

SAFETY PRODUCTS

Connection diagrams

Sentry safety relays



Important information

Sentry connection diagrams

The connection diagrams in this document are only general recommendations from ABB. The conditions of a specific application could make alternative connections more suitable.

With regards to the stated functional safety levels, they apply under the assumption that the installation complies with all other relevant functional safety requirements in EN ISO 13849-1/-2, such as product selection, product placement, cable installation, environmental effects on the system etc.

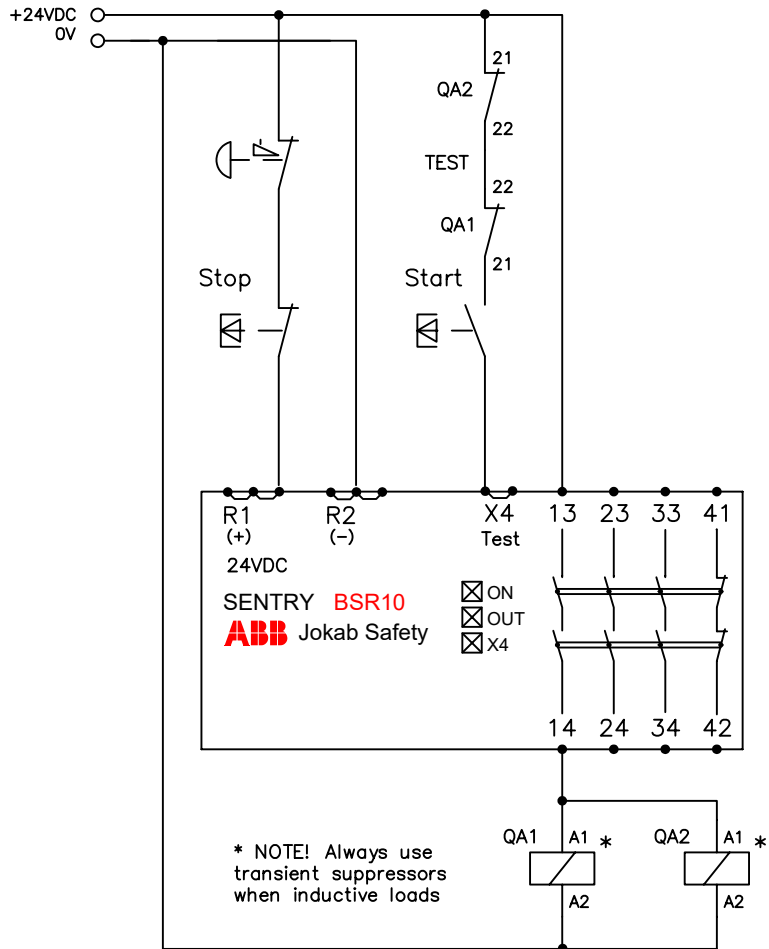
ABB does not accept any liability and/or responsibility whatsoever for any errors or lack of information in this document. It is the responsibility of the machine builder to make a risk assessment and make sure the appropriate functional safety levels are achieved.

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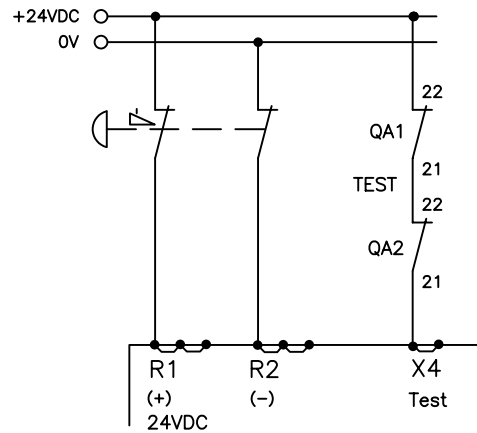
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A) One signal from +24VDC, Start** and Stop

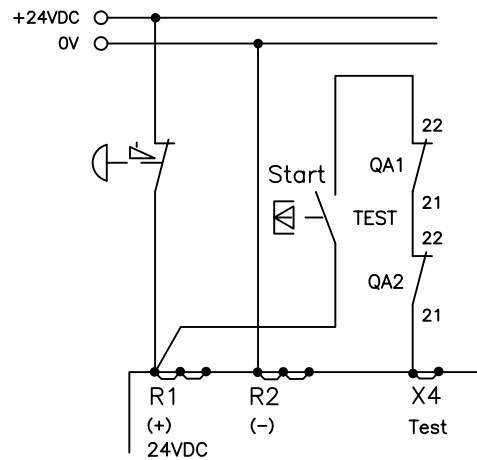


** The Start function should not be used as Reset

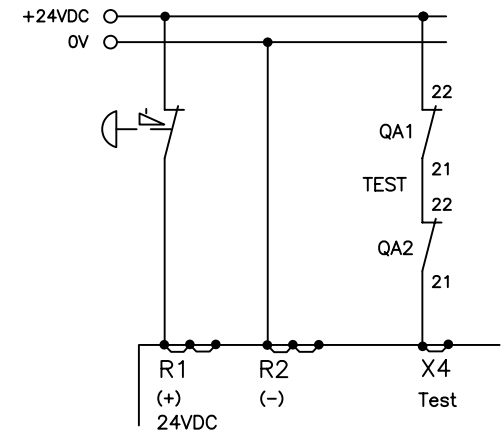
B) Two signals from +24 VDC/0 V



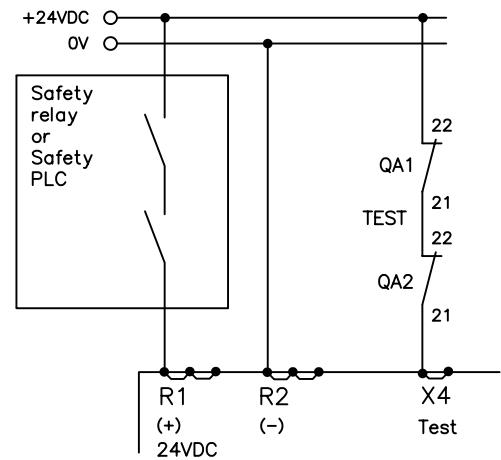
C) One signal from +24 VDC and Start**



C) One signal from +24VDC



E) Expansion of safety relay/safety PLC



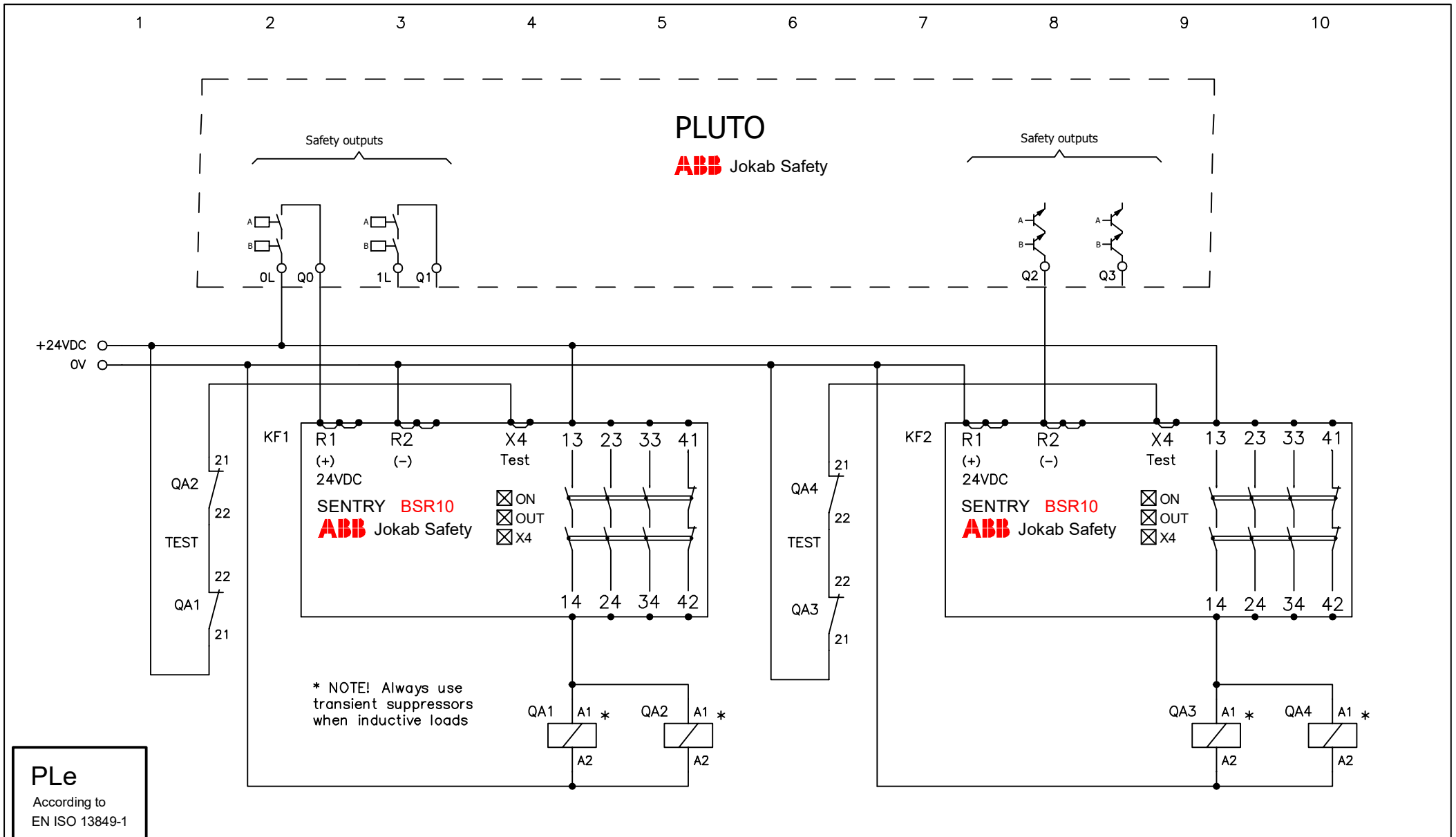
Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

BSR10 general



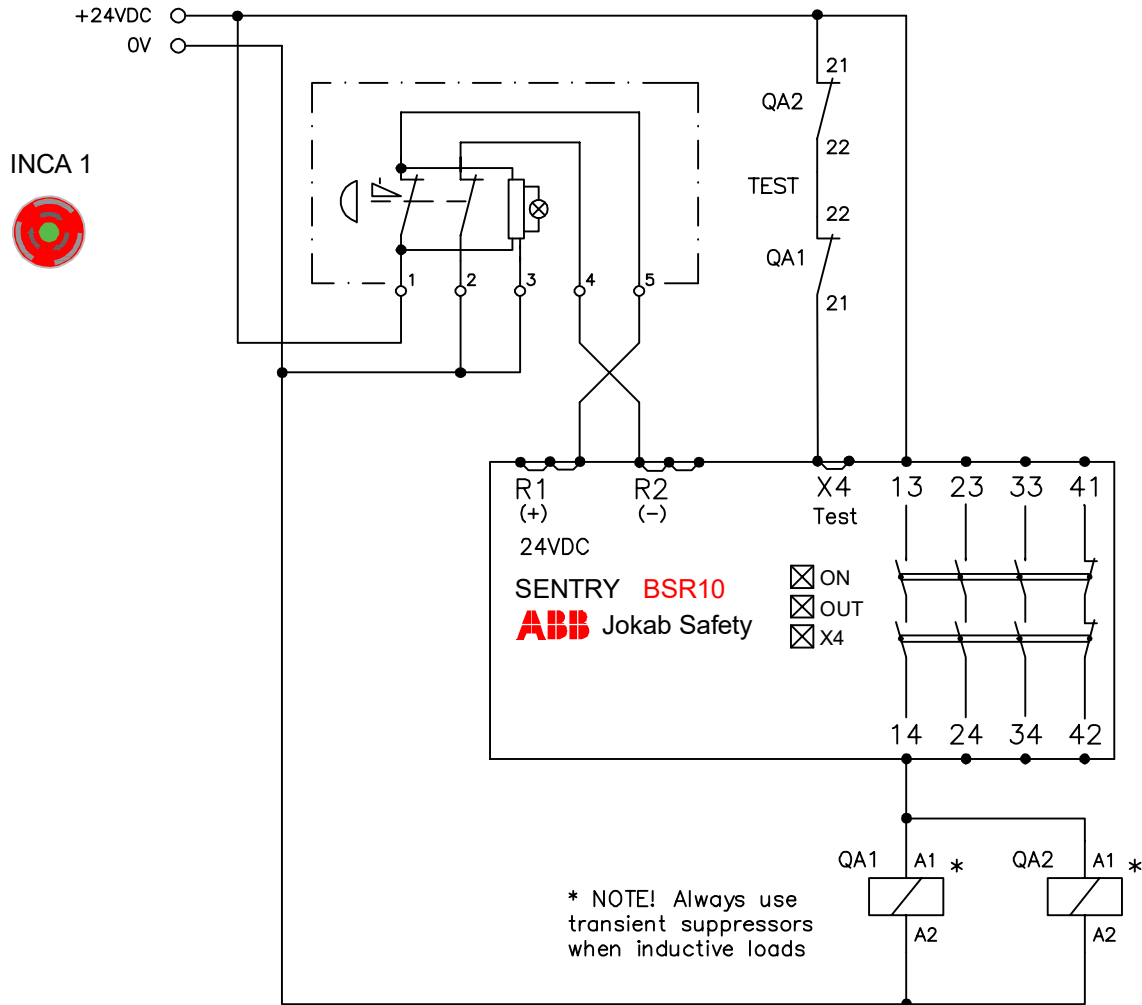
Konstr Design ABB	Godk Appr	Datum Date 20210707	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010004T0001	Forts Cont



Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

<p>Anmärkning Remark</p> <p>BSR10 as PLUTO expansion</p>		<p>Konstr Design ABB</p> <p>Ritad Drawn ABB</p>	<p>Godk Appr</p> <p>Sidor Pages</p>	<p>Datum Date 20210705</p> <p>Ritn nr Drawing no 2TLC010004T0002</p>	<p>Blad Sheet</p> <p>Forts Cont</p>
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1 2 3 4 5 6 7 8 9 10



PL_e
 According to
 EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

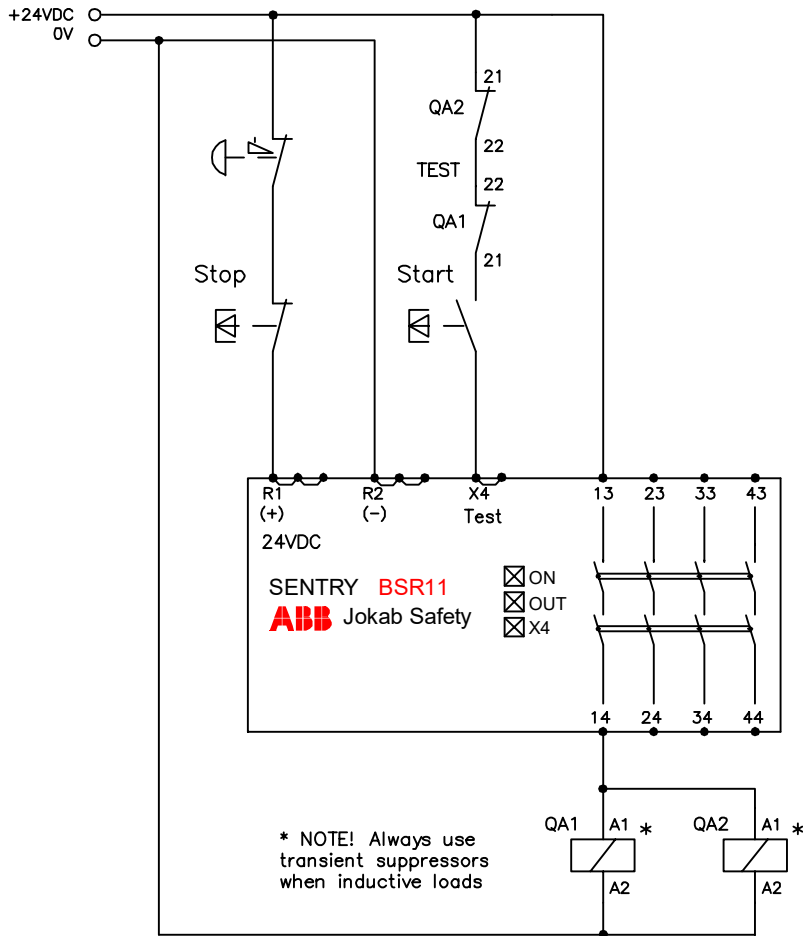
Anmärkning Remark

BSR10 with INCA1

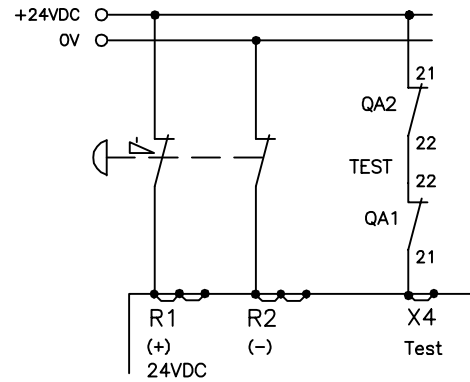
ABB Safety Products

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Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010004T0004	Forts Cont

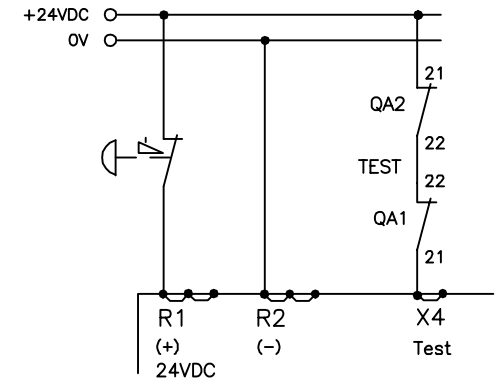
A) One signal from +24VDC, Start** and Stop



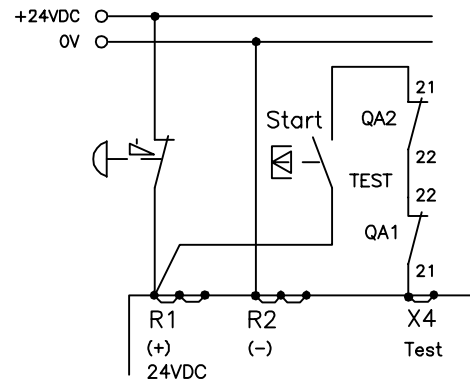
B) Two signals from +24 VDC/0 V



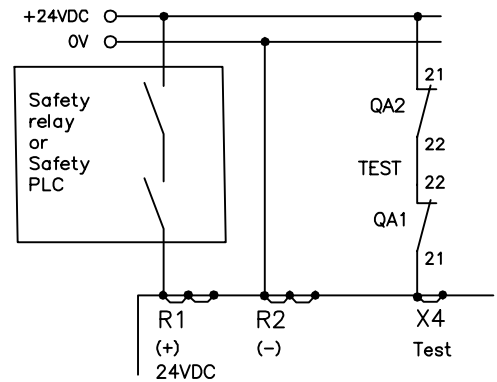
C) One signal from +24VDC



D) One signal from +24VDC, start*



E) One signal from +24VDC



** The Start function should not be used as Reset

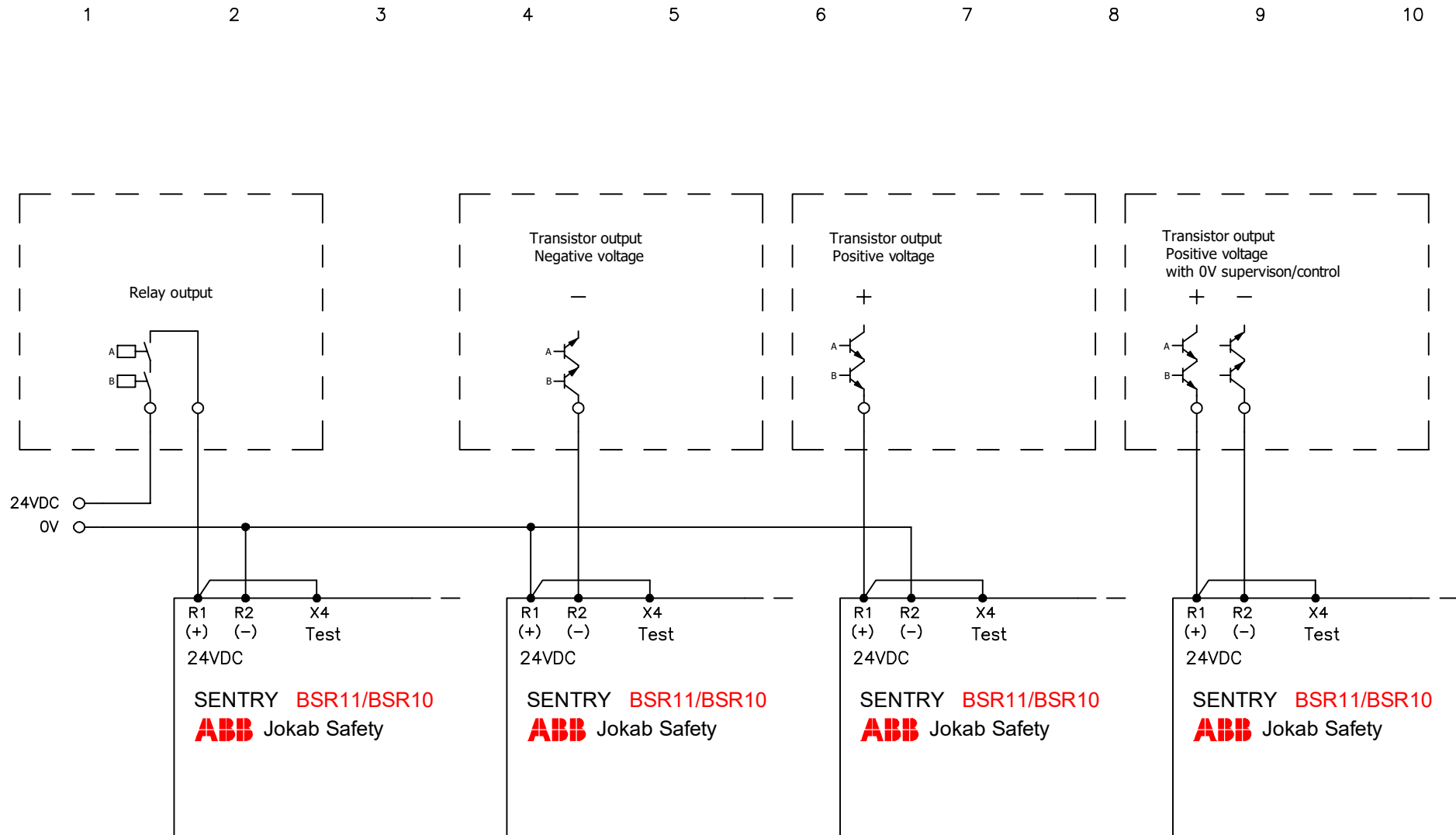
Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

