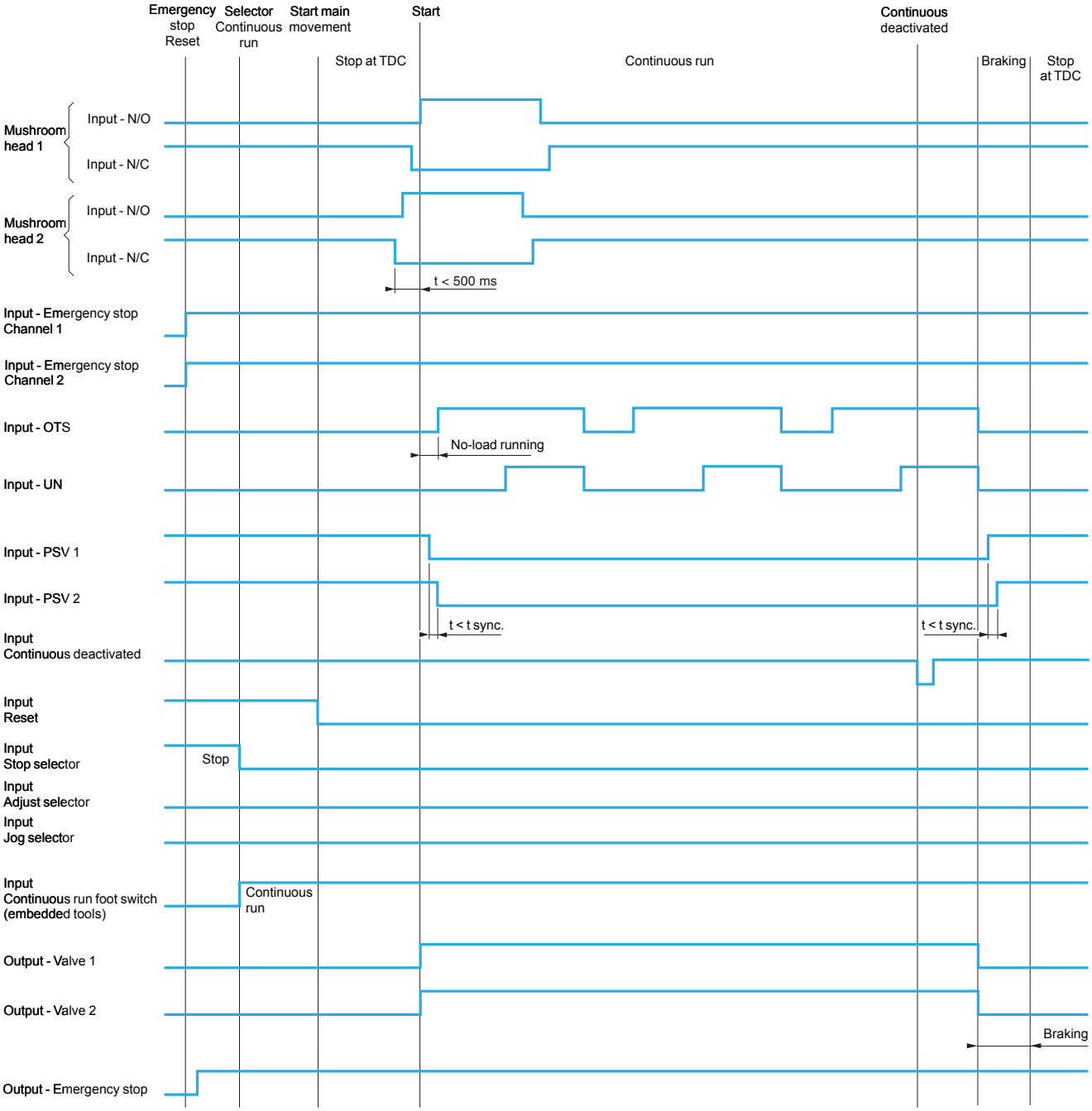


Key 0 1

BDC = Bottom Dead Centre
TDC = Top Dead Centre
OTS = Limit switch associated with top dead centre (TDC)
UN = Limit switch associated with bottom dead centre (BDC)
PSV = safety valve
t sync = synchronisation time

Monitoring safety stop at top dead centre on eccentric press (continued)

Functional diagram in automatic continuous run mode



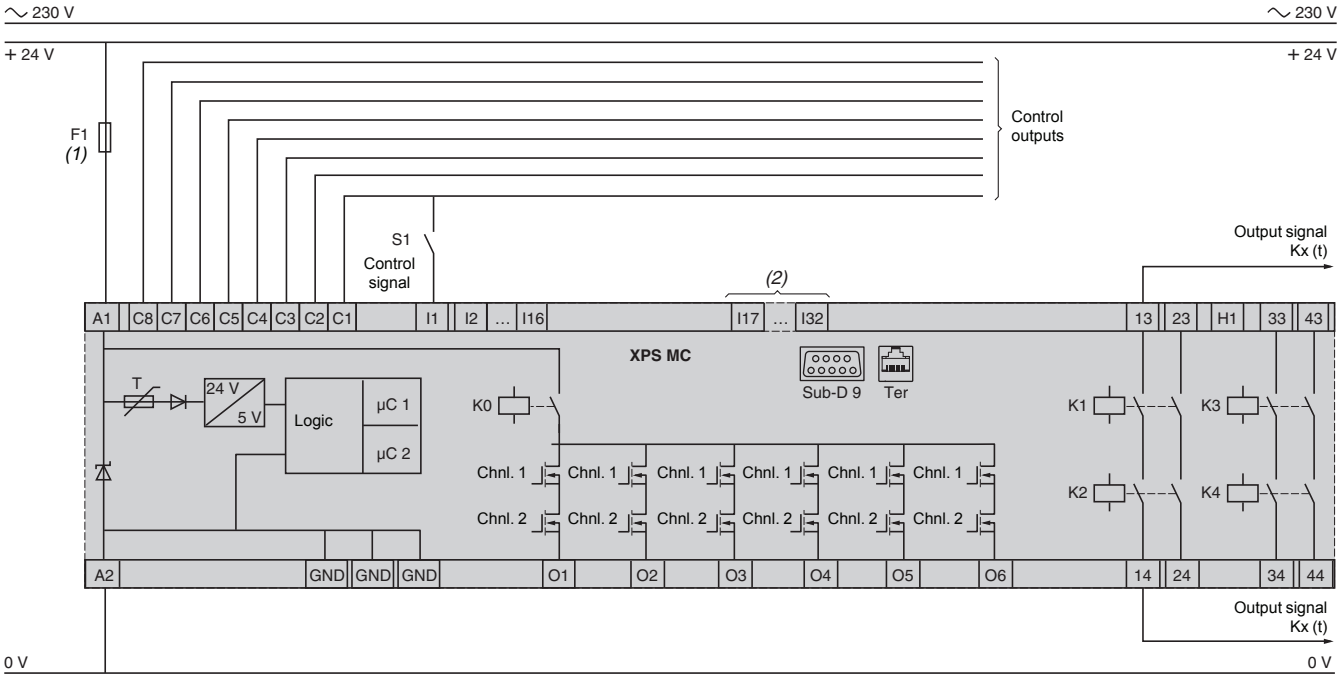
Key 0 1

BDC = Bottom Dead Centre
TDC = Top Dead Centre
OTS = Limit switch associated with top dead centre (TDC)
UN = Limit switch associated with bottom dead centre (BDC)
PSV = safety valve
t sync = synchronisation time

Safety time delays

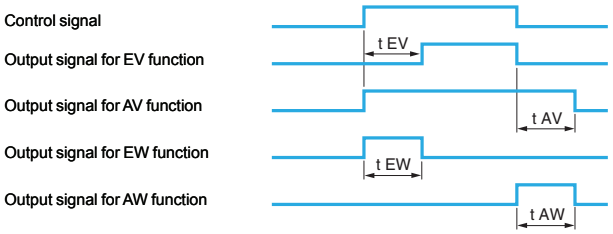
Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