BSR11 general

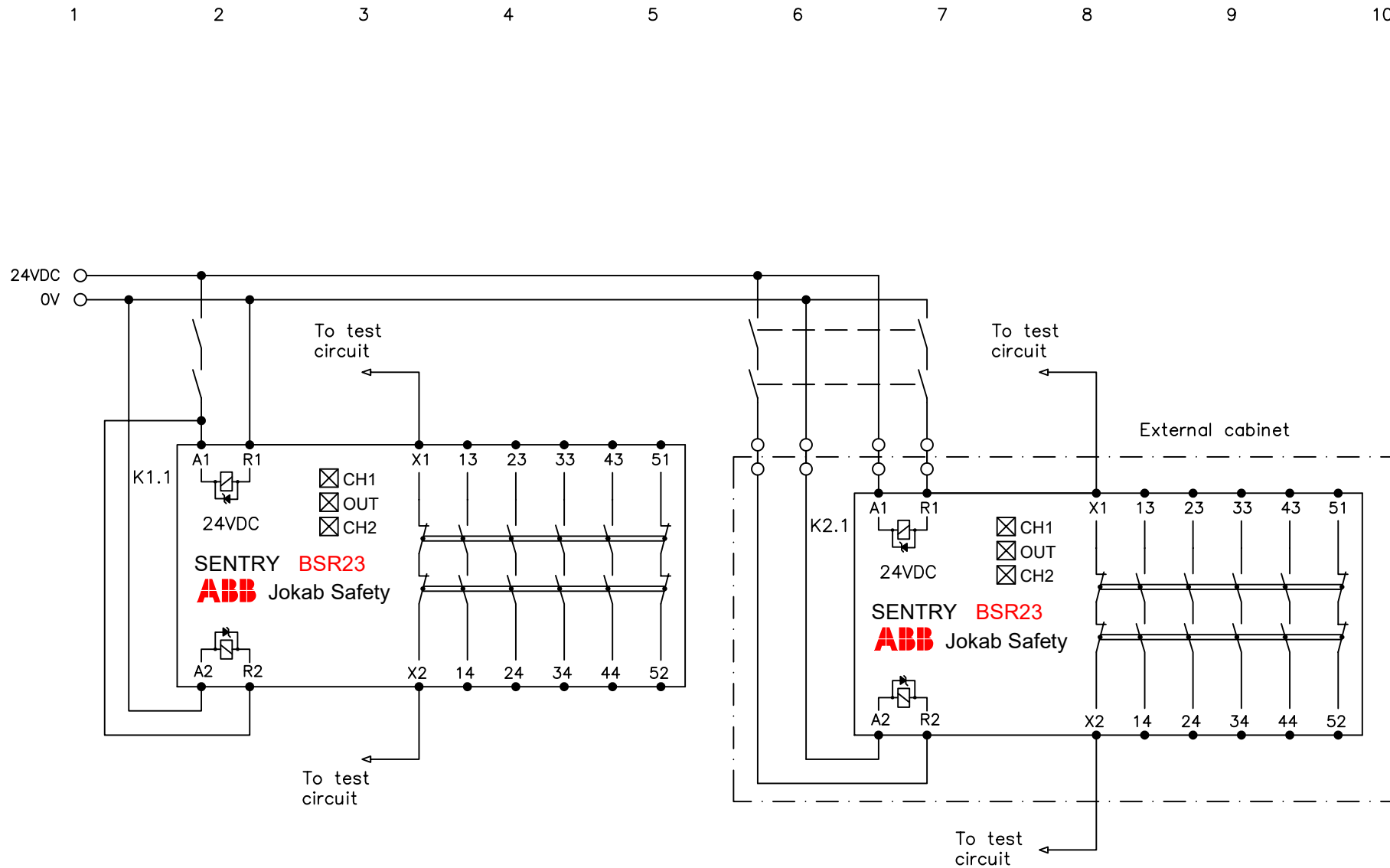
ABB Safety Products

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Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010005T0001	



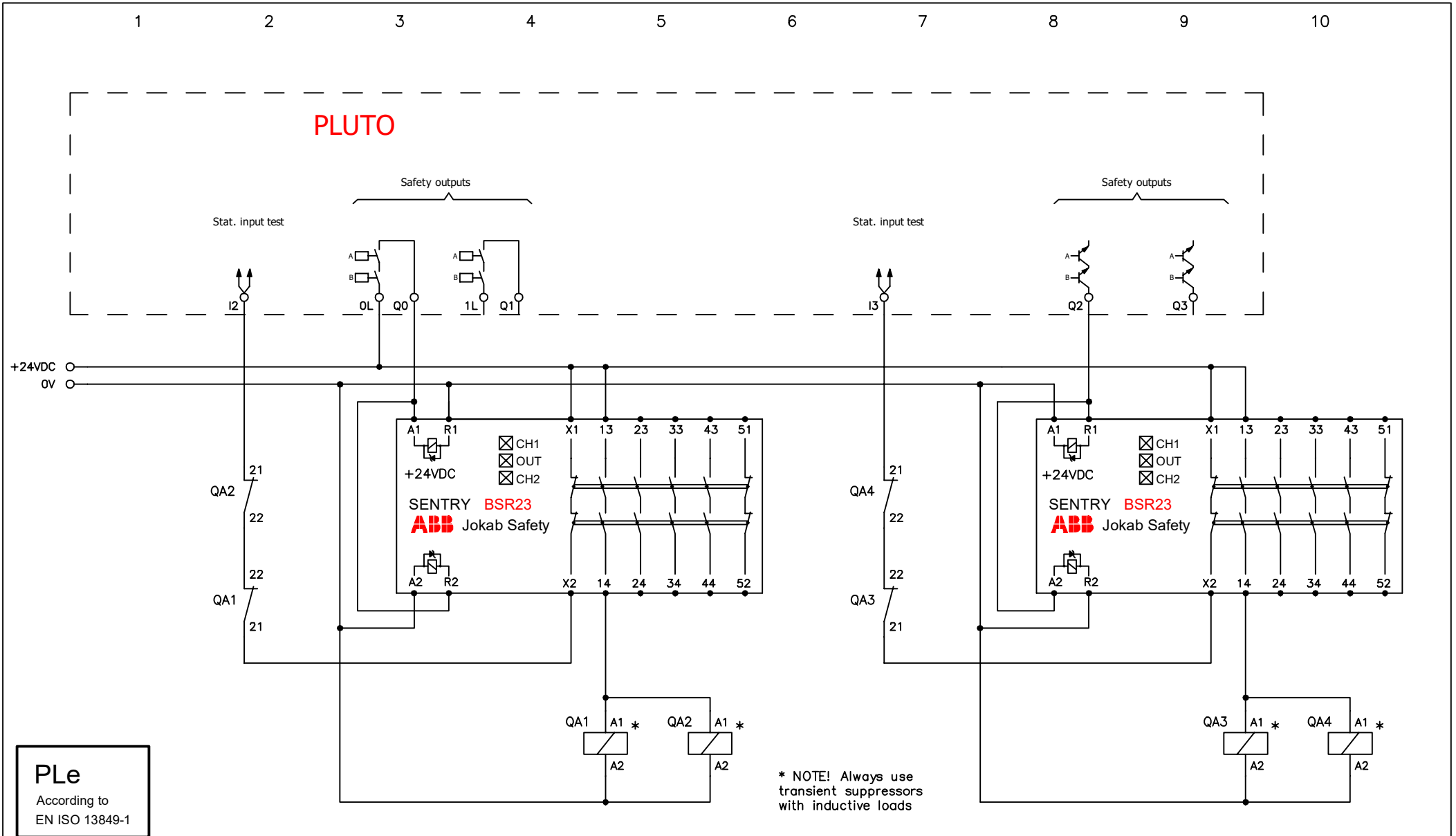
Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark BSR11/BSR10 as expansion relay	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
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		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
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Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

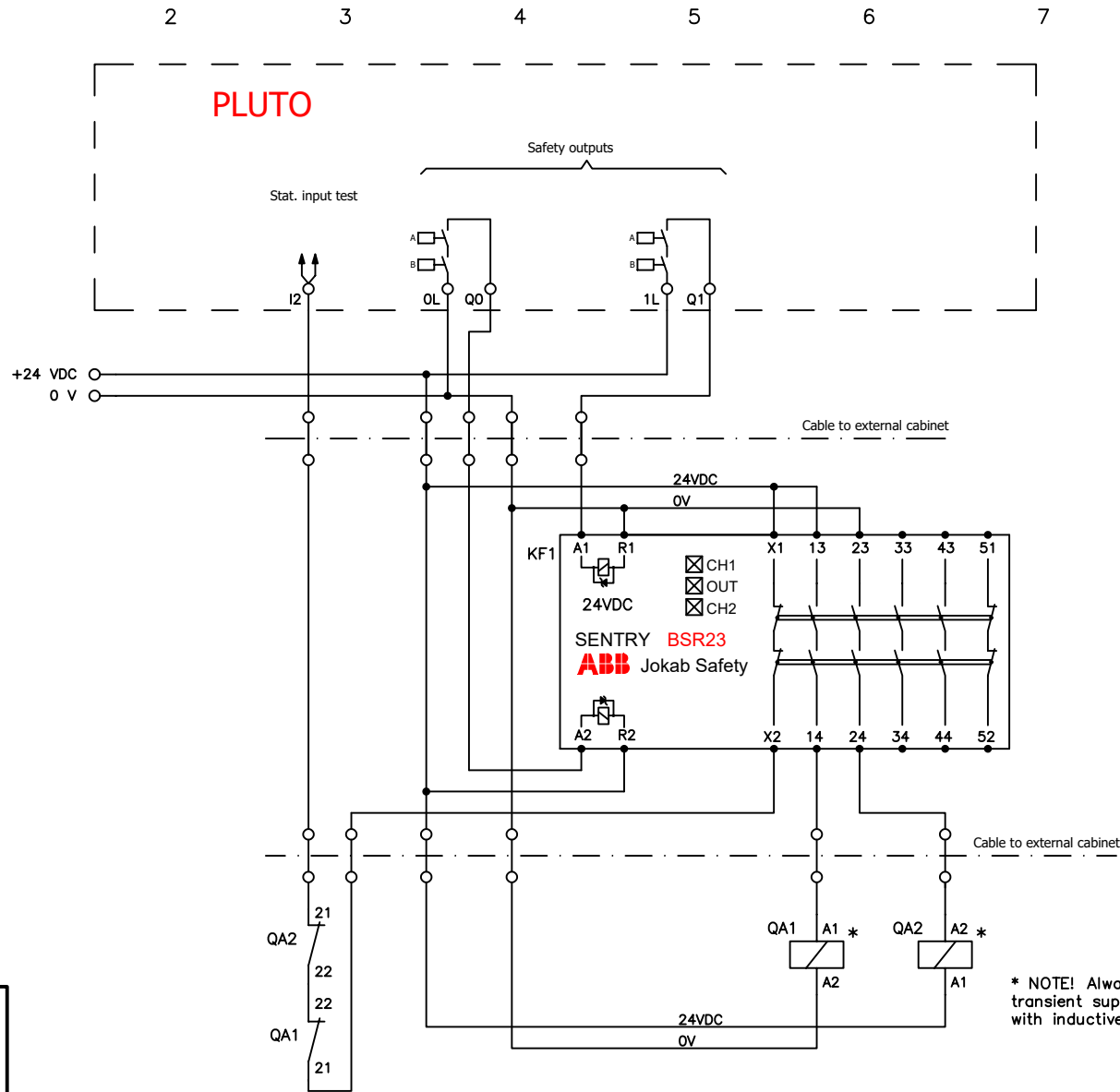
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BSR23 general		ABB			20210707	
		Ritad Drawn	Sidor	Pages	Ritn nr Drawing no	Forts Cont
		ABB			2TLC010006T0001	



PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark BSR23 to Pluto Q0 and Q2 outputs	ABB Safety Products				Konstr Design	Godk Appr	Datum Date	Blad Sheet
					ABB		20210706	
		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont			
		ABB		2TLC010006T0002				



PLe
According to
EN ISO 13849-1

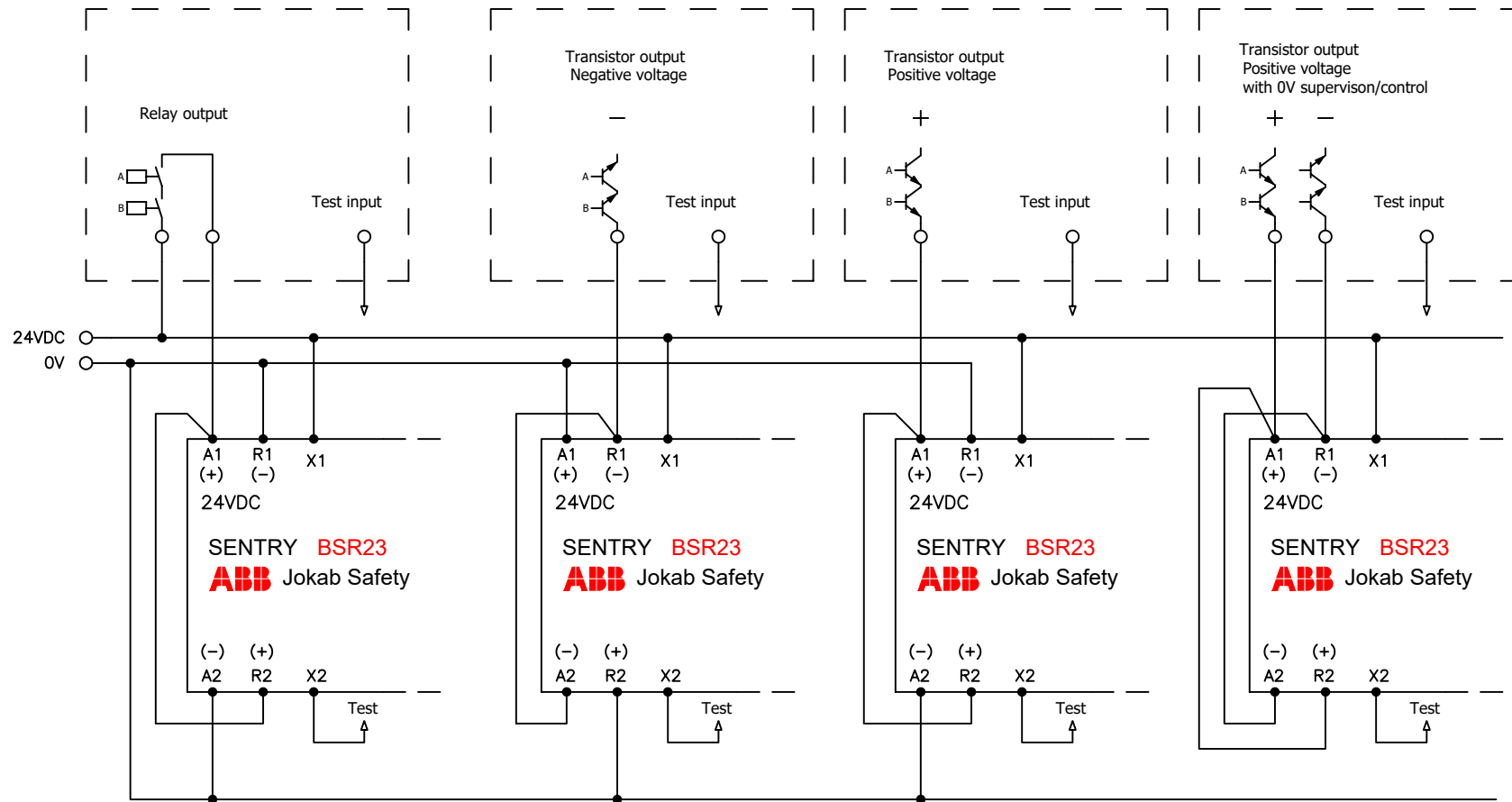
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
BSR23 to Pluto Q0 and Q1 outputs	



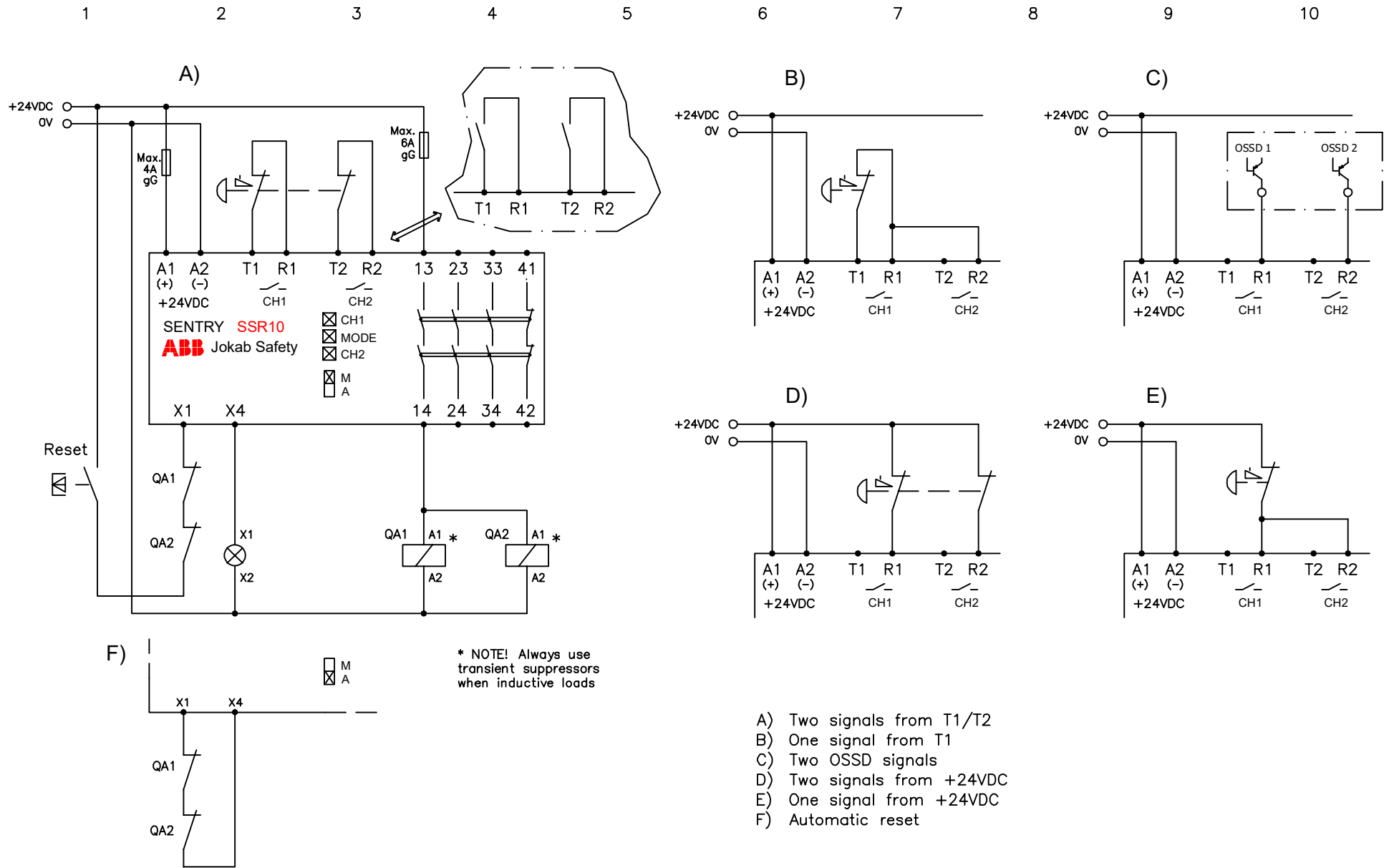
Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210706	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010006T0003	

1 2 3 4 5 6 7 8 9 10



Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

<p>Anmärkning Remark</p> <p>BSR23 as expansion relay</p>		<p>Konstr Design Godk Appr</p> <p>ABB</p>	<p>Datum Date</p> <p>20210707</p>	<p>Blad Sheet</p>
		<p>Ritad Drawn Sidor Pages</p> <p>ABB</p>	<p>Ritn nr Drawing no</p> <p>2TLC010006T0004</p>	<p>Forts Cont</p>



- A) Two signals from T1/T2
- B) One signal from T1
- C) Two OSSD signals
- D) Two signals from +24VDC
- E) One signal from +24VDC
- F) Automatic reset

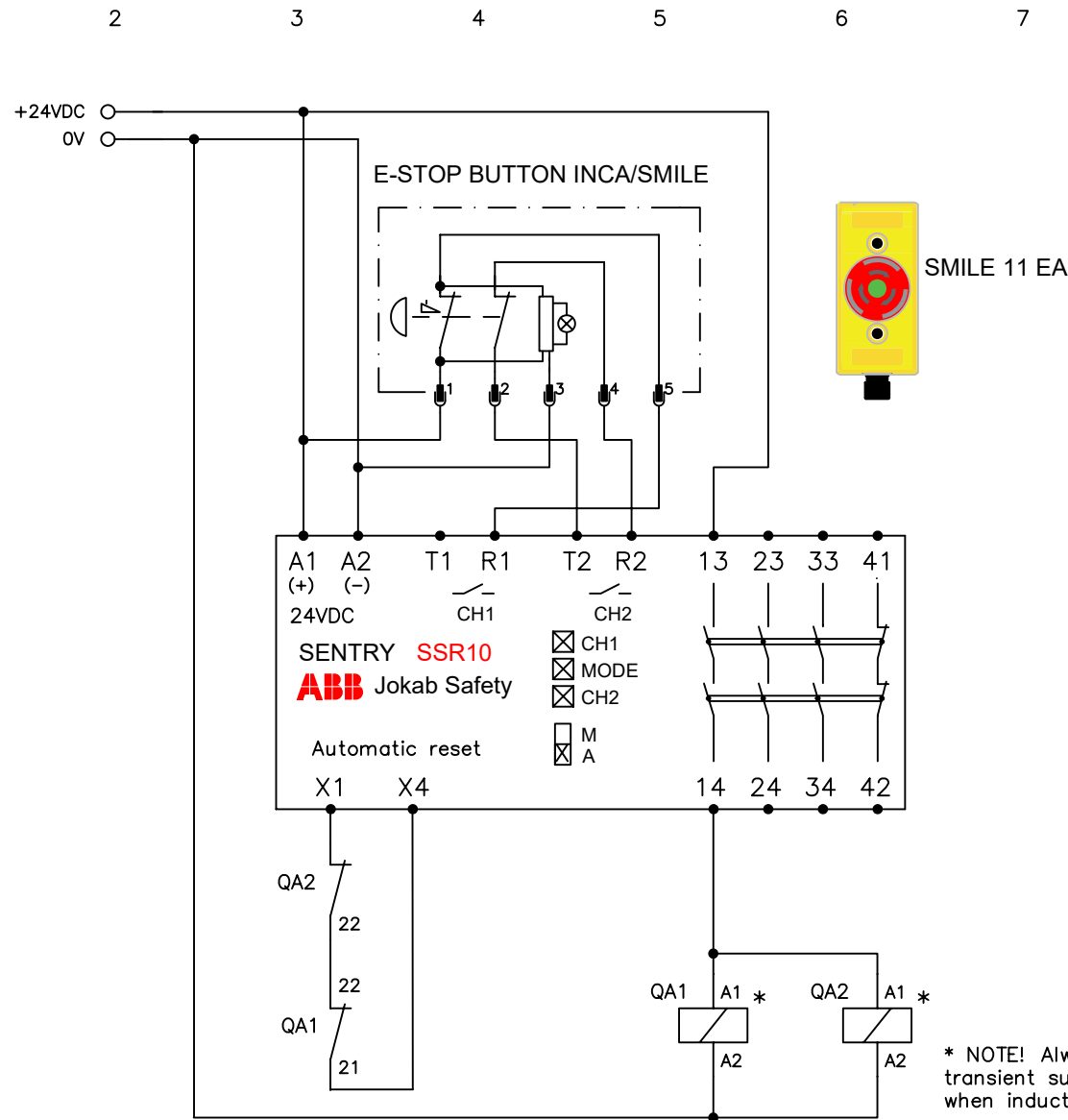
Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

SSR10 general

ABB Safety Products

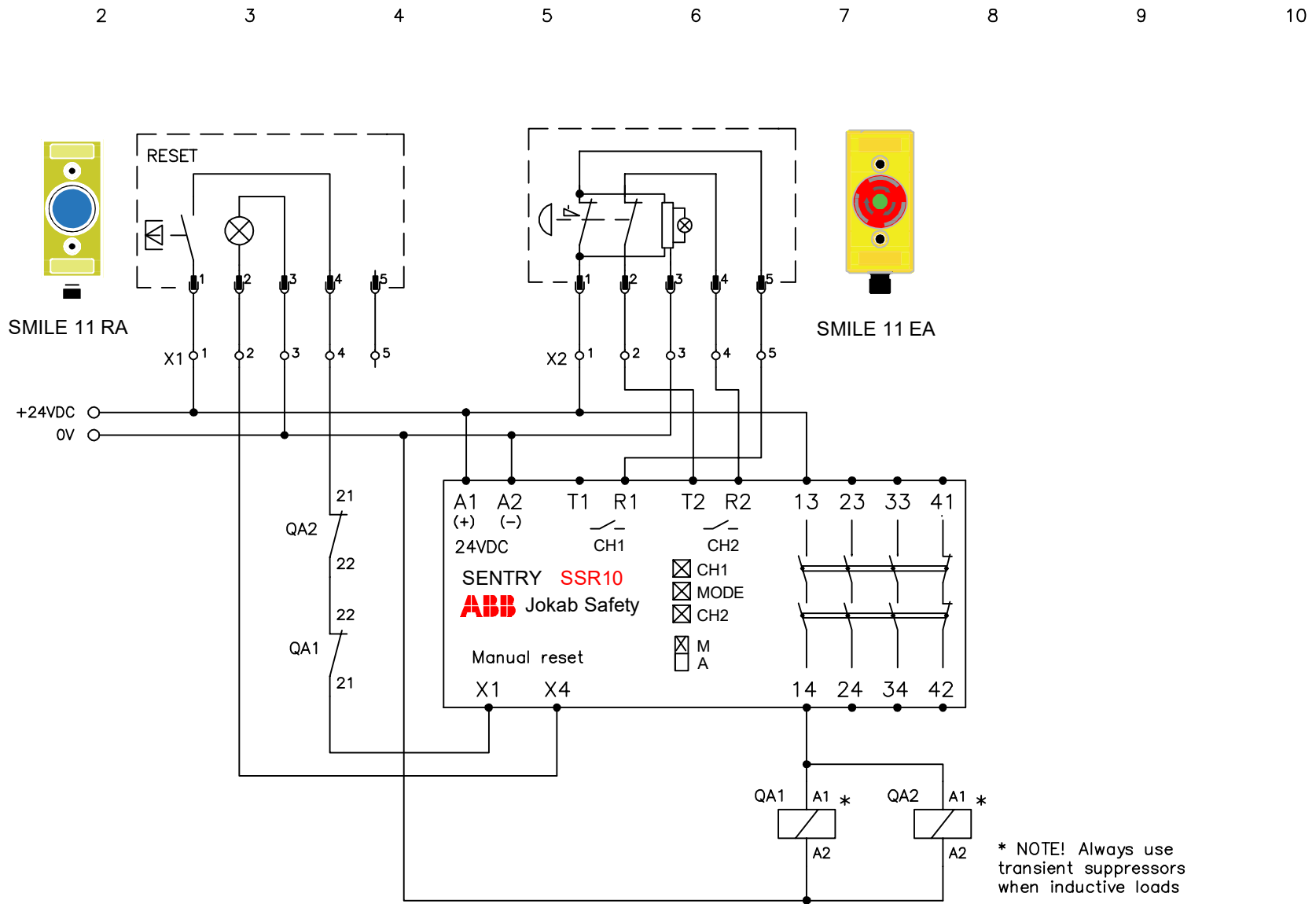
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Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0001	Forts Cont



PL_e
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR10 with SMILE	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0003	Forts Cont



PLe
According to
EN ISO 13849-1

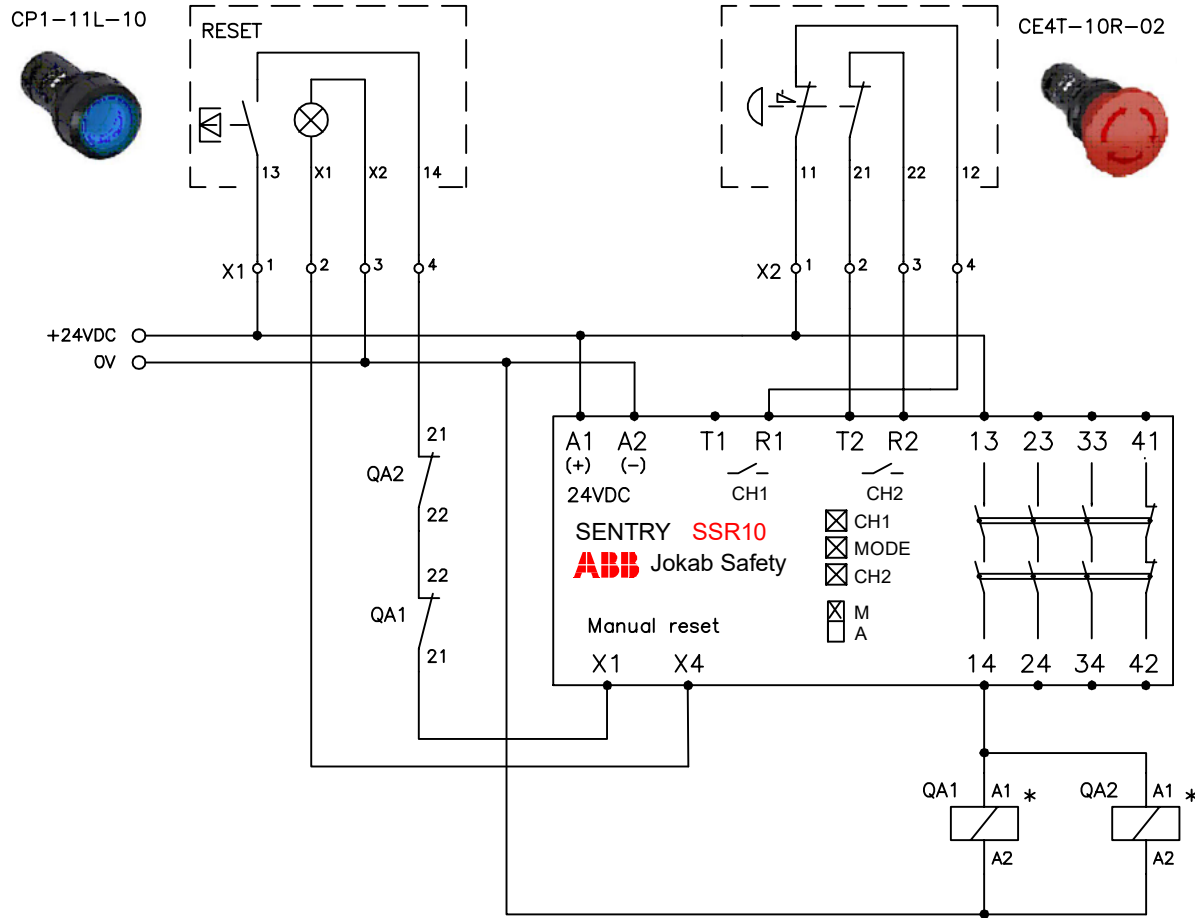
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
SSR10 with SMILE and RESET	



Konstr Design	ABB	Godk Appr		Datum Date	20210706	Blad Sheet	
Ritad Drawn	ABB	Sidor Pages		Ritn nr Drawing no	2TLC010007T0014	Forts Cont	

1 2 3 4 5 6 7 8 9 10



PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

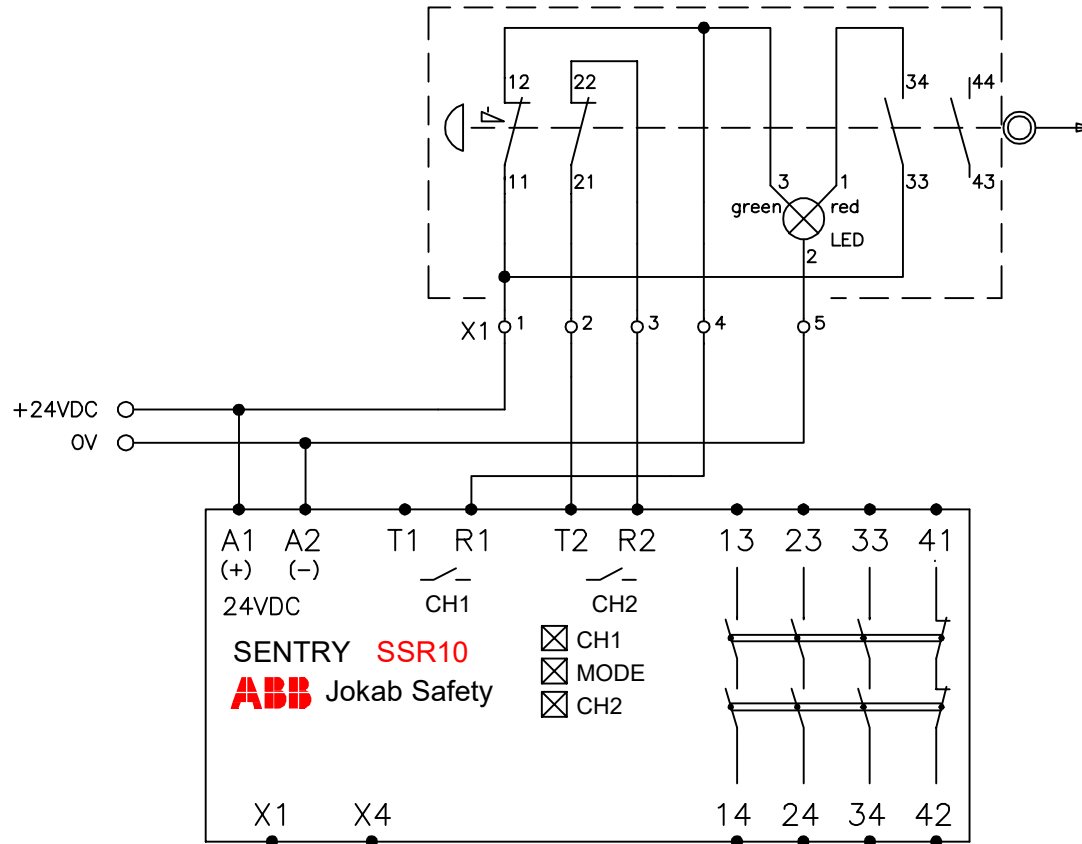
Anmärkning Remark

SSR10 with compact pilot devices

ABB Safety Products

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Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0016	Forts Cont

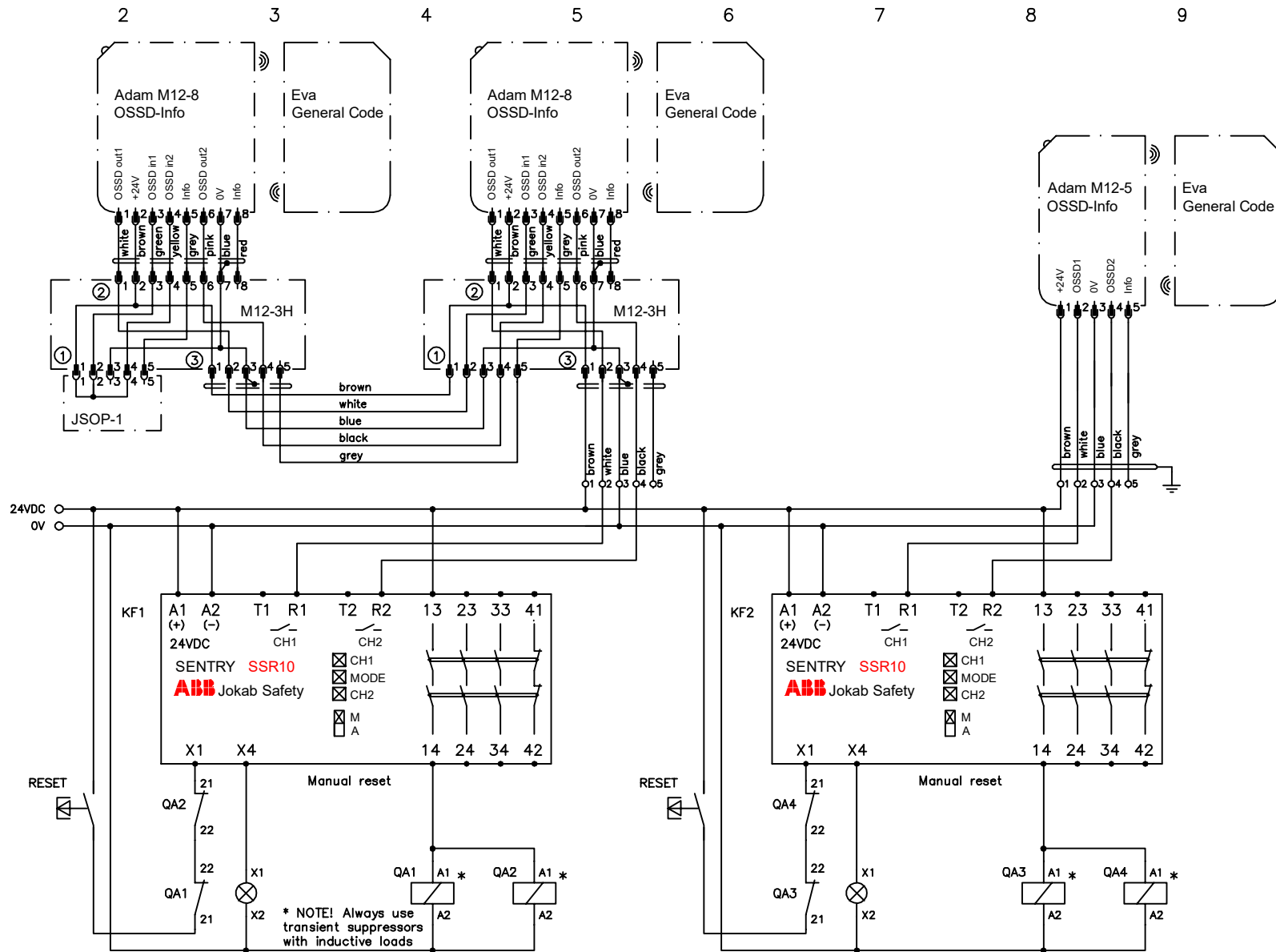
1 2 3 4 5 6 7 8 9 10



PL_e
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR10 with LineStrong	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0018	Forts Cont



PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

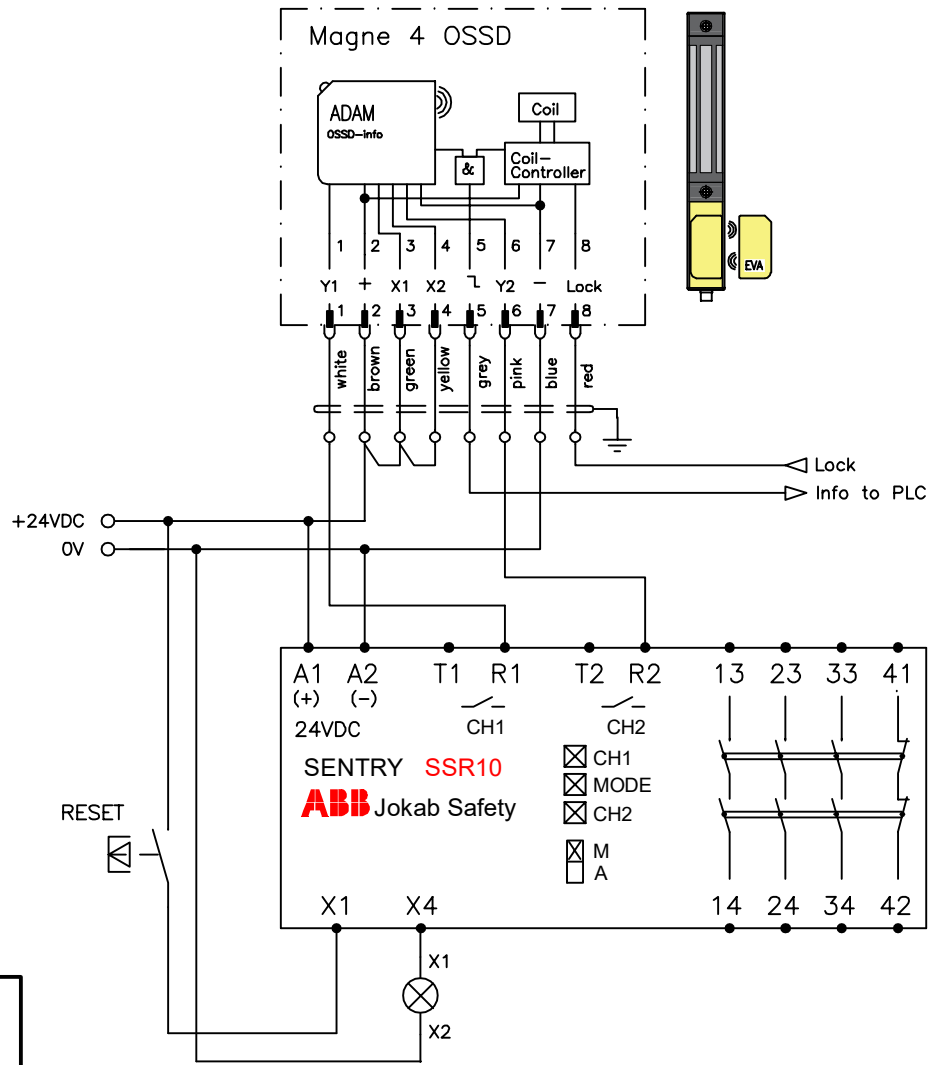
Anmärkning Remark

SSR10 with Eden OSSD

ABB Safety Products

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Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010007T0005	

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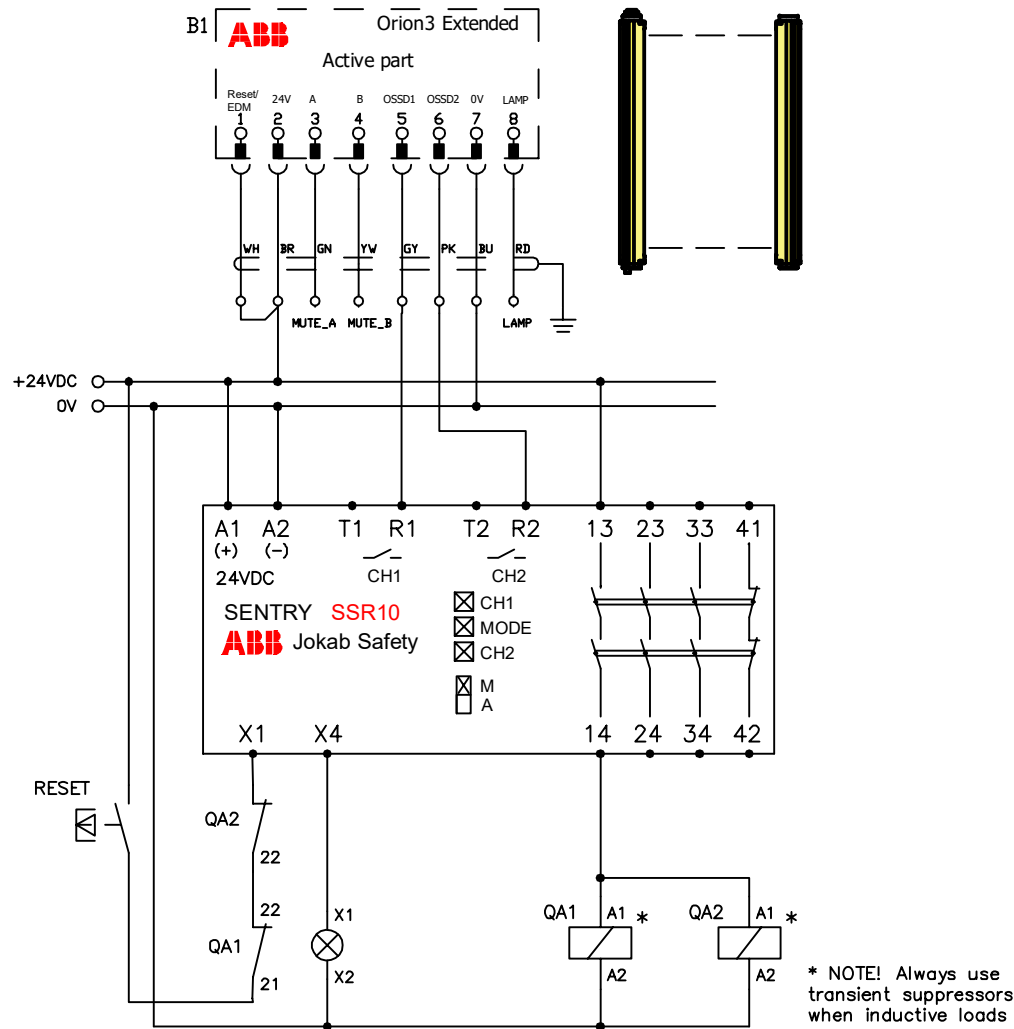