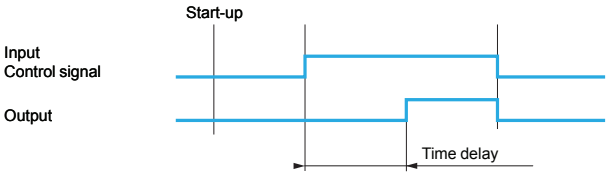
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagrams

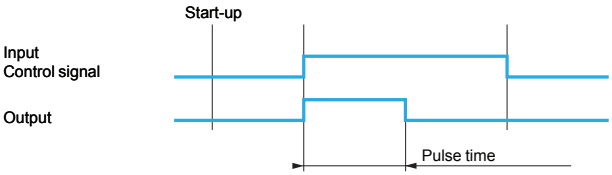


Functions:
EV = On-delay
AV = Off-delay
EW = Pulse on energisation
AW = Pulse on de-energisation

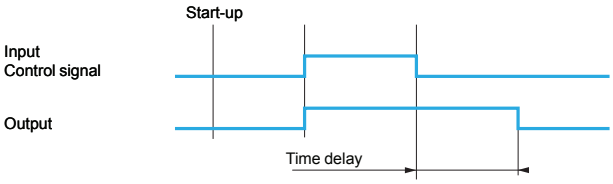
On-delay



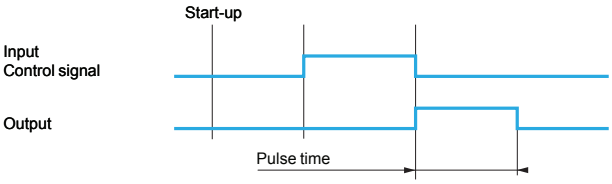
Pulse on energisation



Off-delay



Pulse on de-energisation

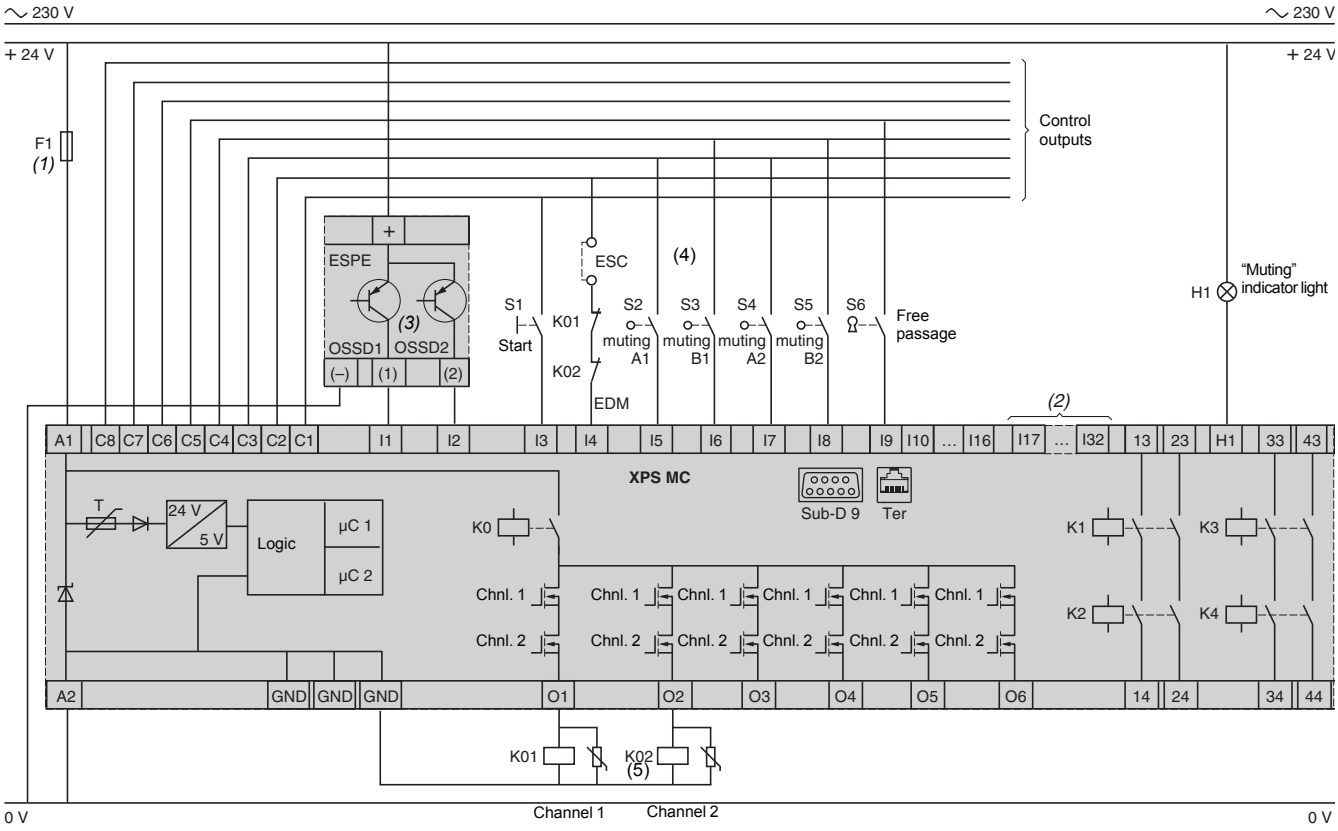




"Muting" function for light curtains

Category 4 conforming to standard EN/ISO 13849-1.

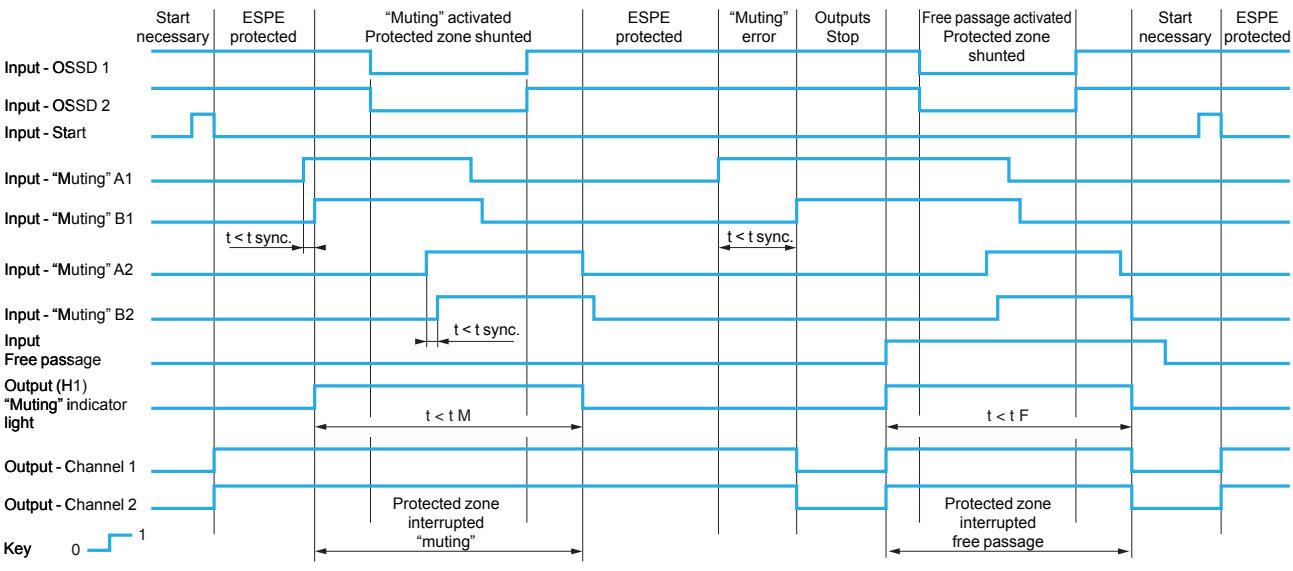
Application scheme



ESC = external start conditions
EDM = external devices monitoring
ESPE = electro-sensitive protection equipment
OSSD1/OSSD2 = output signal switching device

(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.
(3) A light curtain with relay outputs can also be used with the "Muting" function.
(4) Only one "Muting" function can be connected to an XPS MC controller.
(5) Example using 2 safety outputs to control 2 contactors linked to one safety function.

Functional diagram

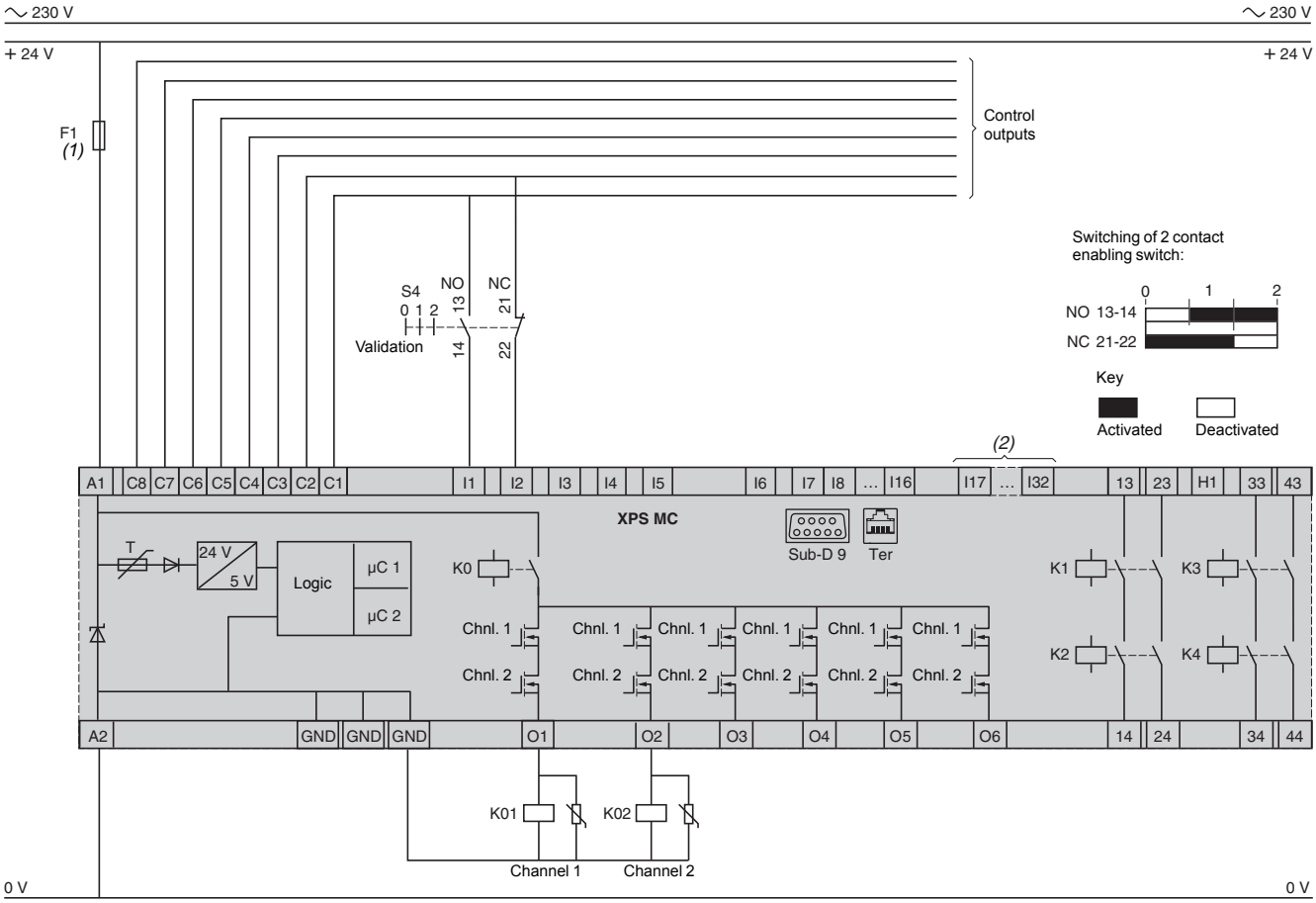


tM = "Muting" time
tF = free passage activation time
t sync. = synchronisation time

Enabling switch monitoring, 2 contact type

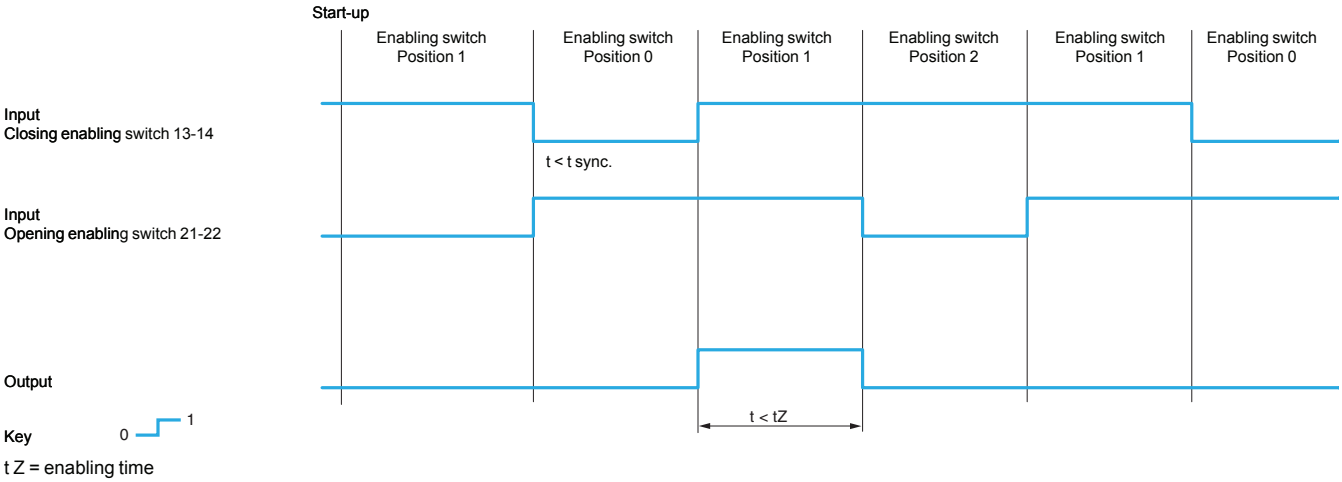
Category 1 conforming to standard EN/ISO 13849-1.