PLe
According to
EN ISO 13849-1

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Anmärkning Remark SSR10 with Magne 4 OSSD	ABB Safety Products		Konstr Design	Godk Appr	Datum Date	Blad Sheet
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			Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
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1 2 3 4 5 6 7 8 9 10



PL_e
According to
EN ISO 13849-1

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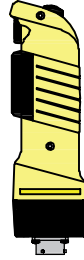
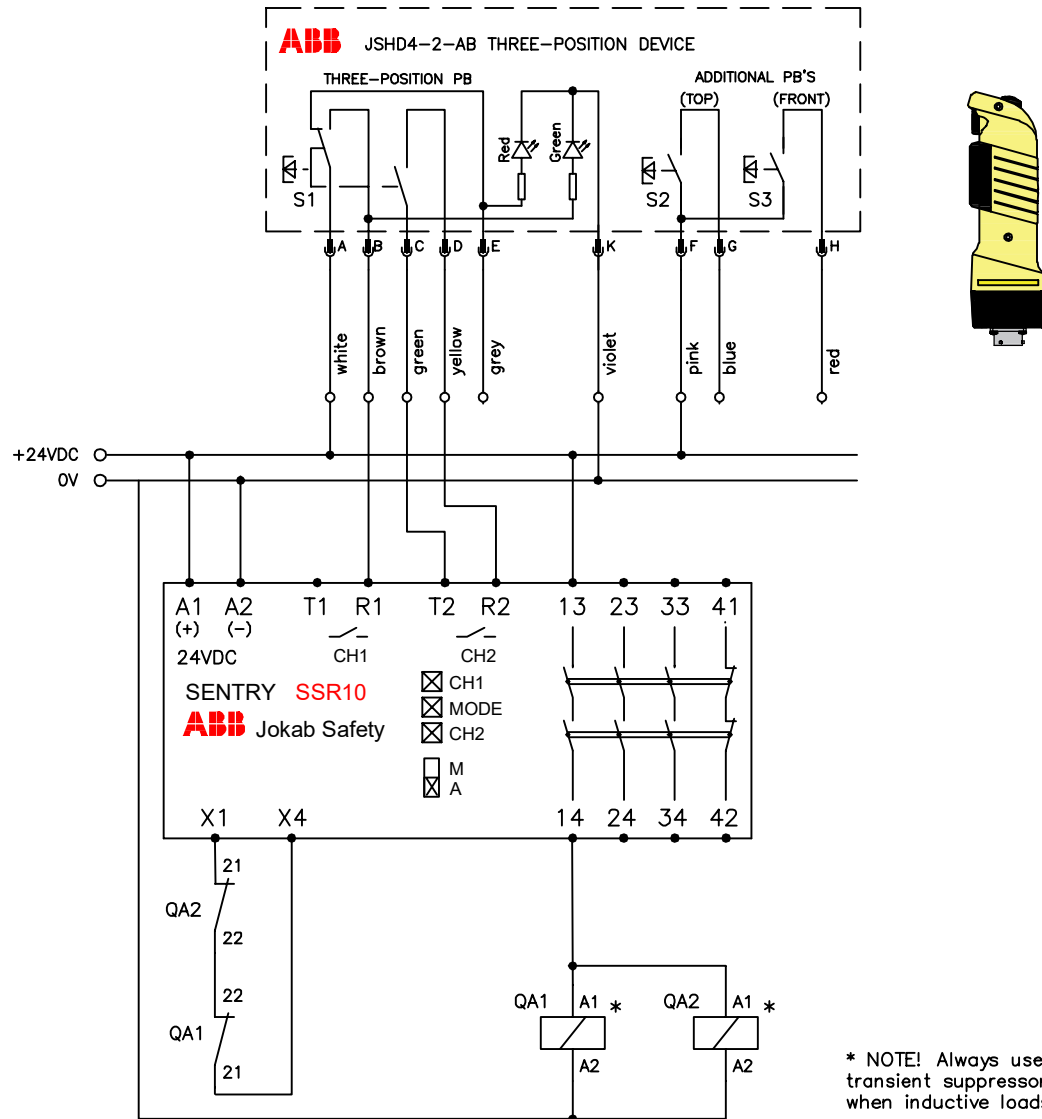
Anmärkning Remark

SSR10 with ORION3 Extended

ABB Safety Products

Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0004	Forts Cont

1 2 3 4 5 6 7 8 9 10



PLe
According to
EN ISO 13849-1

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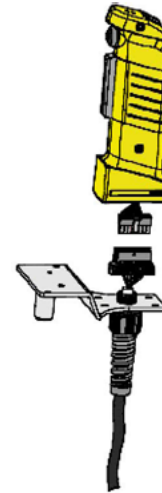
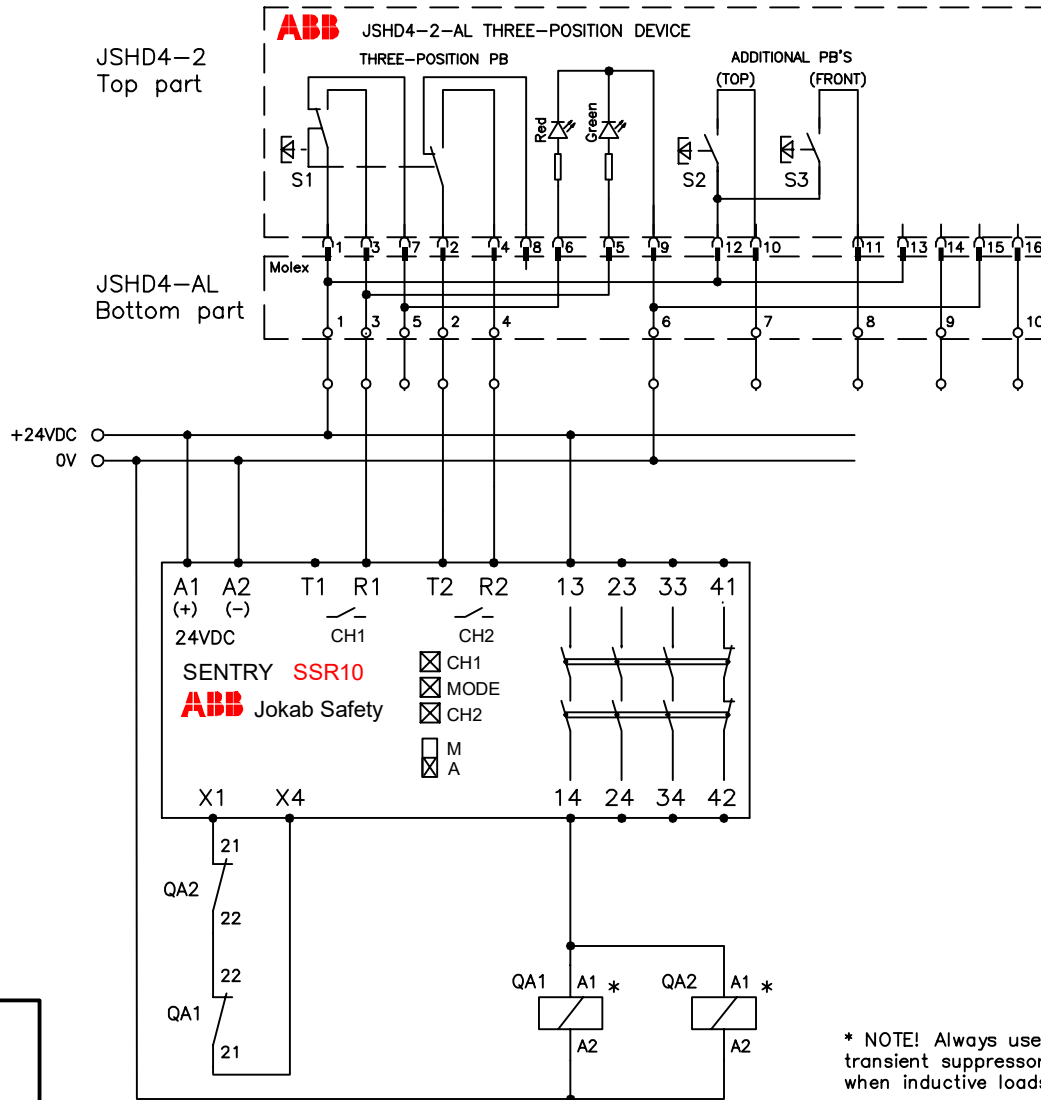
Anmärkning Remark

SSR10 with JSHD4-2-AB

ABB Safety Products

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Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010007T0006	Forts Cont

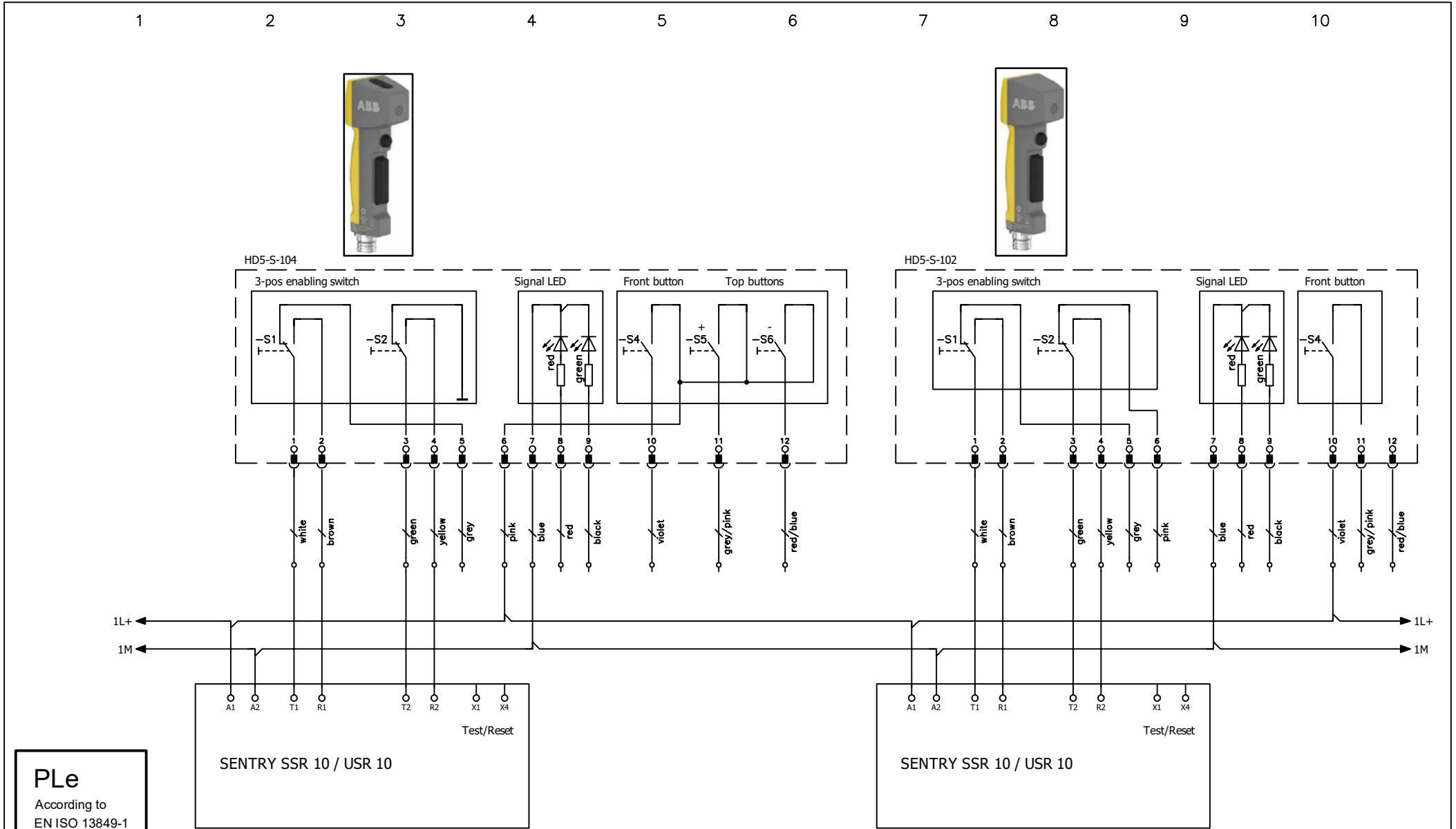
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PLe
According to
EN ISO 13849-1

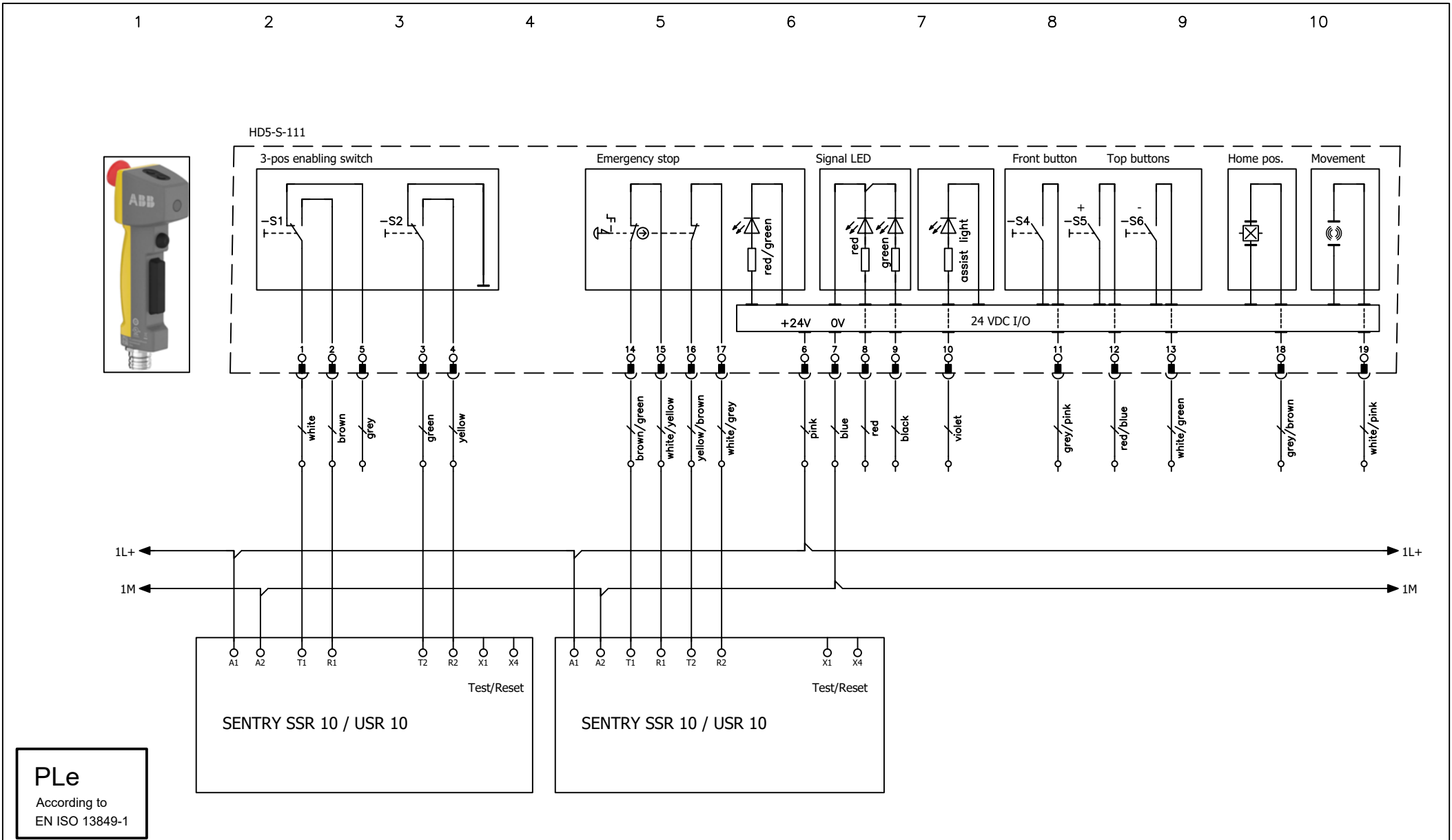
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark					Konstr Design	Godk Appr	Datum Date	Blad Sheet
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SSR10 with JSHD4-2-AL					Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
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Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

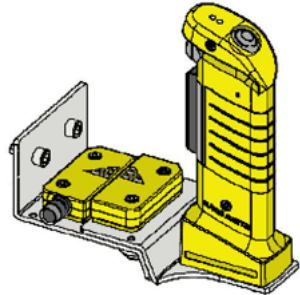
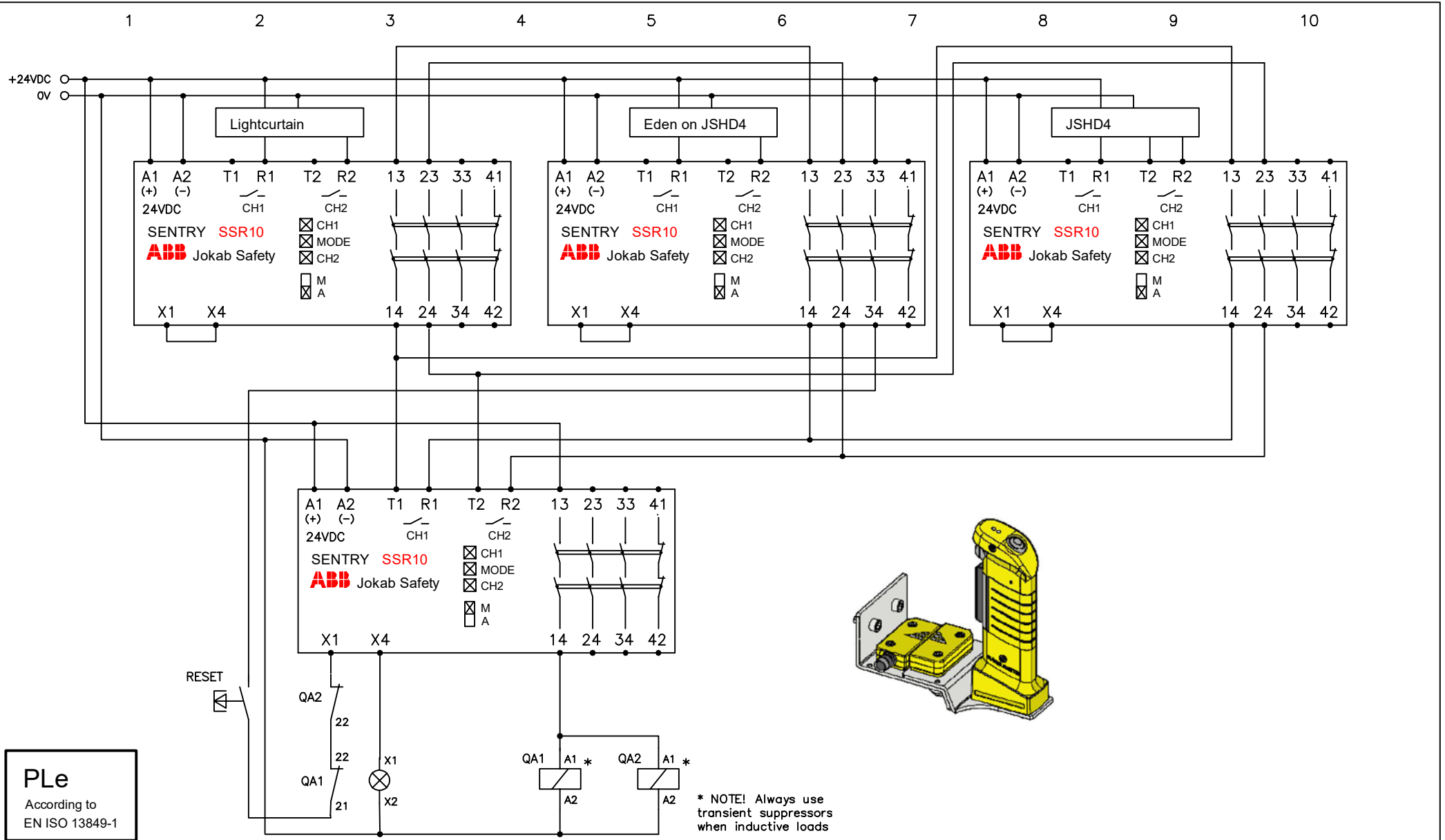
Anmärkning Remark	SSR10/USR10 with HD5-S-104 and -102	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
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			Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
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PLe
According to
EN ISO 13849-1

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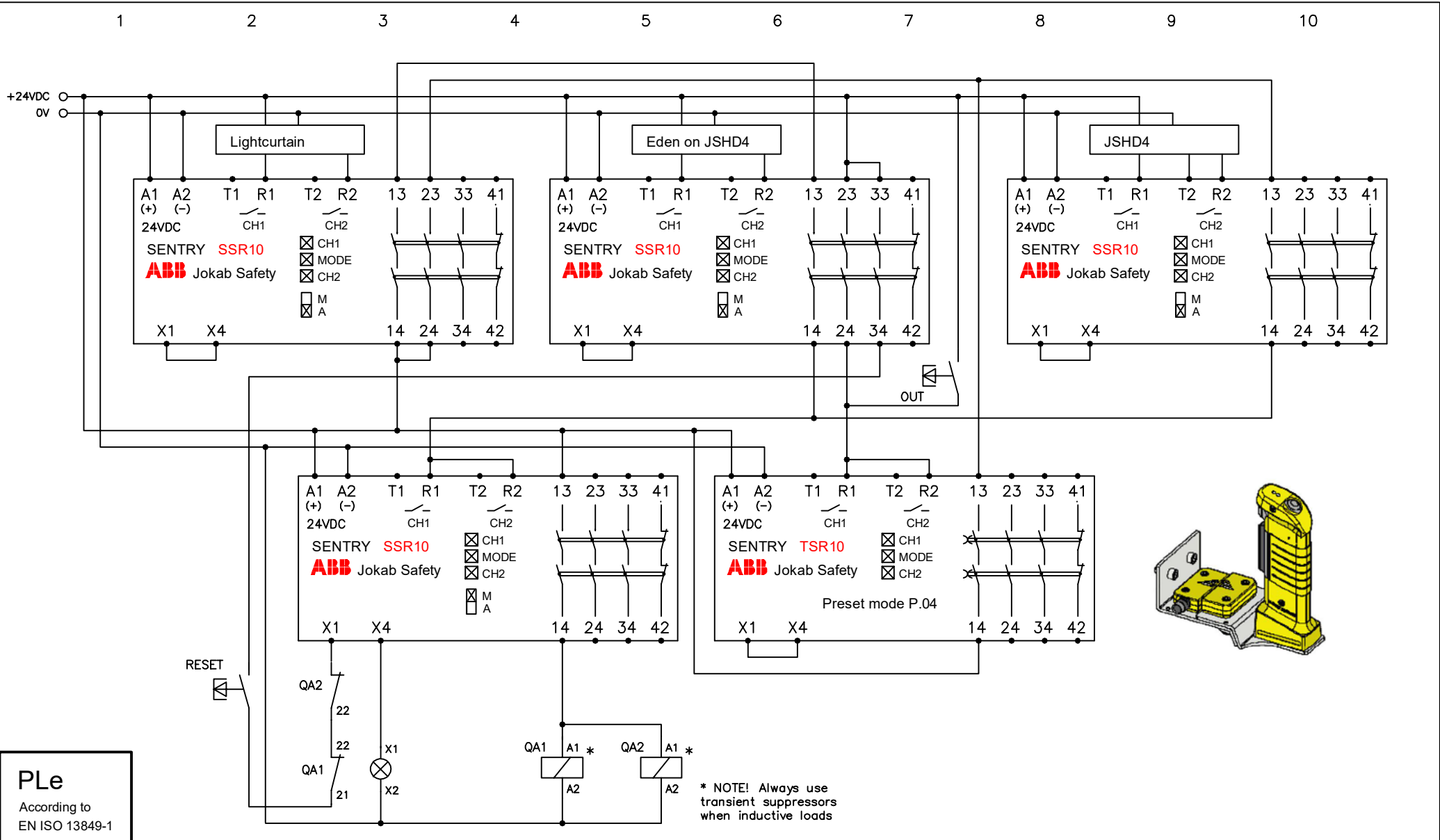
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		ABB			2TLC010007T0106	