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagram

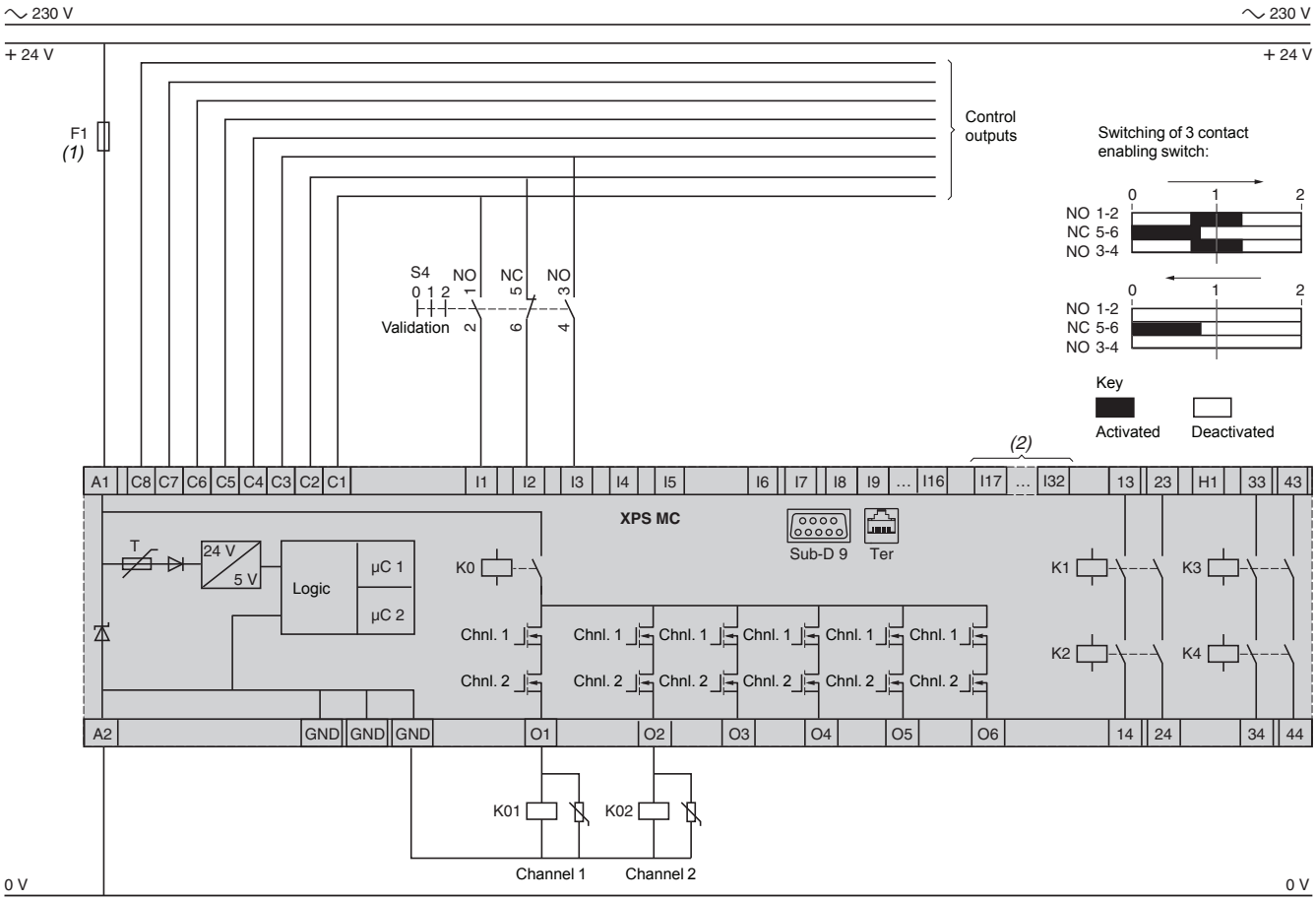


t Z = enabling time

Enabling switch monitoring, 3 contact type

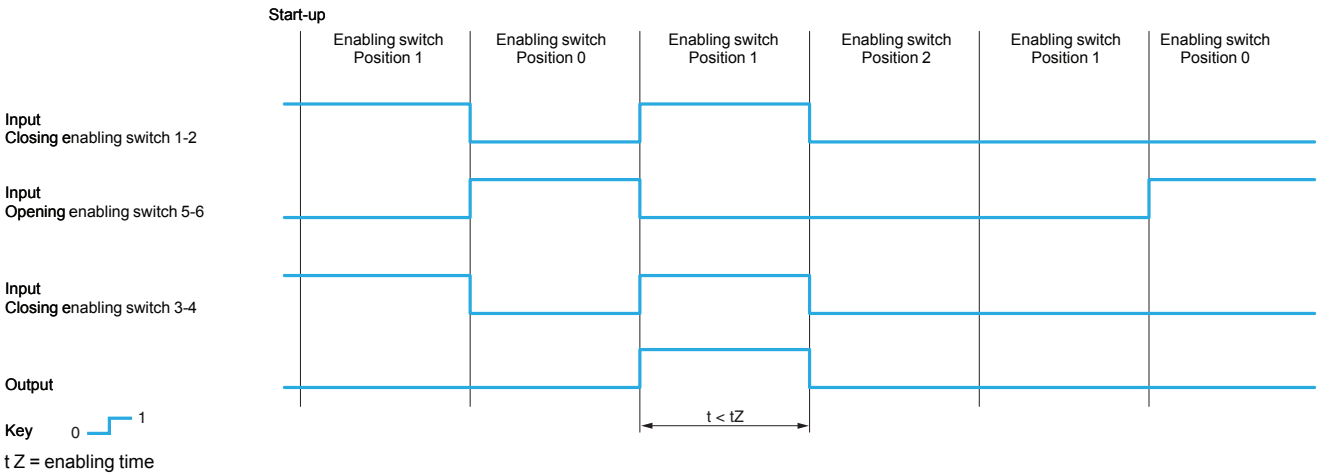
Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagram

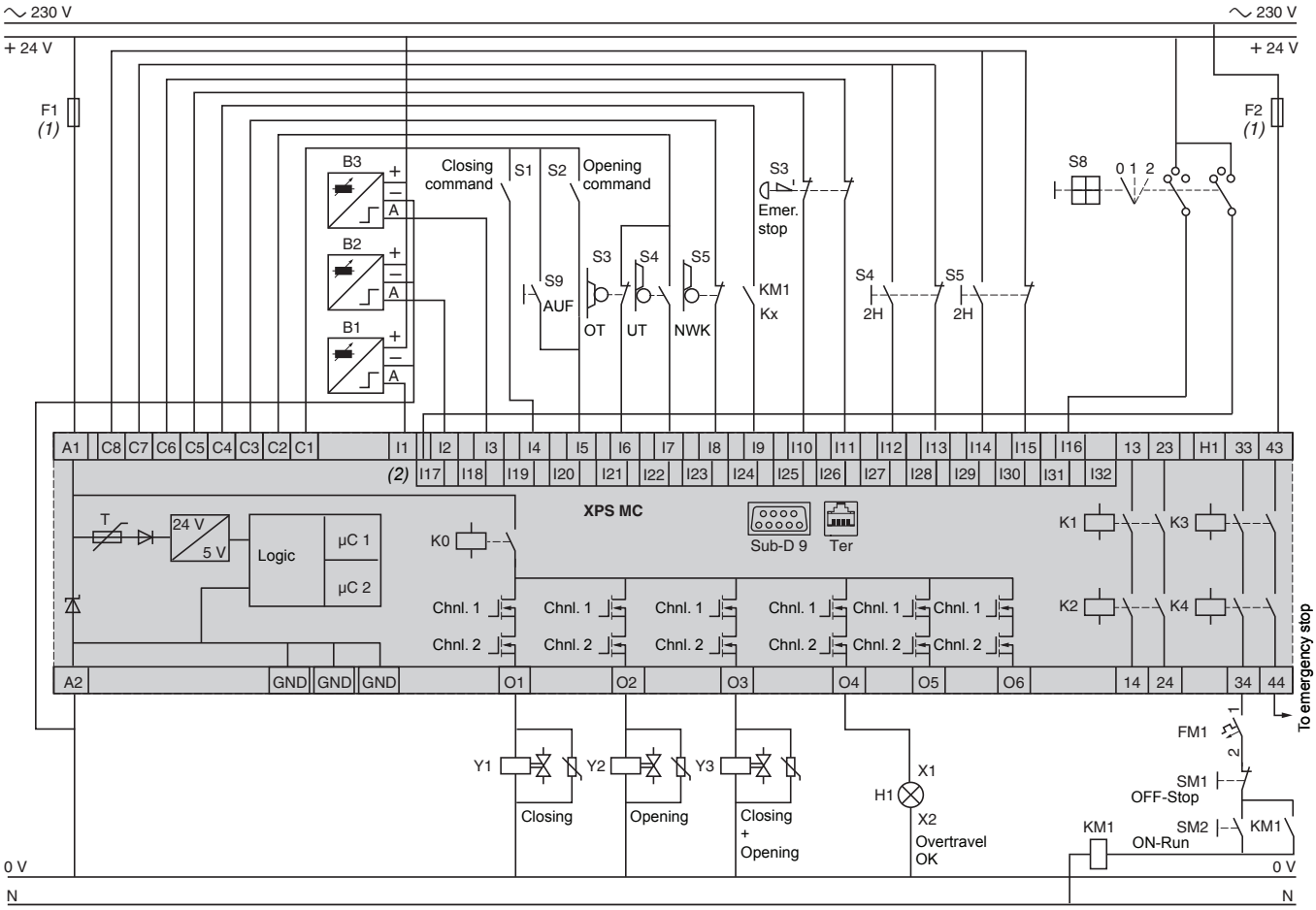


t Z = enabling time

Hydraulic press

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme



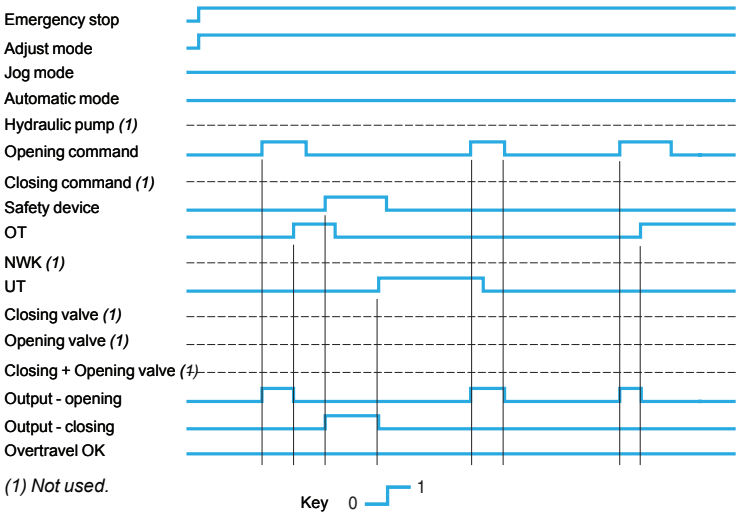
S8: Operating modes:
0 - stop,
1 - adjust,
2 - jog.

AUF = open, to be used in inching.
OT = Limit switch associated with top dead centre (TDC).
UT = Limit switch associated with bottom dead centre (BDC).
NWK = overtravel monitoring.

(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z● (I17…I32).

Functional diagram

Hydraulic press, adjust mode

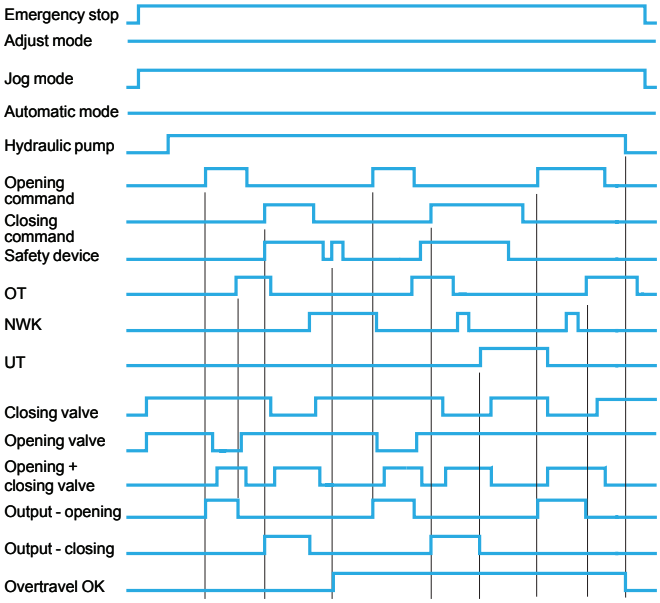


(1) Not used.

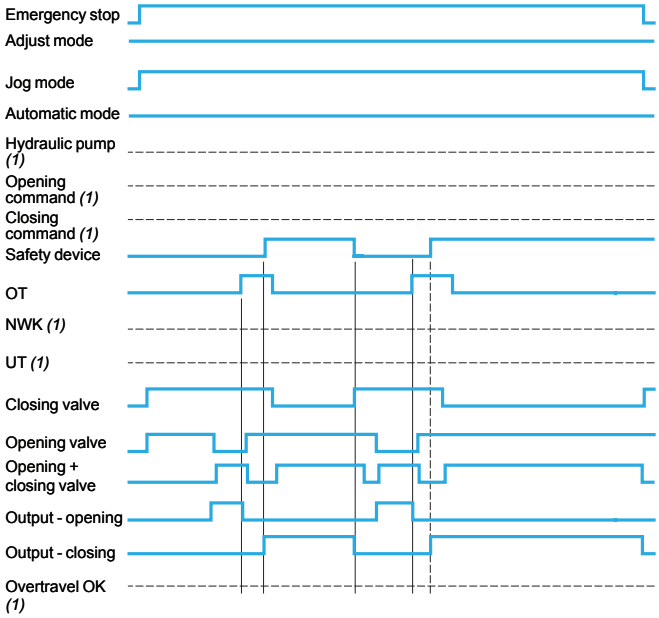
Hydraulic press

Functional diagrams *(continued)*

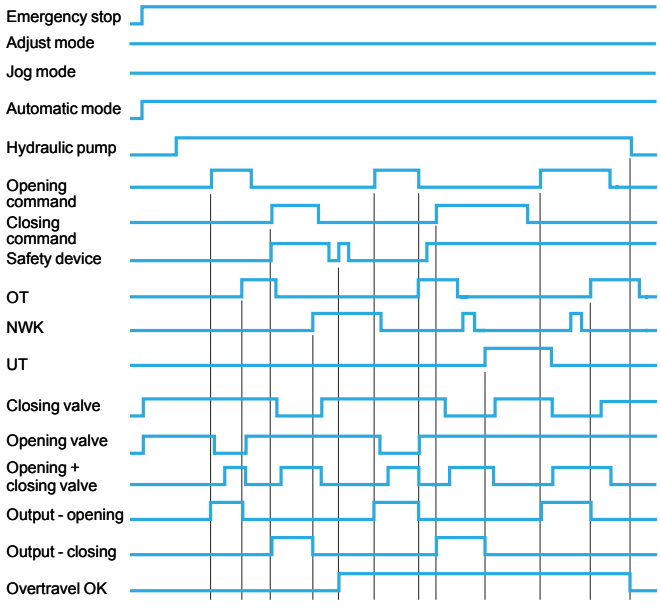
Hydraulic press, mode = jog, with overtravel monitoring and opening and closing control coming from the automation platform



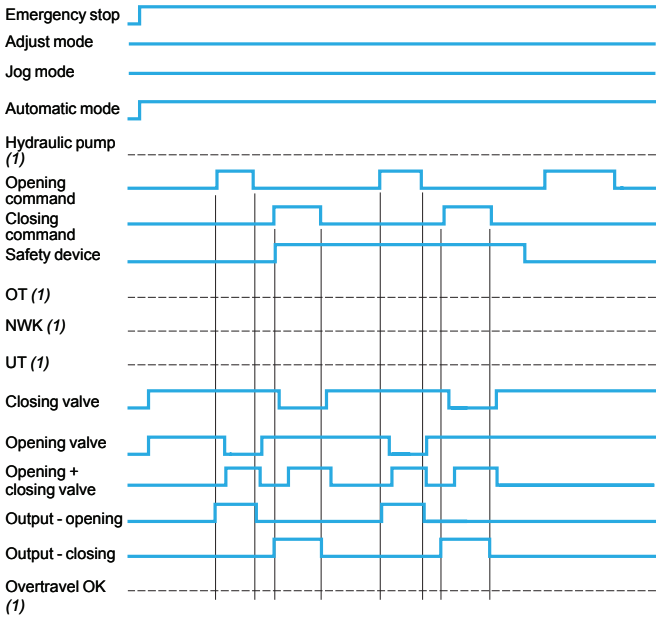
Hydraulic press, mode = jog



Hydraulic press, mode = automatic, with overtravel monitoring and opening and closing control coming from the automation platform