PLe
According to
EN ISO 13849-1

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Anmärkning Remark					Konstr Design	Godk Appr	Datum Date	Blad Sheet
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SSR10 with bypass from a JSHD4					Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
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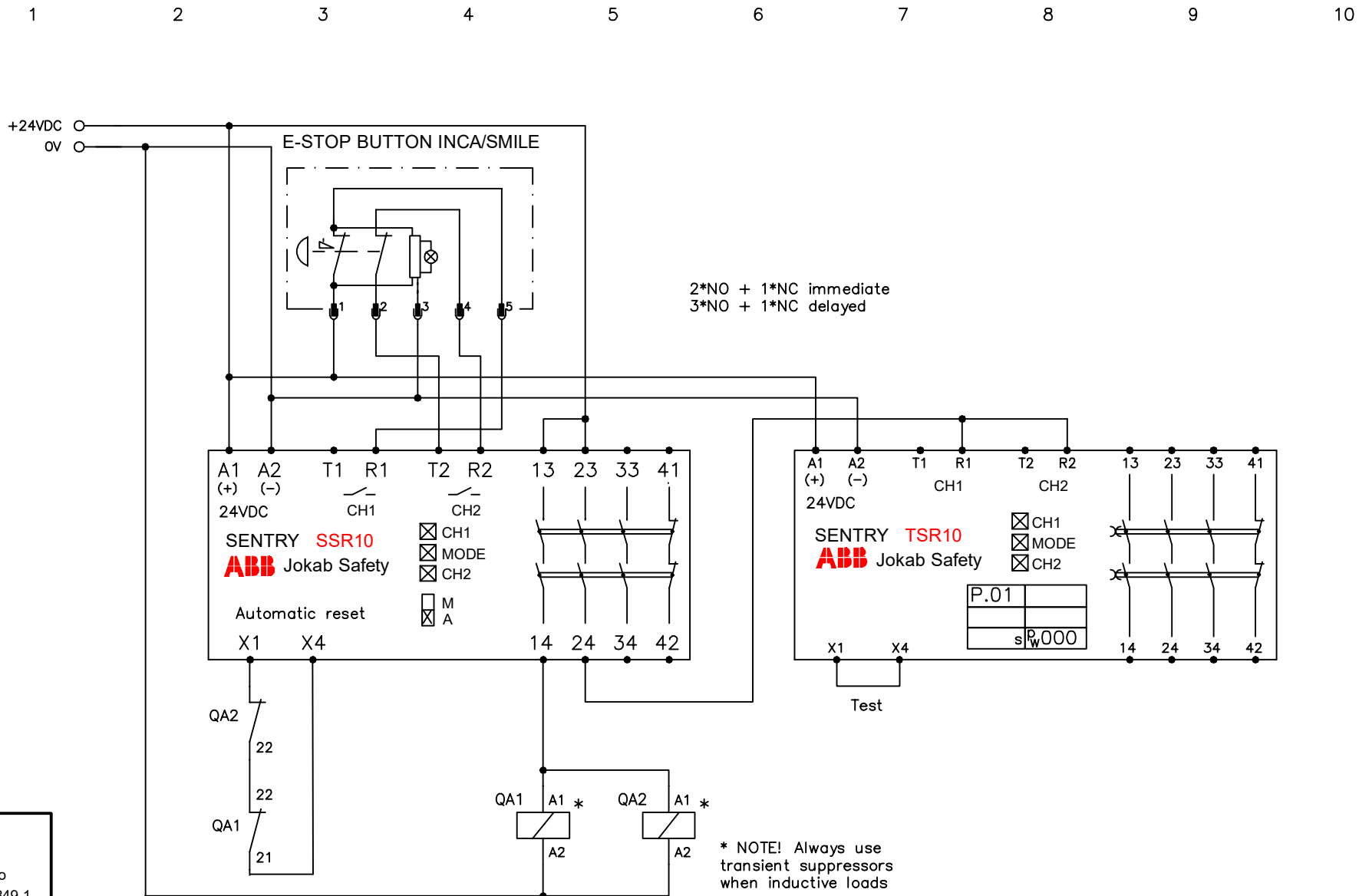
PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
SSR10 with time limited bypass	



Konstr Design	Godk Appr	Datum Date	Blad Sheet
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Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010007T0011	



PLe
According to
EN ISO 13849-1

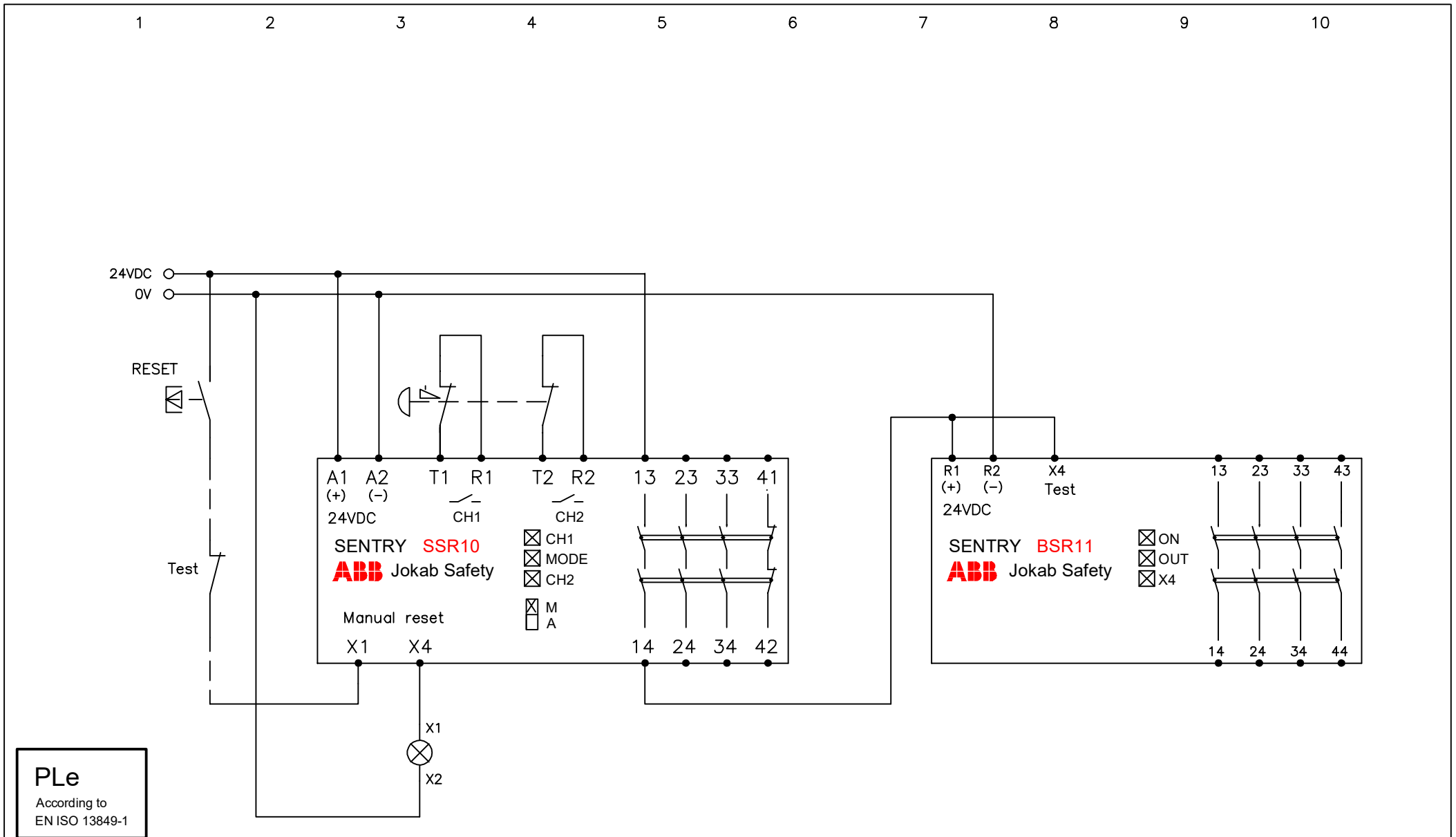
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

SSR10 expansion TSR10

ABB Safety Products

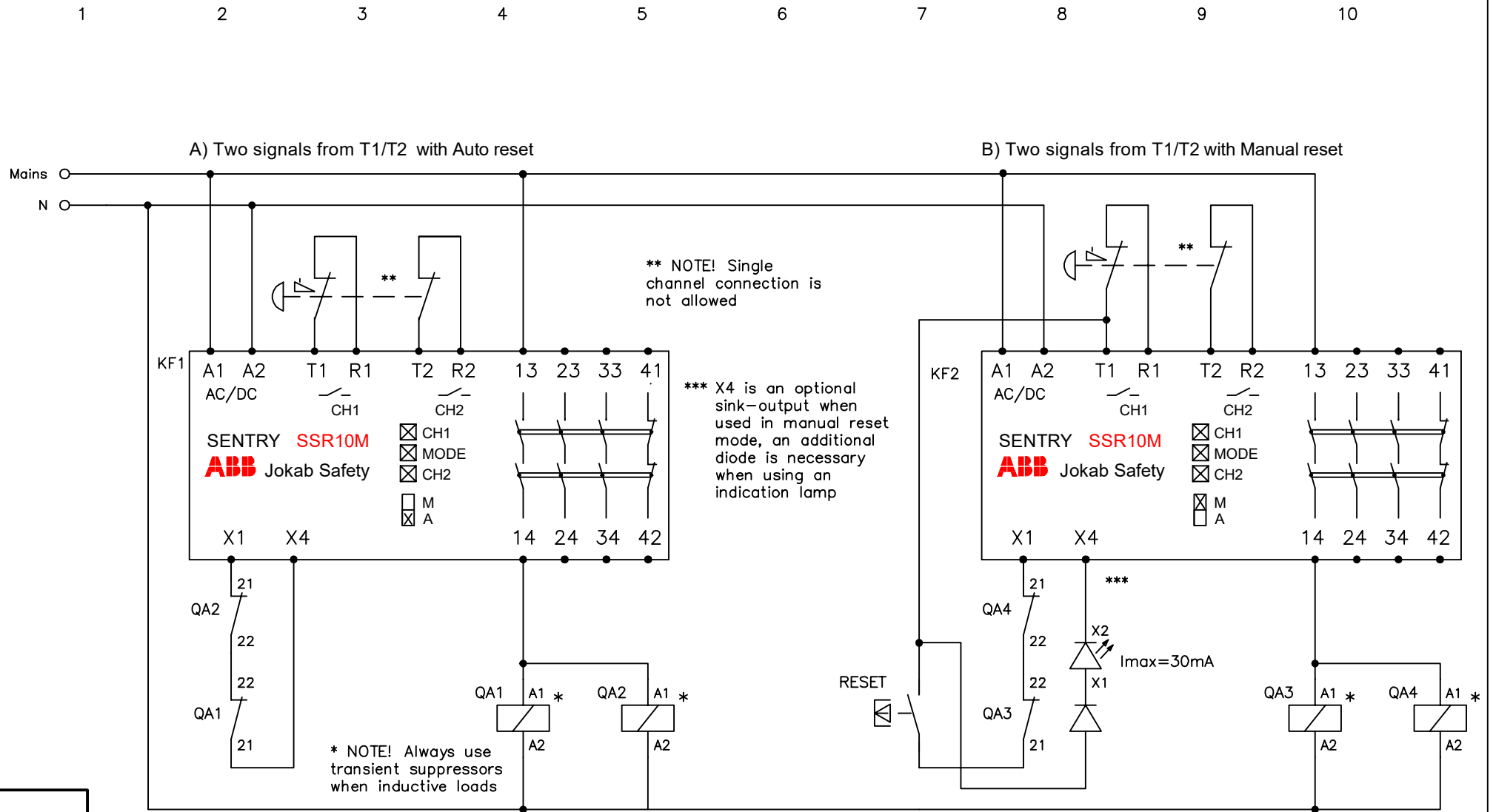
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PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

<p>Anmärkning Remark</p> <p>SSR10 expansion BSR11</p>		<p>Konstr Design Godk Appr</p> <p>ABB</p>	<p>Datum Date</p> <p>20210706</p>	<p>Blad Sheet</p>
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PL_e
According to
EN ISO 13849-1

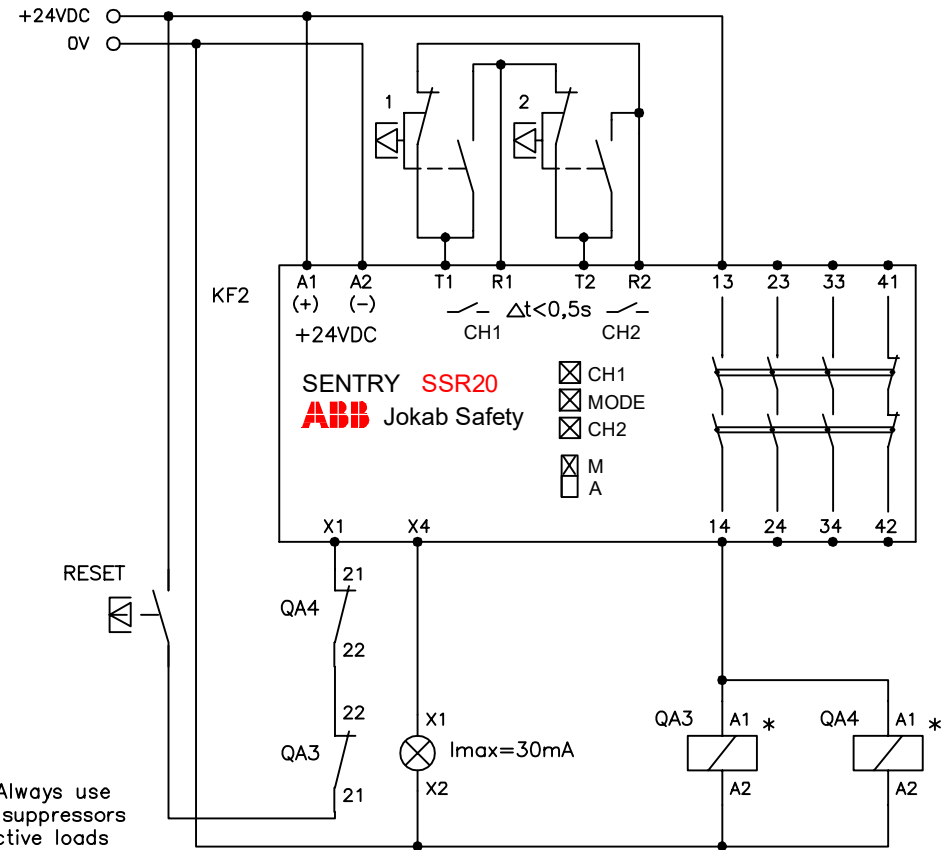
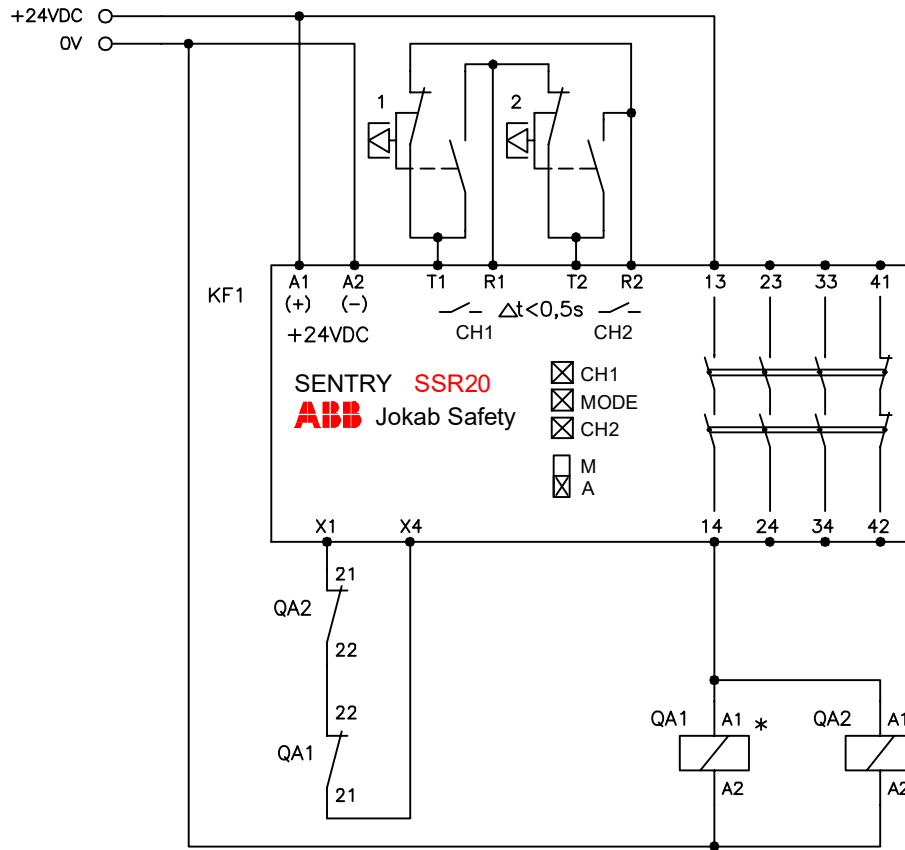
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR10M general	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210707	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010008T0001	Forts Cont

1 2 3 4 5 6 7 8 9 10

A) Two-hand device / Auto reset

A) Two-hand device / Manual reset



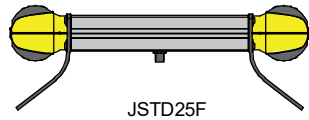
* NOTE! Always use transient suppressors with inductive loads

PL_e
According to
EN ISO 13849-1

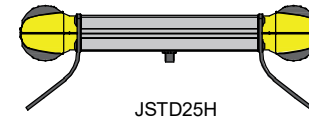
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR20 general	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010009T0001	Forts Cont

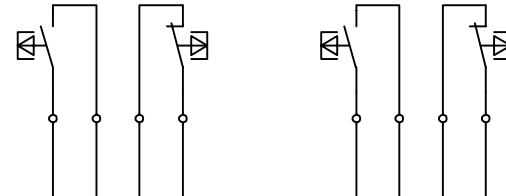
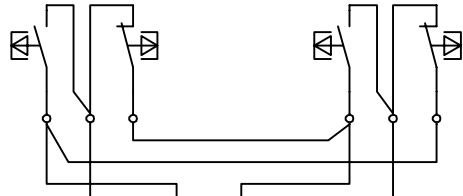
1 2 3 4 5 6 7 8 9 10



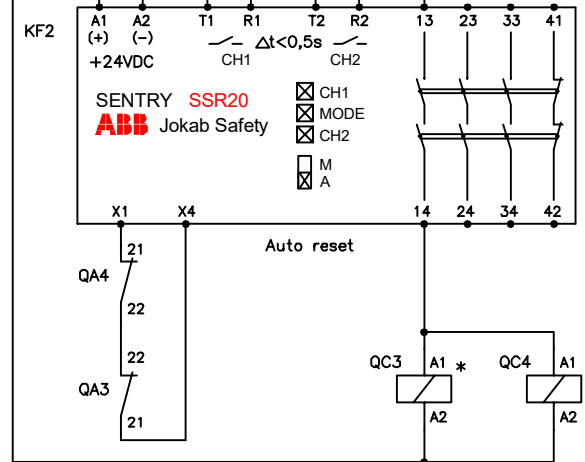
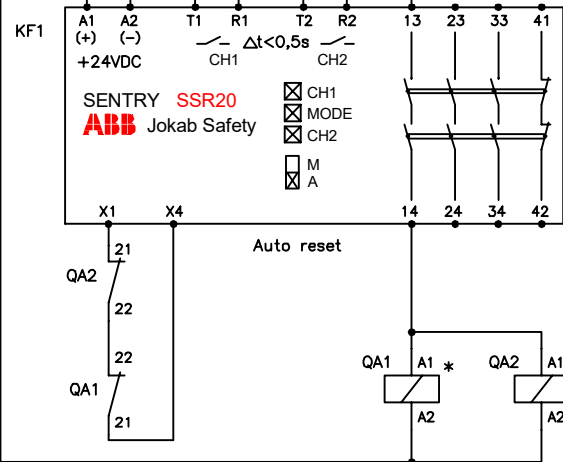
JSTD25F