Hydraulic press, mode = automatic



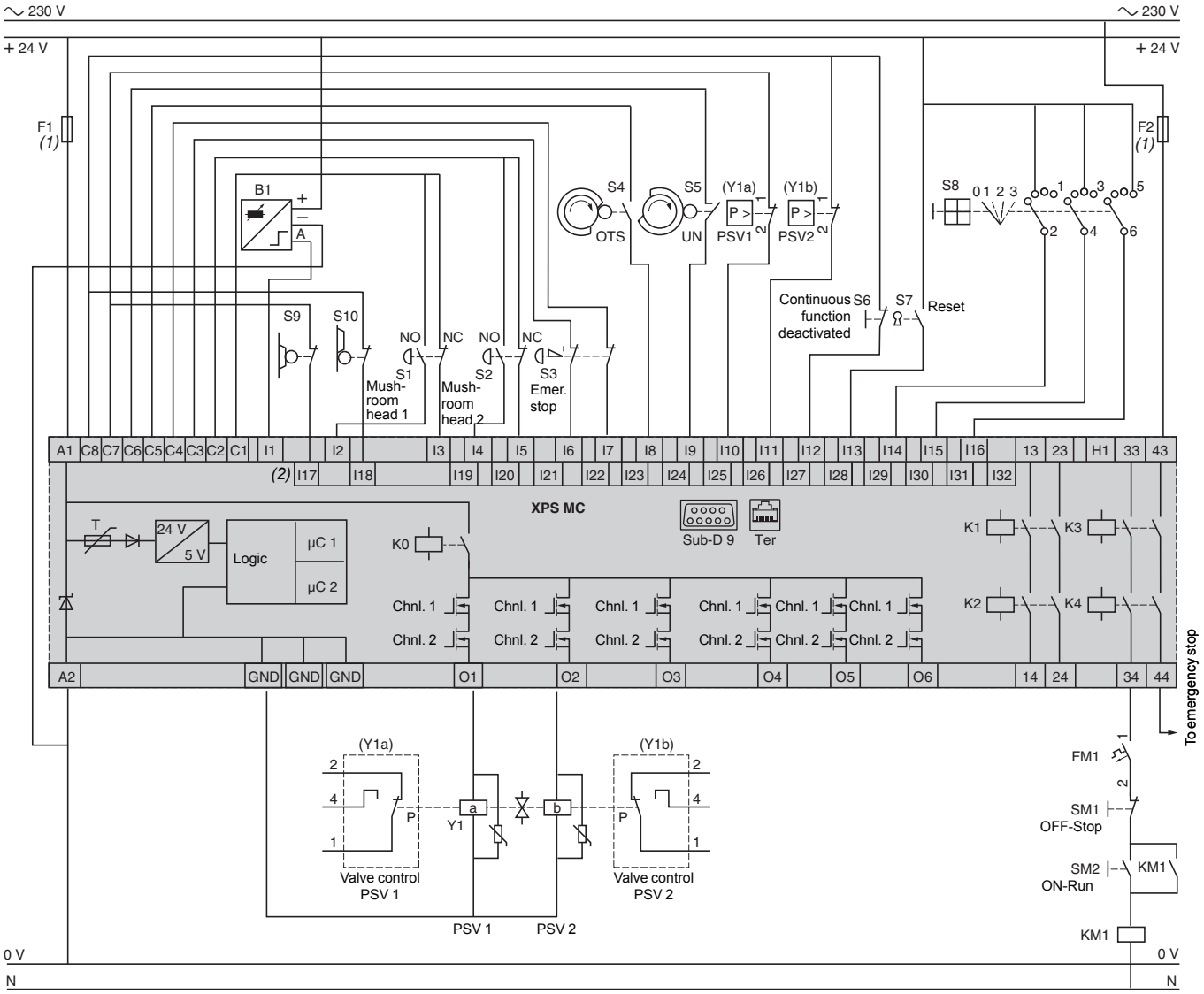
Key 0 1

(1) Not used.

Eccentric press

Category 4 conforming to standard EN/ISO 13849-1.

Application scheme

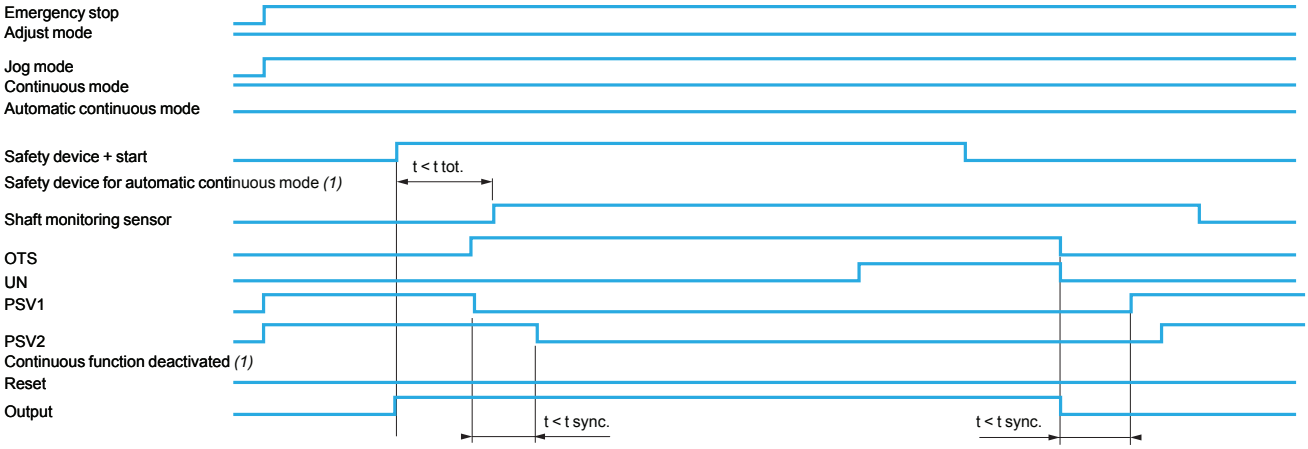


S8: Operating modes:
0 - stop,
1 - adjust,
2 - jog,
3 - automatic continuous run.
OTS = Limit switch associated with top dead centre (TDC)
UN = Limit switch associated with bottom dead centre (BDC)
PSV = safety valve
B1 = sensor at tooth wheel in cam switch mechanism.
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z● (I17…I32).

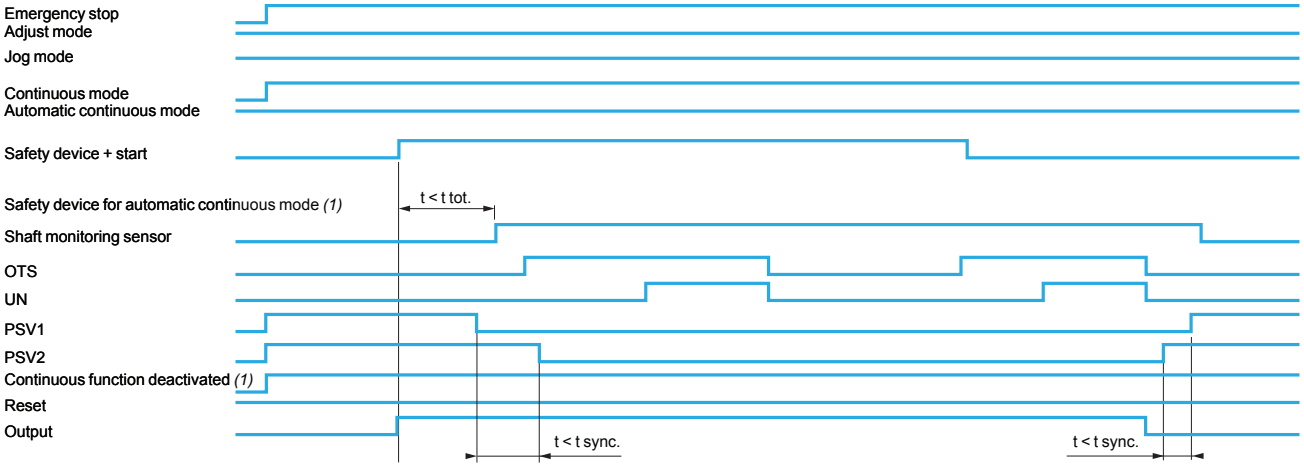
Eccentric press (continued)

Functional diagrams

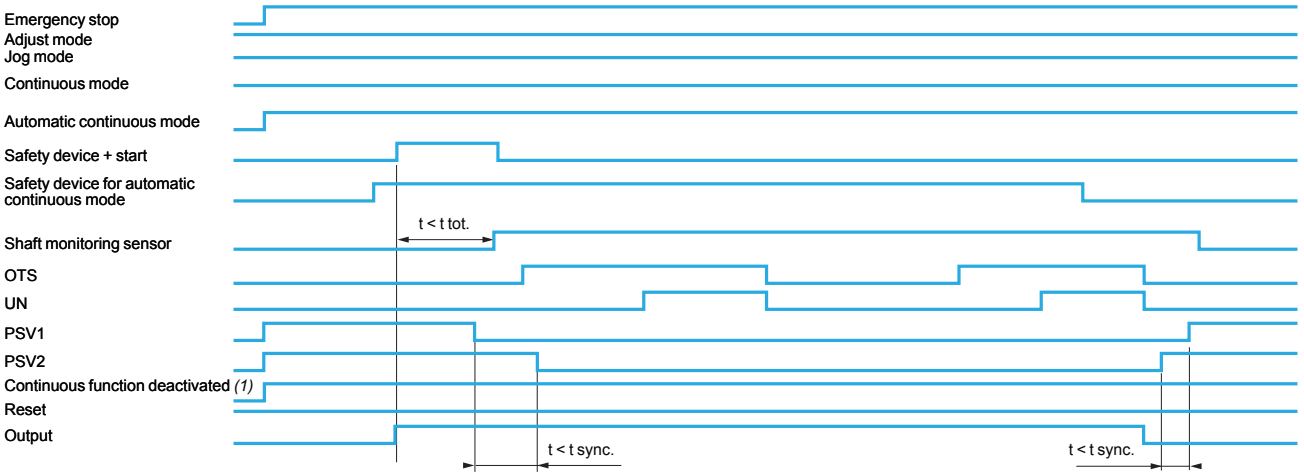
Eccentric press: Jog



Eccentric press: Continuous



Eccentric press: automatic continuous

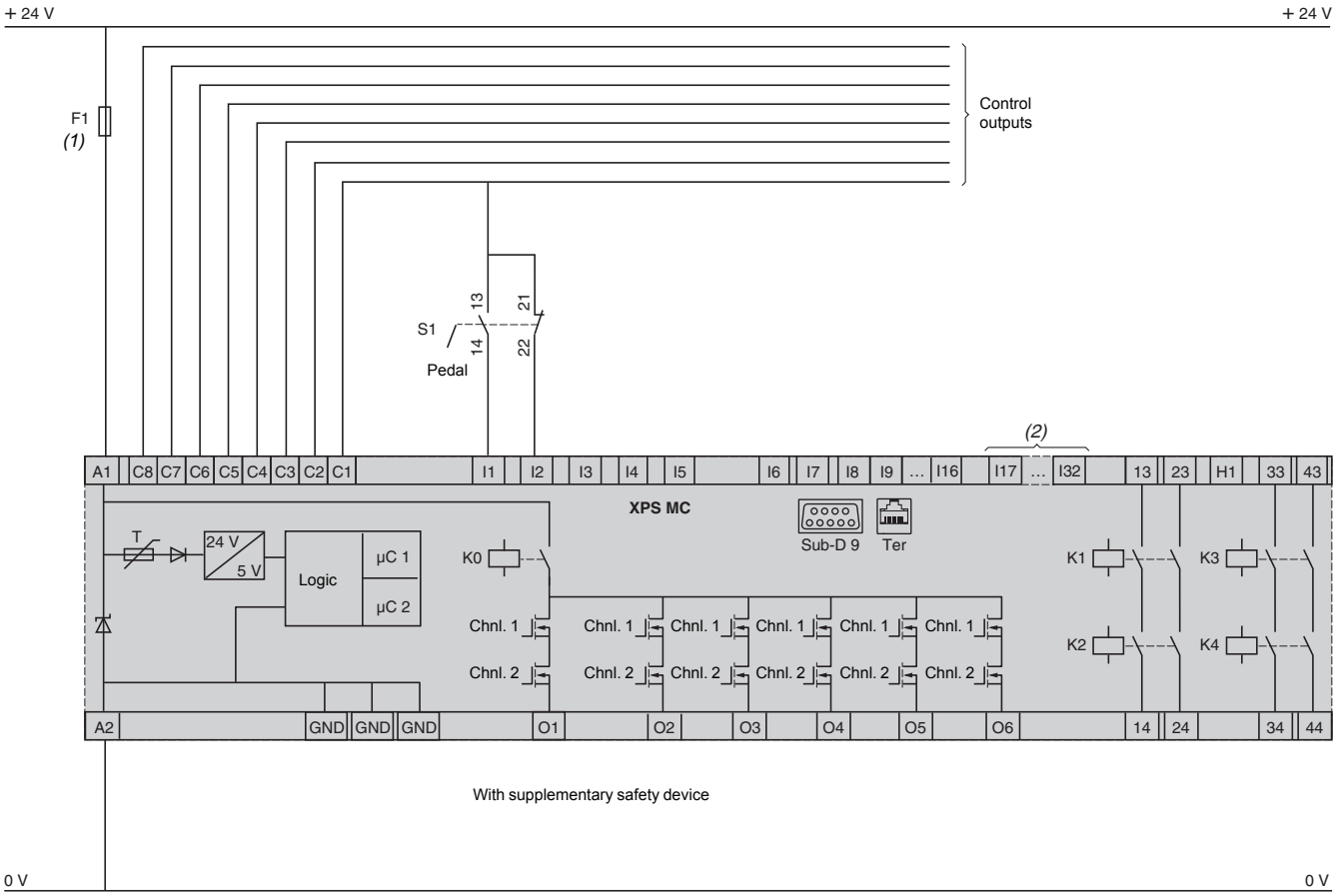


Key 0 1

t sync. = synchronisation time
t tot. = dead time
(1) Not used.