JSTD25H



+24VDC
0V



PL_e
According to
EN ISO 13849-1

* NOTE! Always use transient suppressors with inductive loads

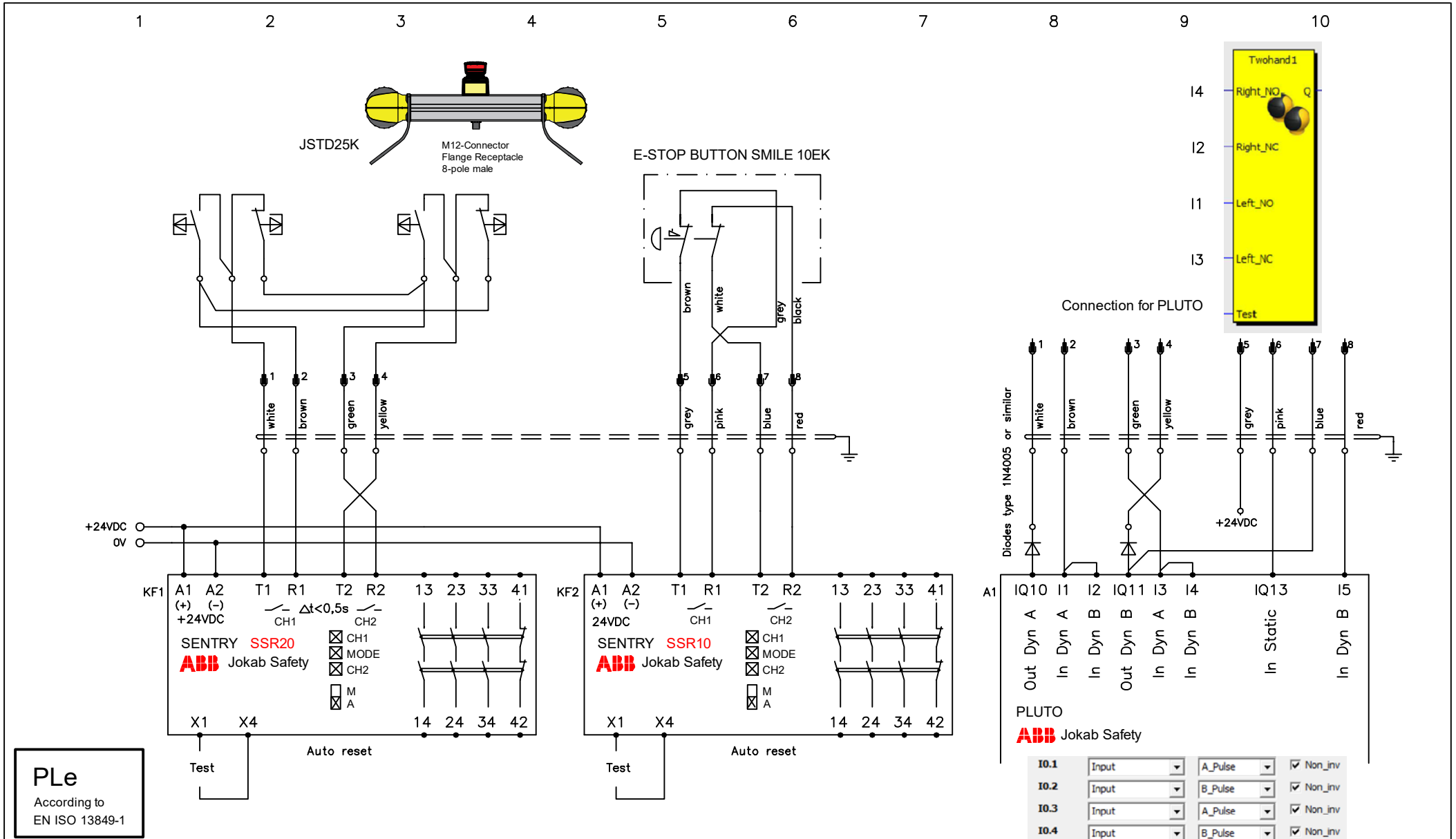
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

SSR20 with JSTD25F and H



Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010009T0002	Forts Cont



Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

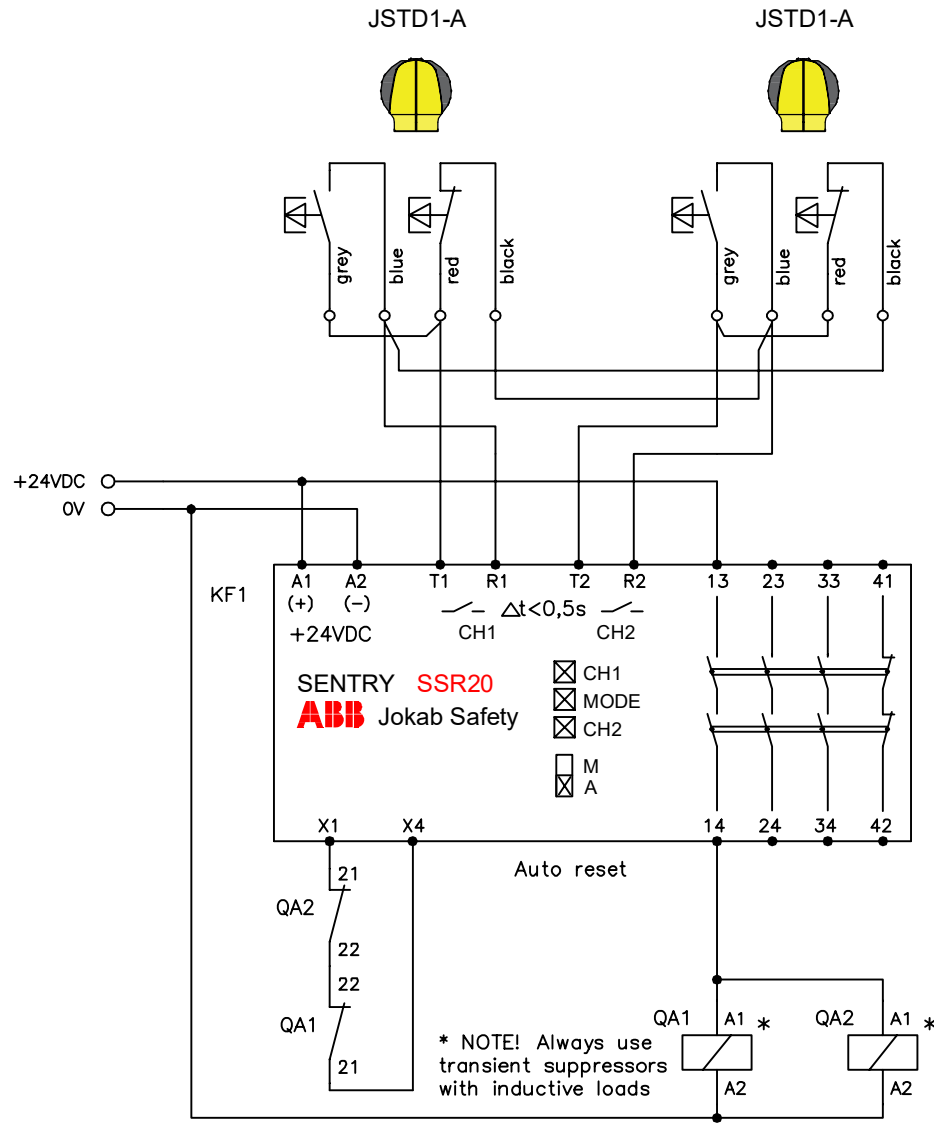
SSR20 with JSTD25K



Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010009T0005	Forts Cont

10.1	Input	A_Pulse	<input checked="" type="checkbox"/> Non_inv
10.2	Input	B_Pulse	<input checked="" type="checkbox"/> Non_inv
10.3	Input	A_Pulse	<input checked="" type="checkbox"/> Non_inv
10.4	Input	B_Pulse	<input checked="" type="checkbox"/> Non_inv

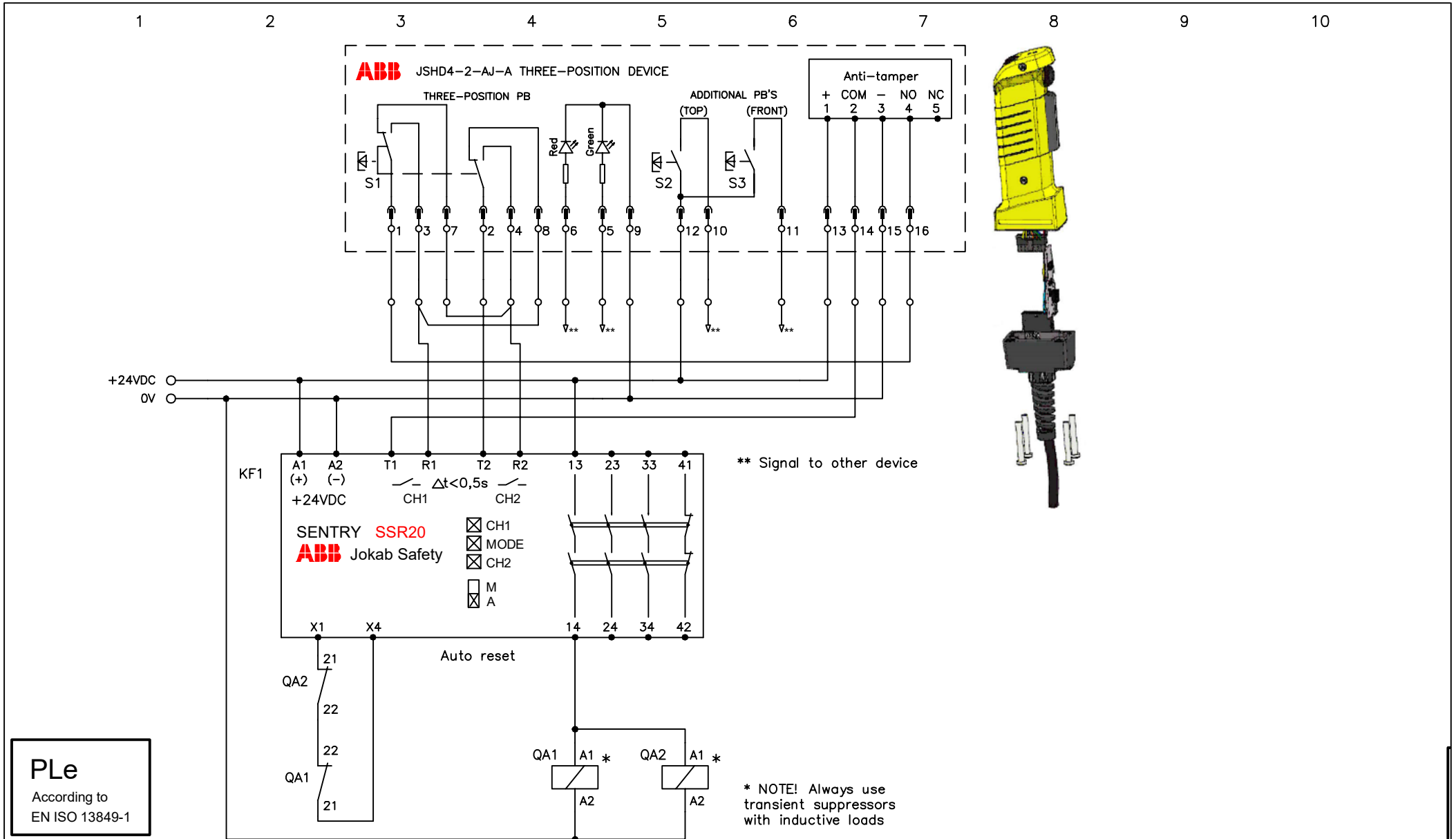
1 2 3 4 5 6 7 8 9 10



PLe
According to
EN ISO 13849-1

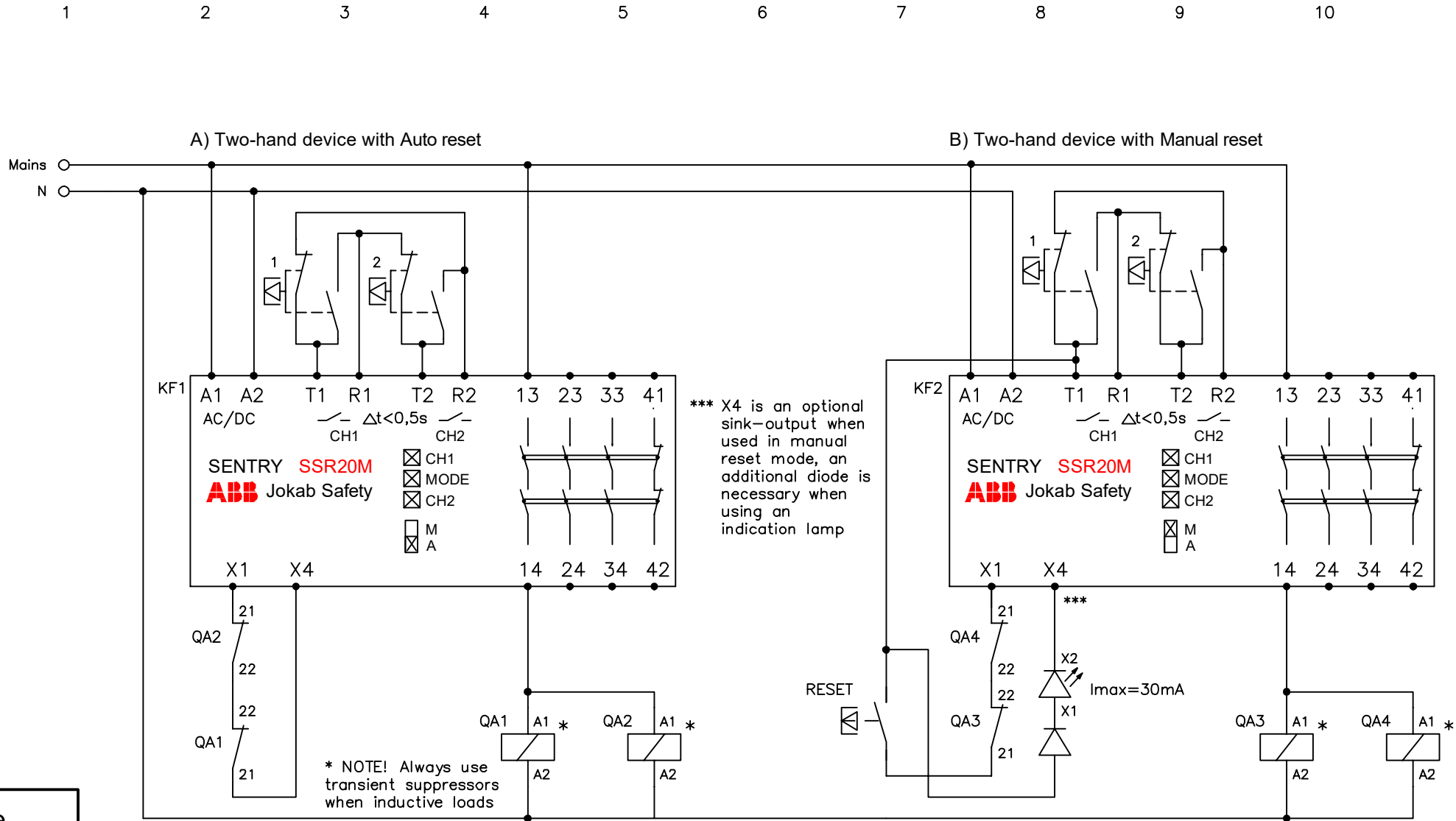
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR20 with JSTD1-A	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
		ABB		20210706	
		ABB		2TLC010009T0004	



Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR20 with JSHD4-2-AJ-A	ABB Safety Products		Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
			Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010009T0003	Forts Cont



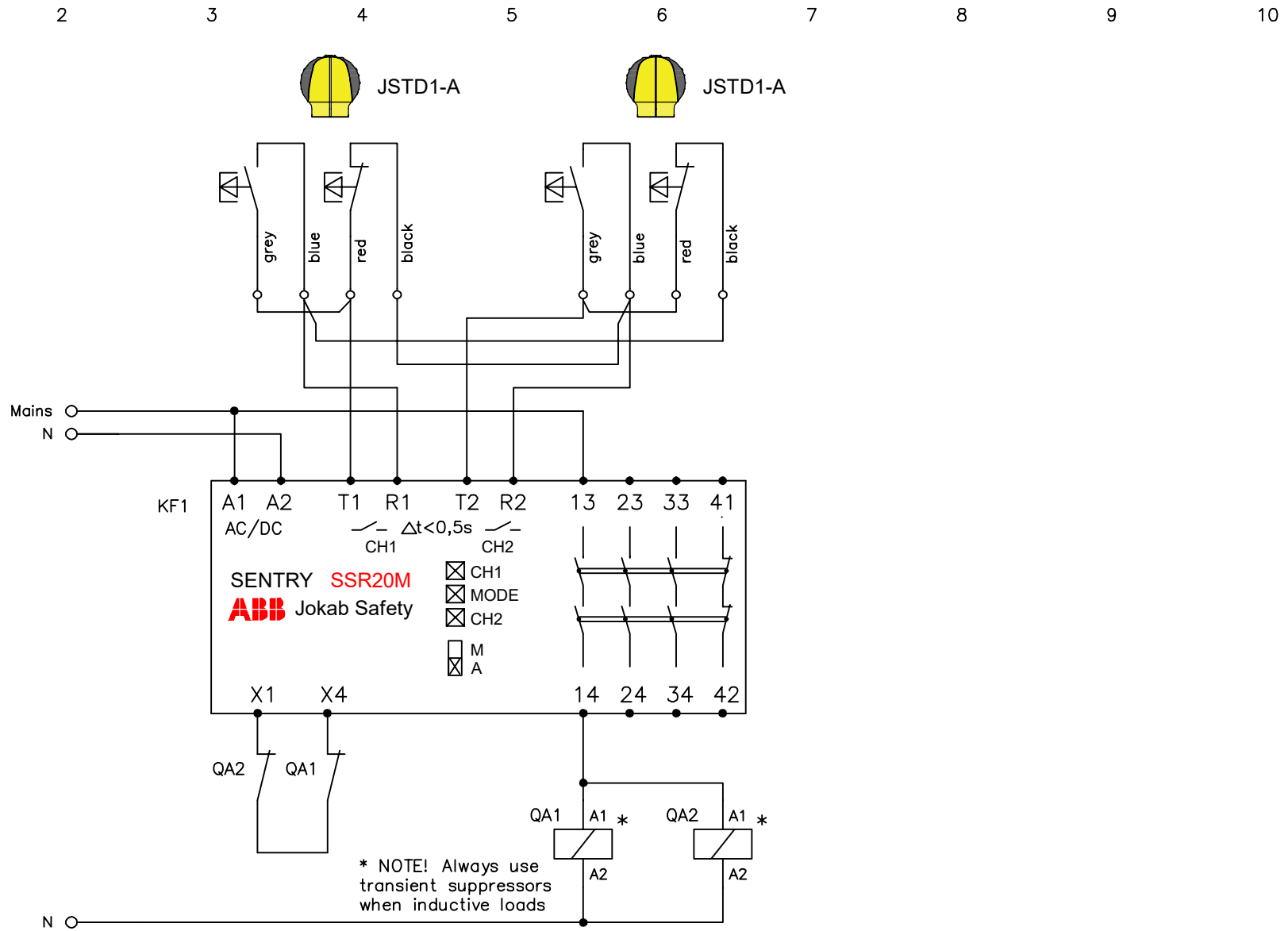
PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
SSR20M general	



Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010010T0001	Forts Cont



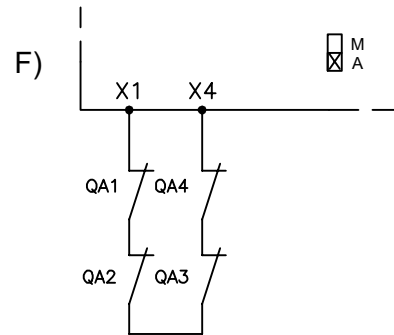
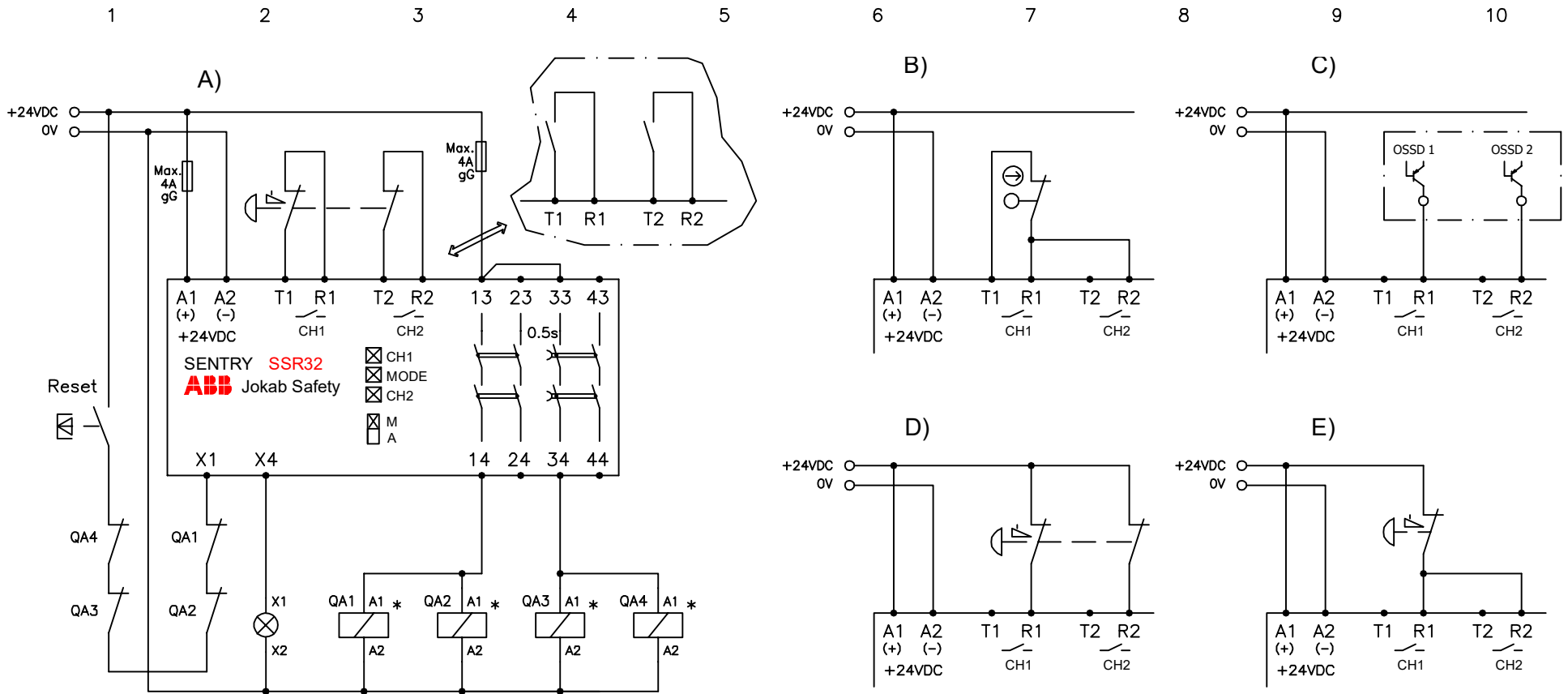
PL_e
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
SSR20M with JSTD1-A	

ABB Safety Products

Konstr Design	ABB	Godk Appr		Datum Date	20210706	Blad Sheet	
Ritad Drawn	ABB	Sidor Pages		Ritn nr Drawing no	2TLC010010T0002	Forts Cont	



* NOTE! Always use transient suppressors with inductive loads

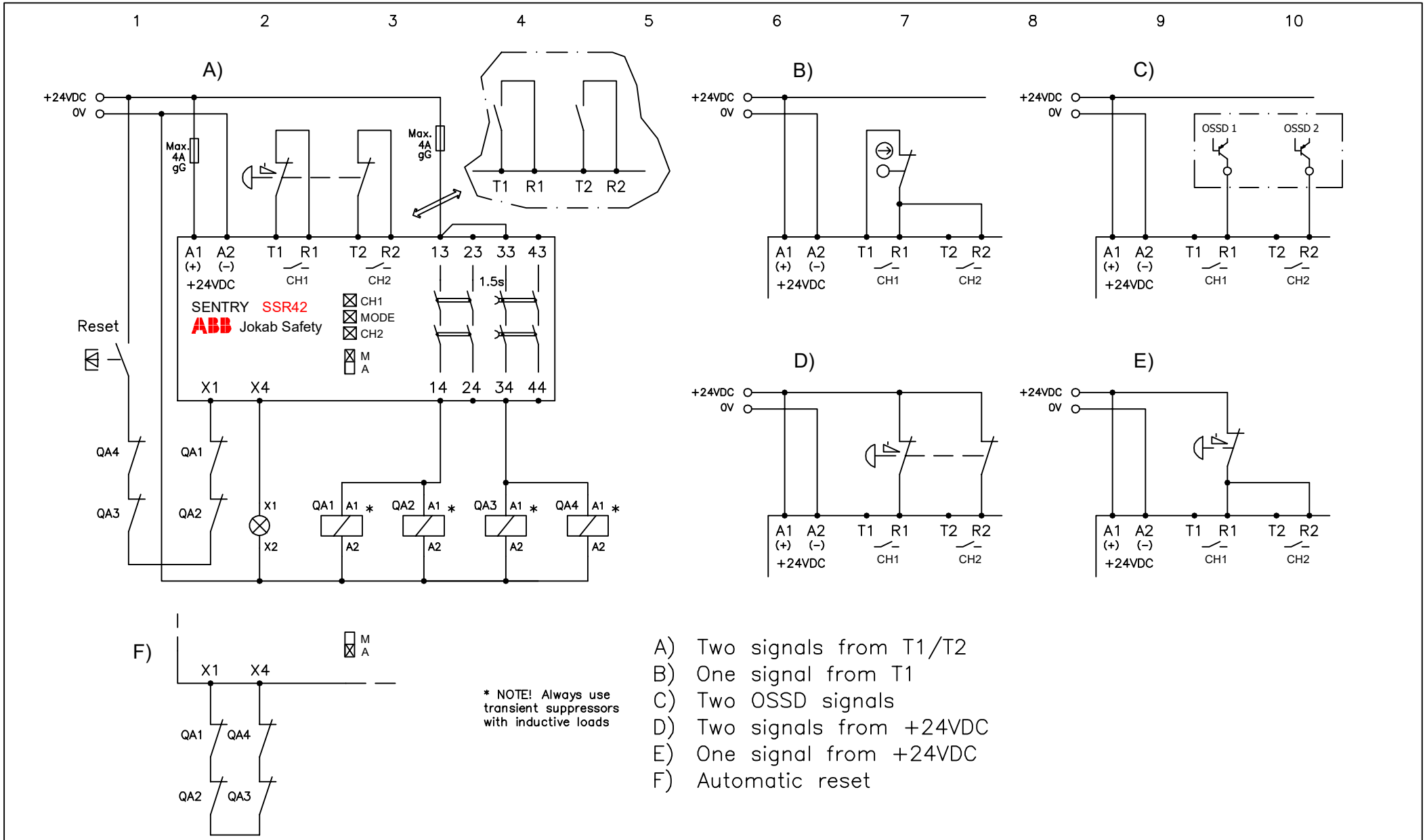
- A) Two signals from T1/T2
- B) One signal from T1
- C) Two OSSD signals
- D) Two signals from +24VDC
- E) One signal from +24VDC
- F) Automatic reset

Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
SSR32 general	

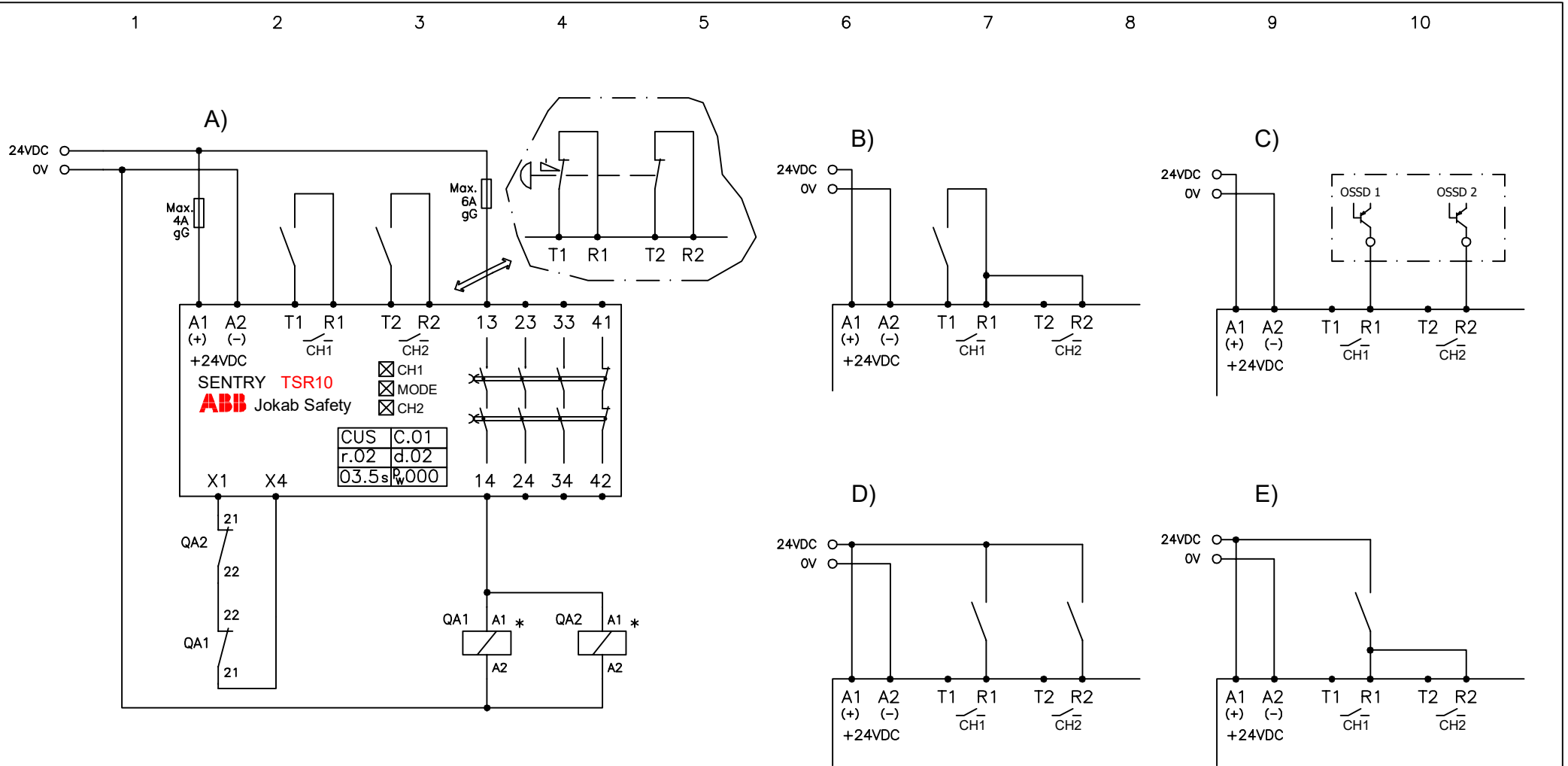


Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210707	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010011T0001	



Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark SSR42 general	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210707	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010012T0001	Forts Cont



- A) Two signals from T1/T2
- B) One signal from T1
- C) Two OSSD signals
- D) Two signals from +24VDC
- E) One signal from +24VDC

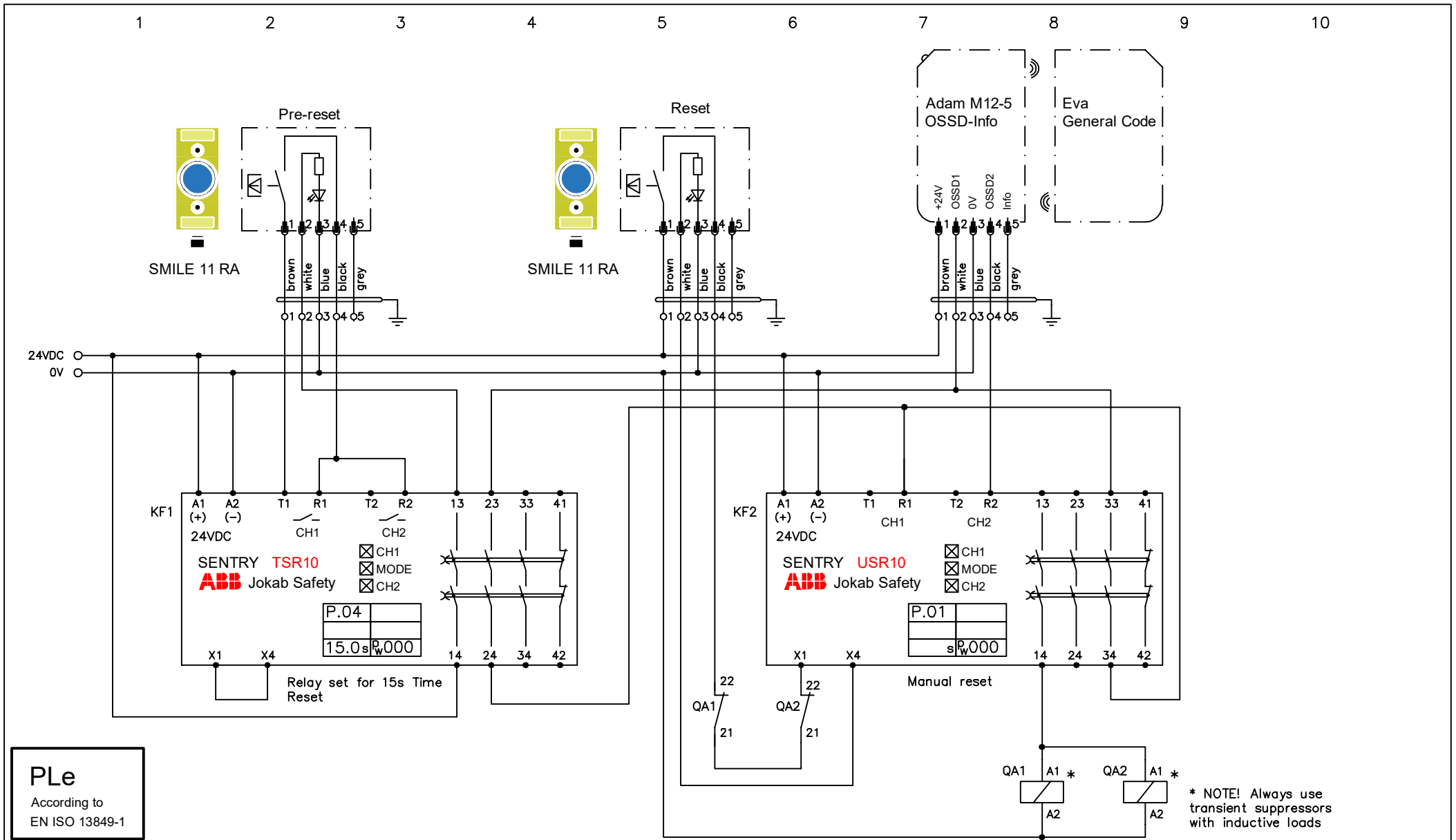
* NOTE! Always use transient suppressors with inductive loads

Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning	Remark
TSR10 general	



Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210707	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010013T0001	



PL_e
According to
EN ISO 13849-1

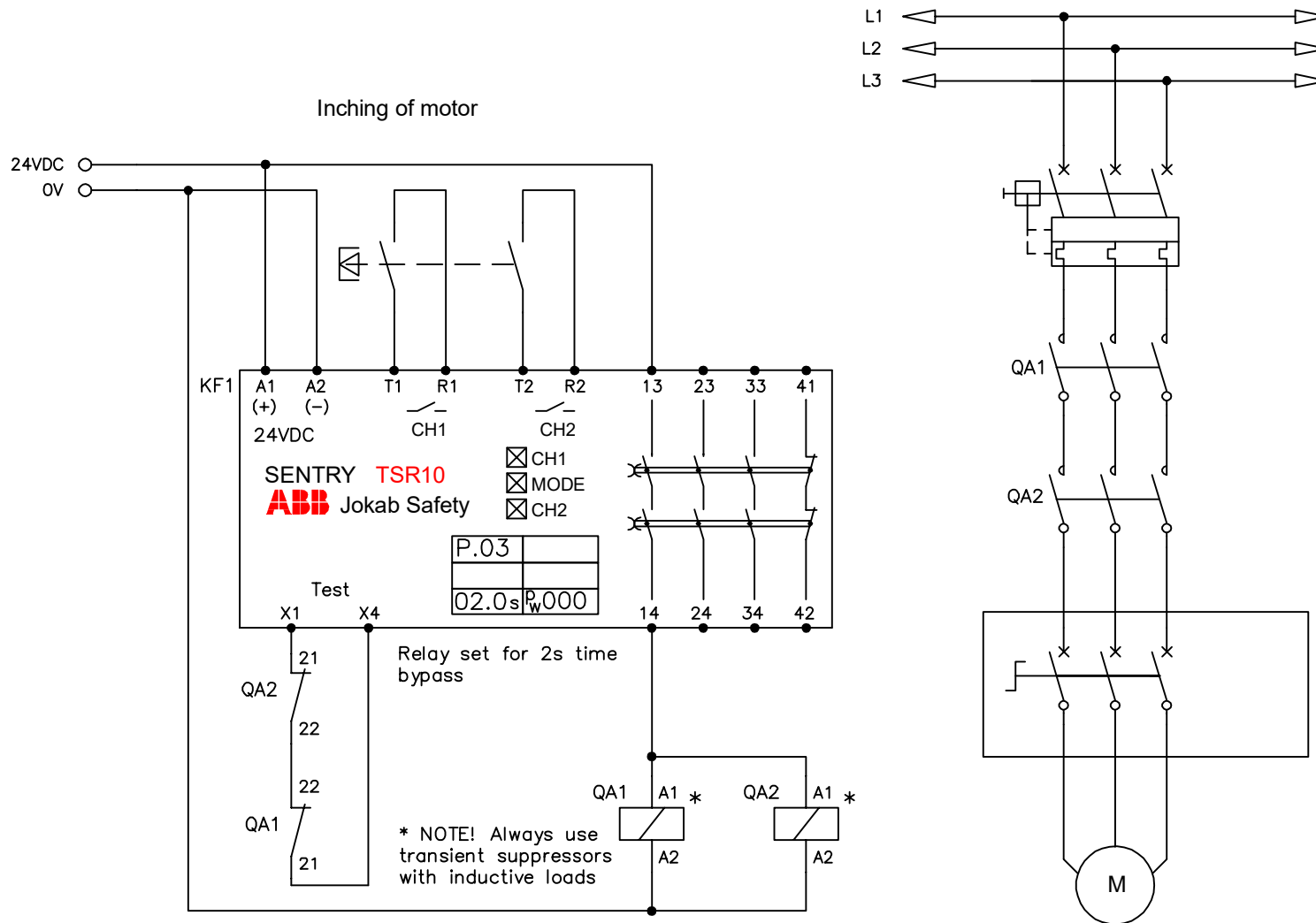
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
TSR10 pre-reset	



Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210706	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010013T0002	

1 2 3 4 5 6 7 8 9 10



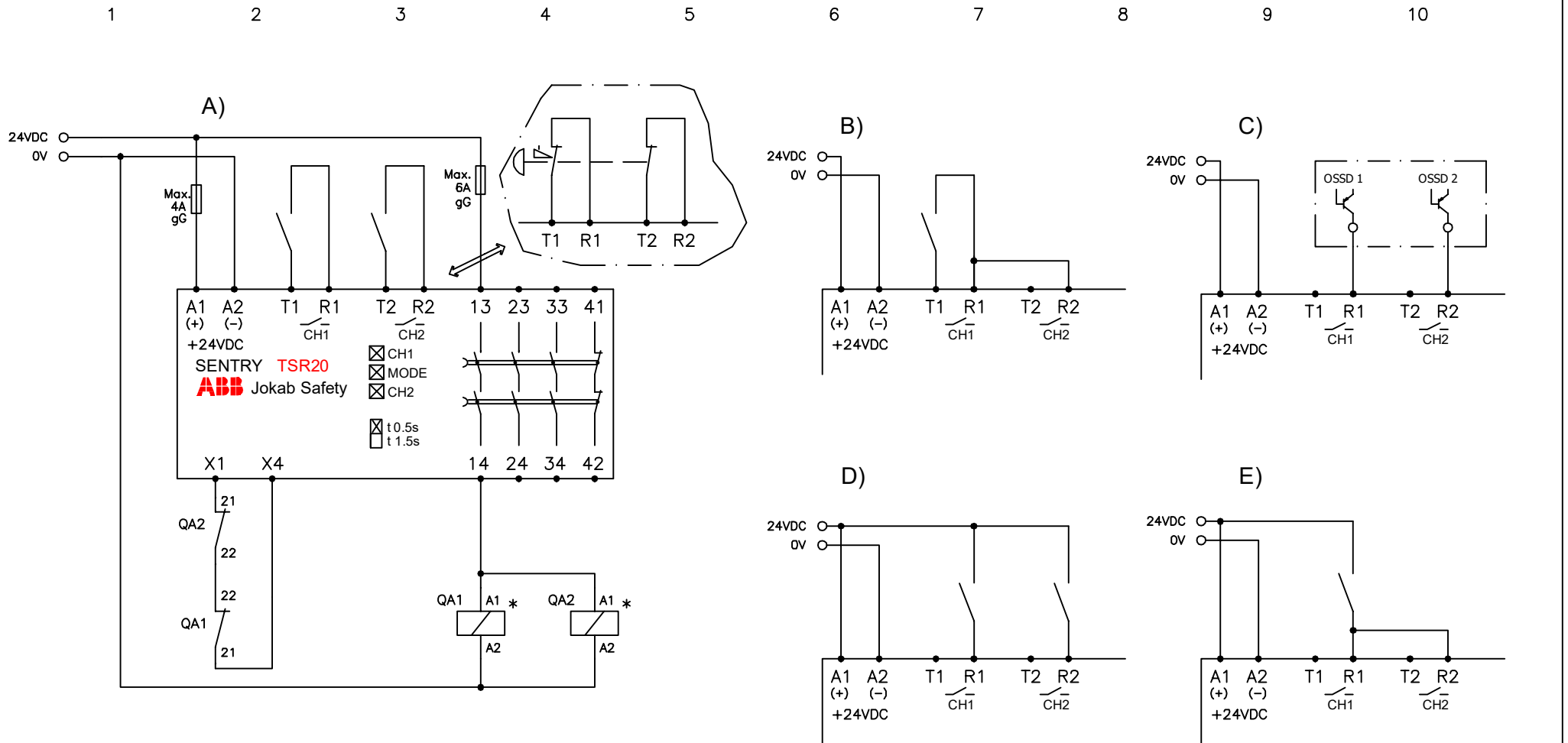
PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	
TSR10 inching	



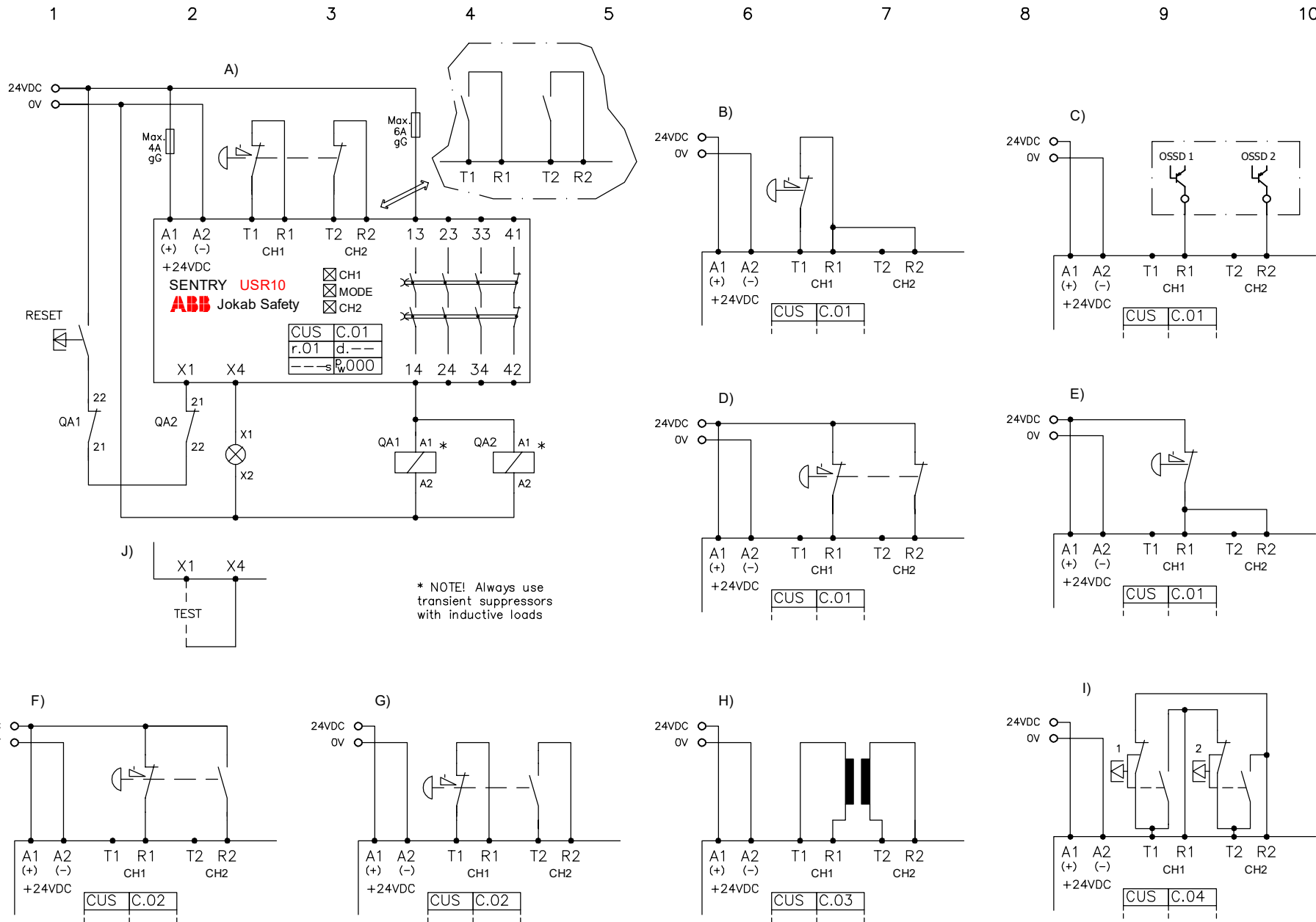
Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210706	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010013T0003	