Foot switch monitoring

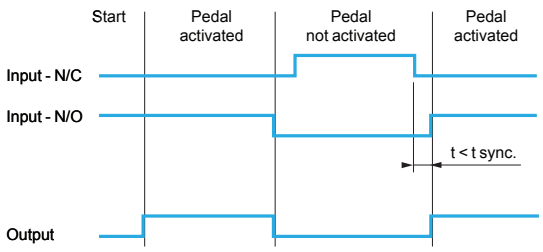
Application scheme



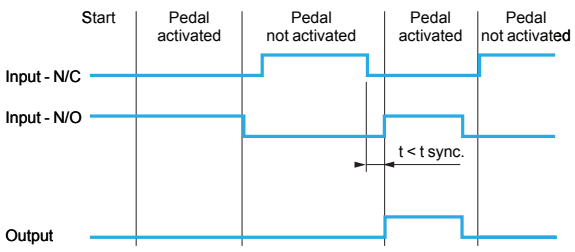
(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagrams

Without start interlock



With start interlock

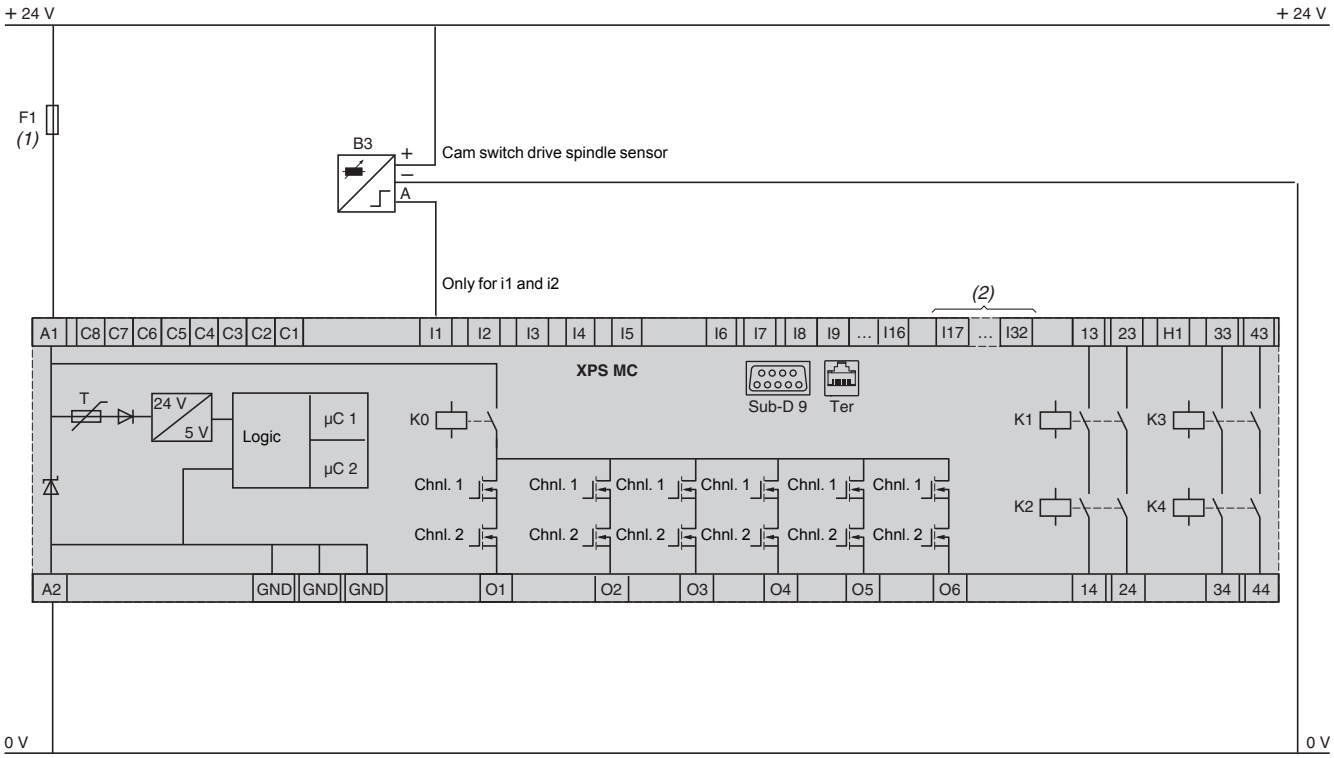


Key 0 1

t sync. = synchronisation time

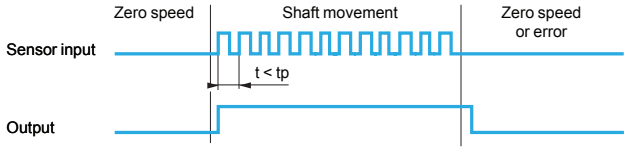
Chain shaft breakage monitoring

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Functional diagrams

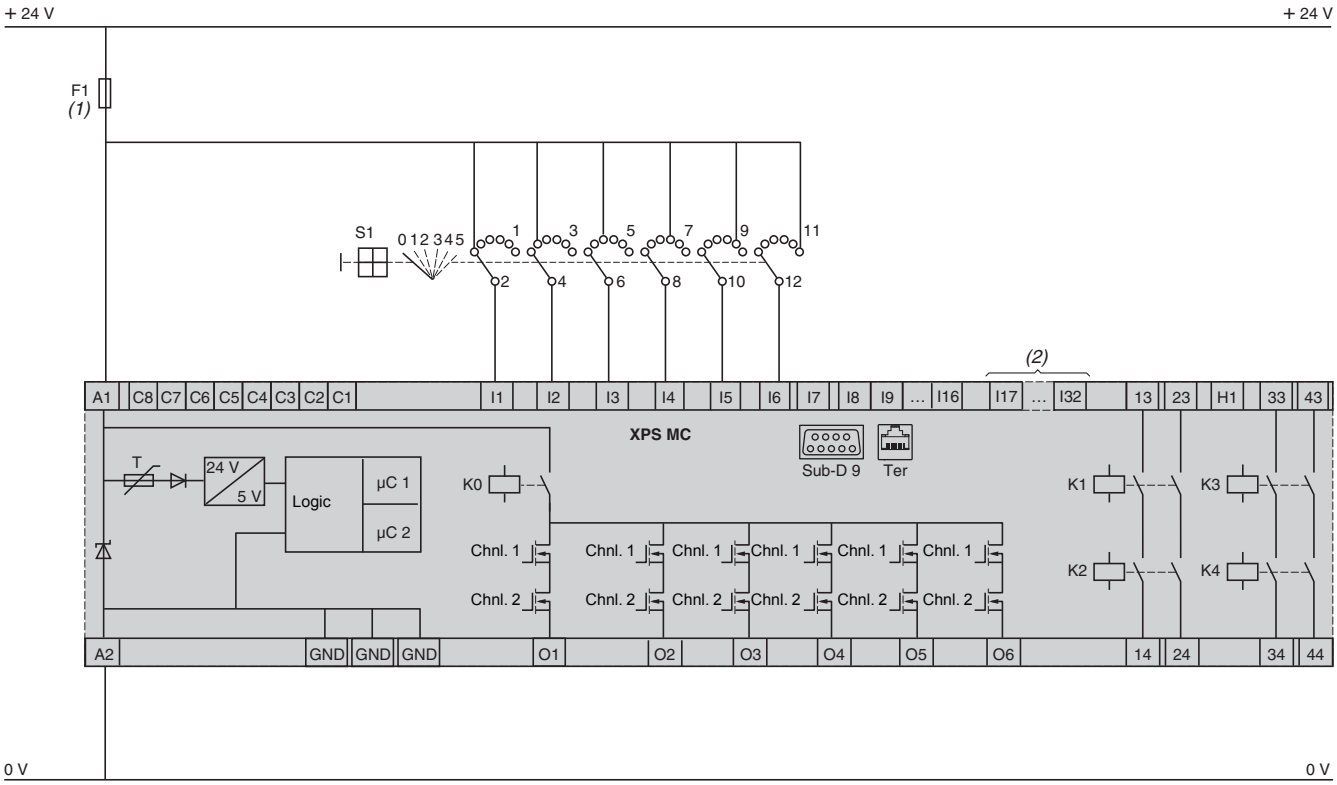


Key 0 1

tp = pulse time

Position selector

Application scheme



(1) Technical characteristics for maximum rating of fuses, see page 38789-EN/6.
(2) Only applicable to XPS MC32Z●.

Position selector (continued)

Functional diagrams