- A) Two signals from T1/T2
 - B) One signal from T1
 - C) Two OSSD signals
 - D) Two signals from +24VDC
 - E) One signal from +24VDC
- * NOTE! Always use transient suppressors with inductive loads

Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark TSR20 general	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
		ABB		20210707	
		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
		ABB		2TLC010014T0001	



* NOTE! Always use transient suppressors with inductive loads

Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

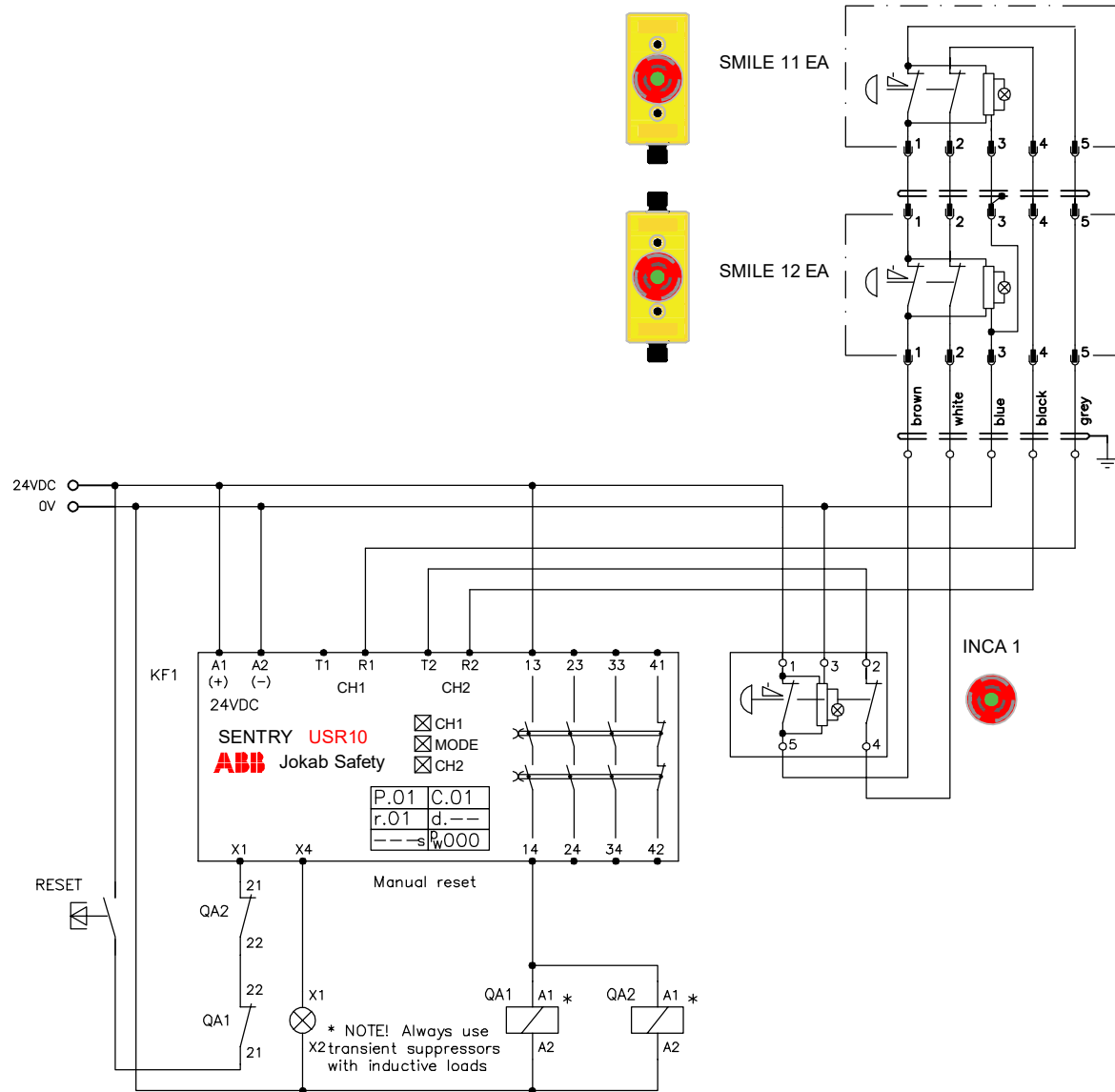
Anmärkning Remark

USR10 general

ABB Safety Products

Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210707	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010016T0001	

1 2 3 4 5 6 7 8 9 10



PLe
According to
EN ISO 13849-1

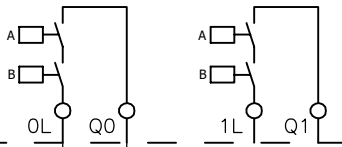
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark USR10 with INCA 1/SMILE EA	ABB Safety Products		Konstr Design	Godk Appr	Datum Date	Blad Sheet
			ABB		20210706	
			Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
			ABB		2TLC010016T0002	

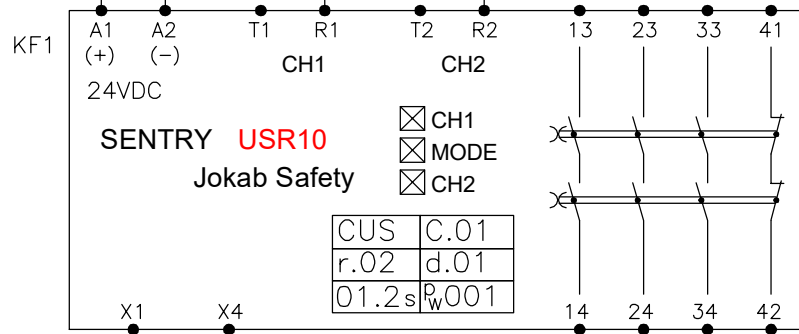
1 2 3 4 5 6 7 8 9 10

PLUTO

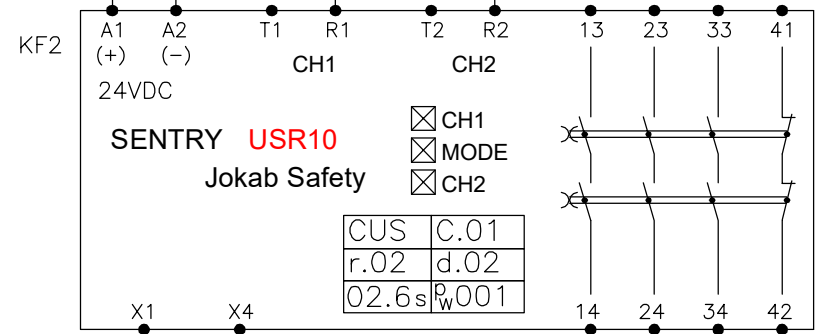
Safety outputs



24VDC
0V



Auto reset, 1.2 s off delay



Auto reset, 2.6 s on delay

PLe
According to
EN ISO 13849-1

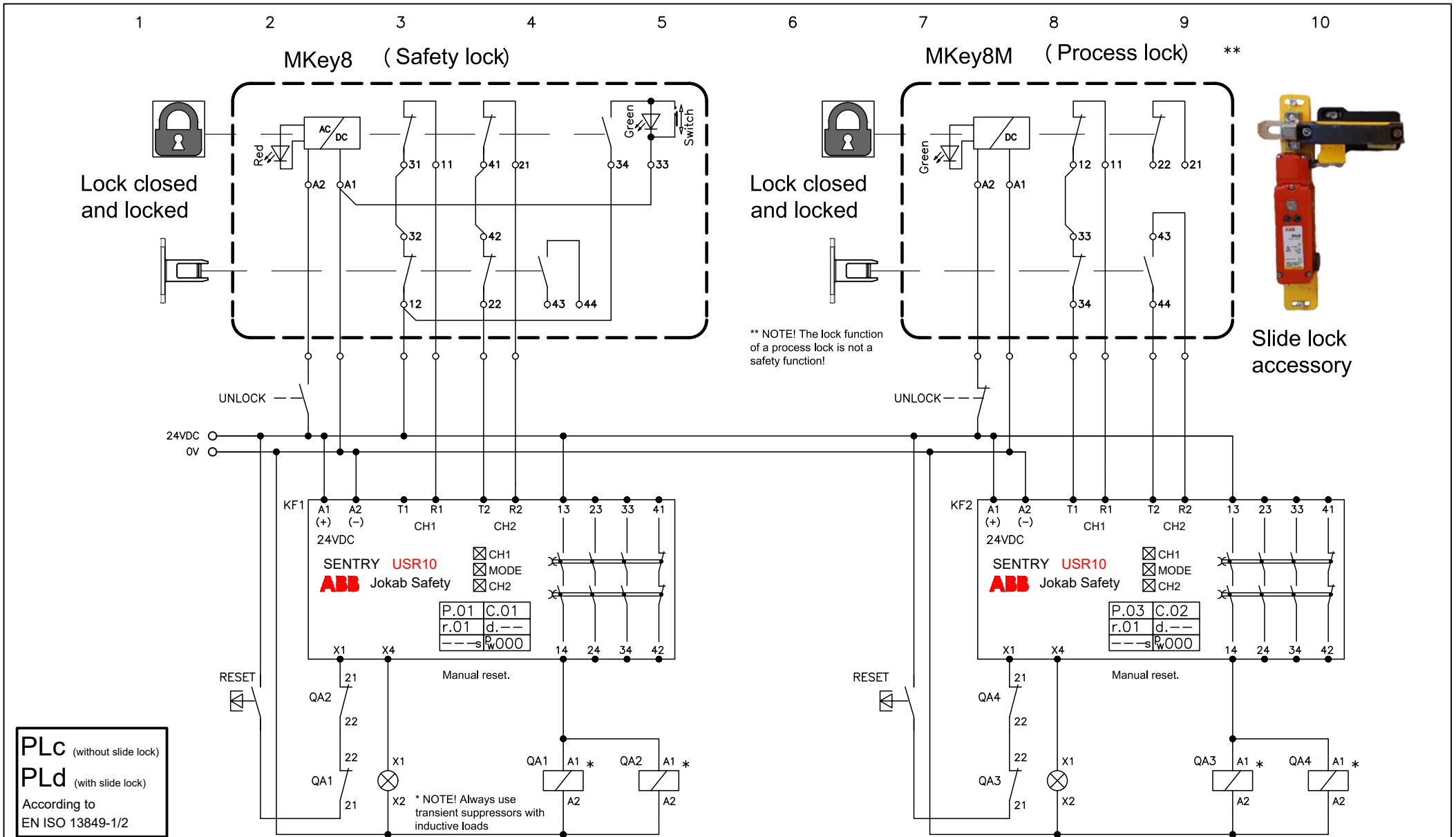
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark

USR10 as expansion

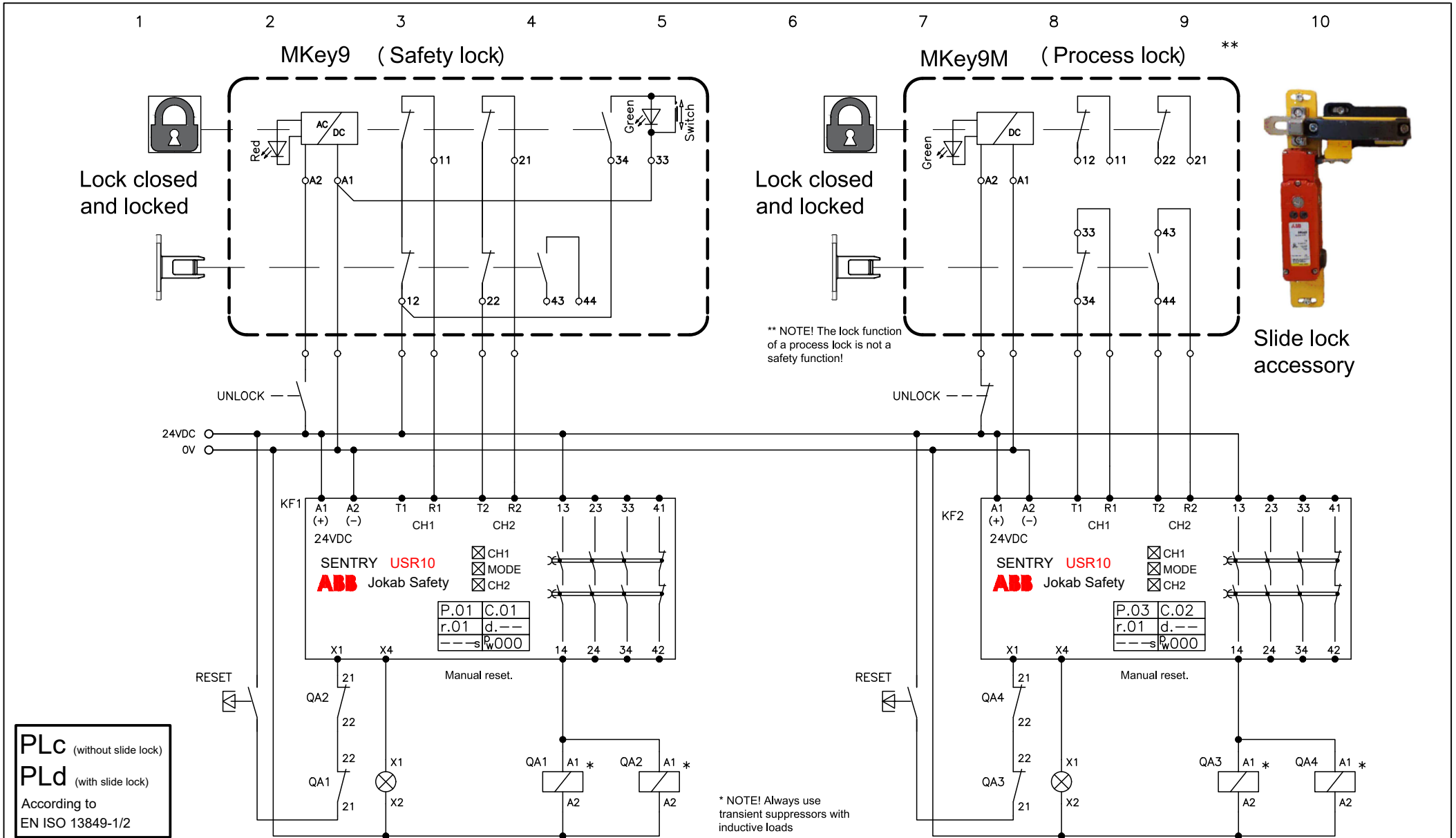


Konstr Design	ABB	Godk Appr		Datum Date	20210706	Blad Sheet	
Ritad Drawn	ABB	Sidor Pages		Ritn nr Drawing no	2TLC010016T0007	Forts Cont	



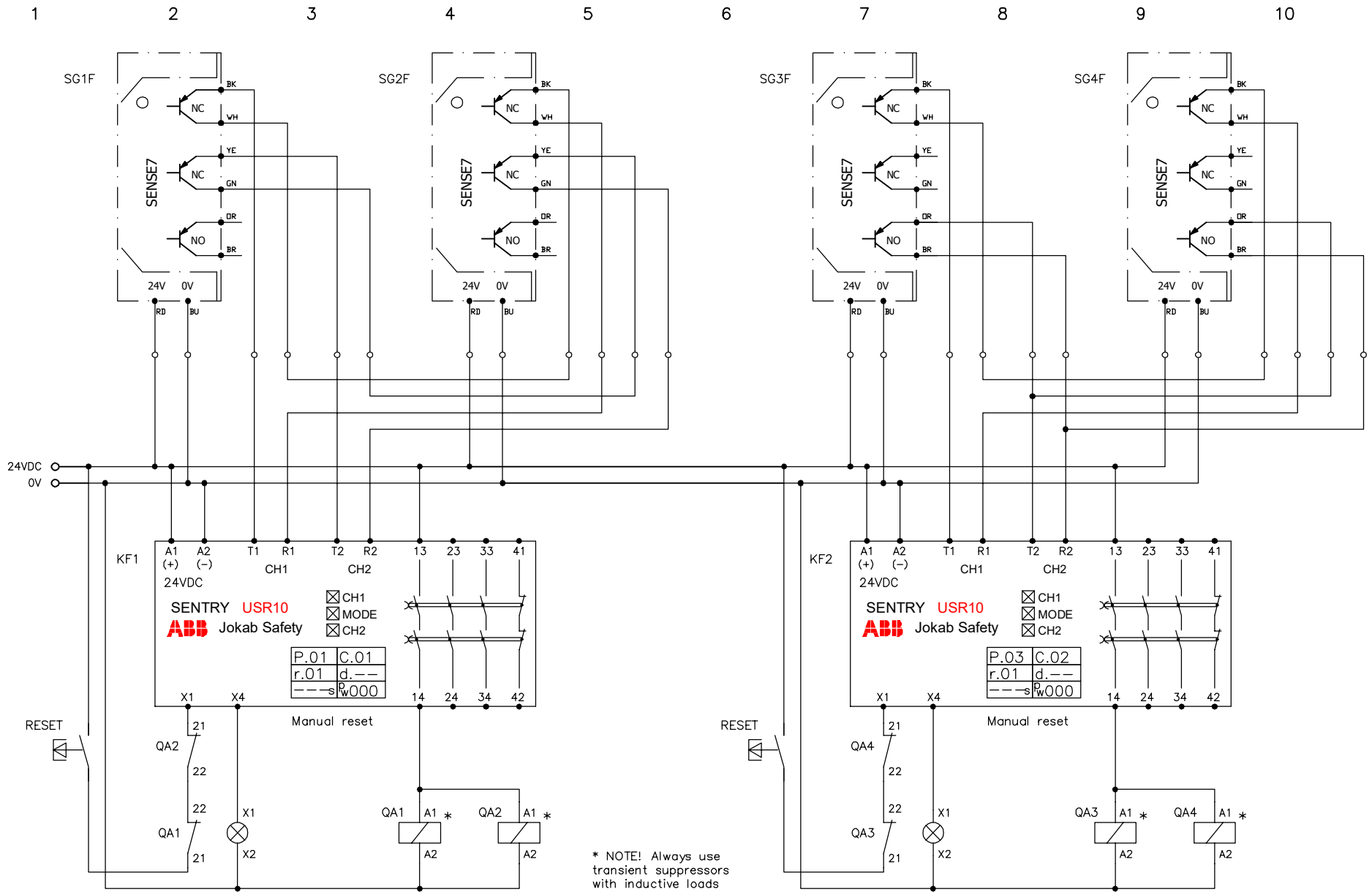
Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark USR10 with MKey8	ABB Safety Products				Konstr Design	Godk Appr	Datum Date	Blad Sheet
					ABB		20240228	
		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont			
		ABB		2TLC010016T0008				



Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark	USR10 with MKey9	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
			ABB		20240228	
			Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
			ABB		2TLC010016T0009	



* NOTE! Always use transient suppressors with inductive loads

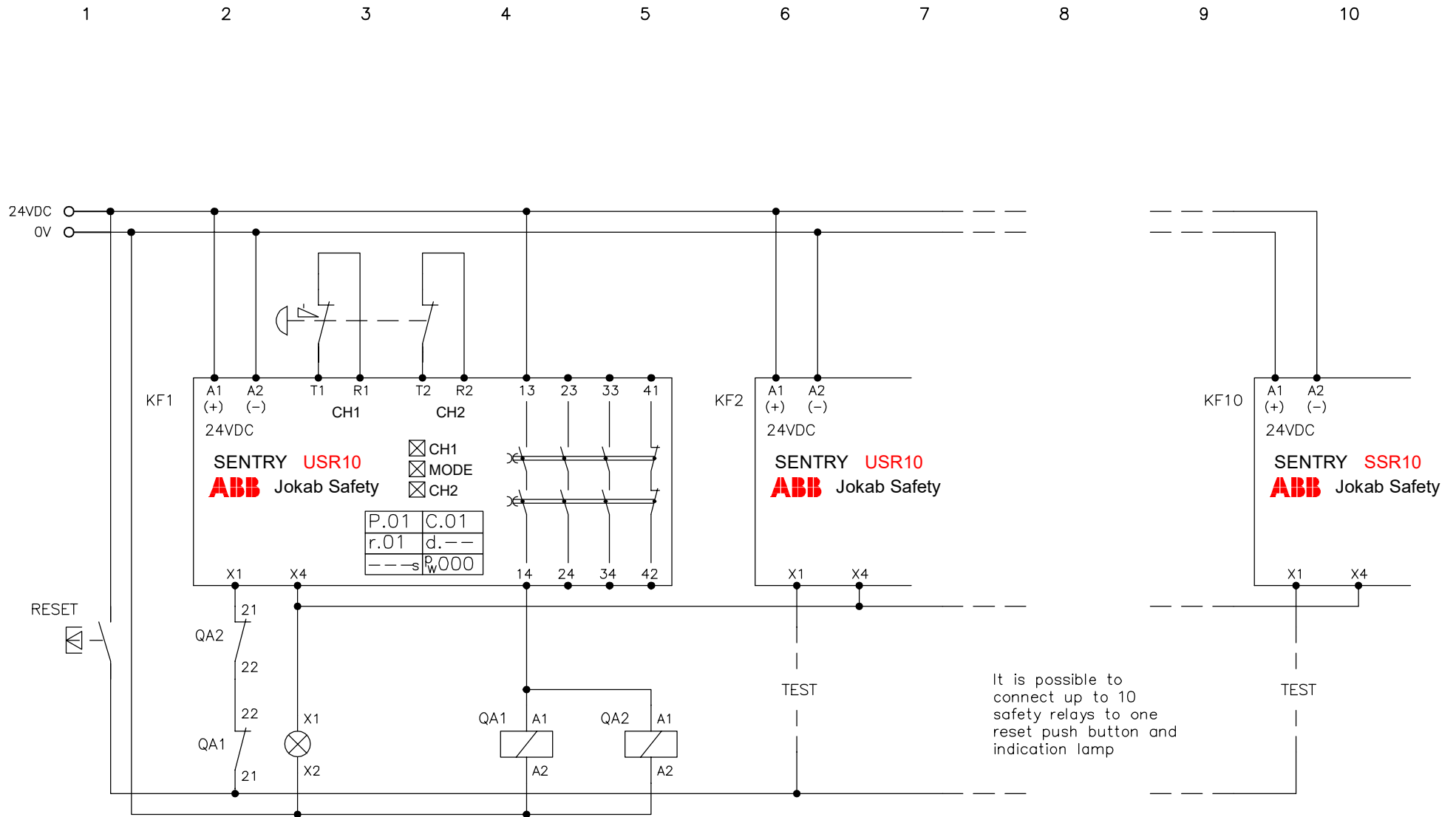
Note: The PL should be calculated using ISO/TR 24119 and EN ISO 13849-1/2

Anmärkning Remark

USR10 with Sense7



Konstr Design ABB	Godk Appr	Datum Date 20210518	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010016T0010	Forts Cont



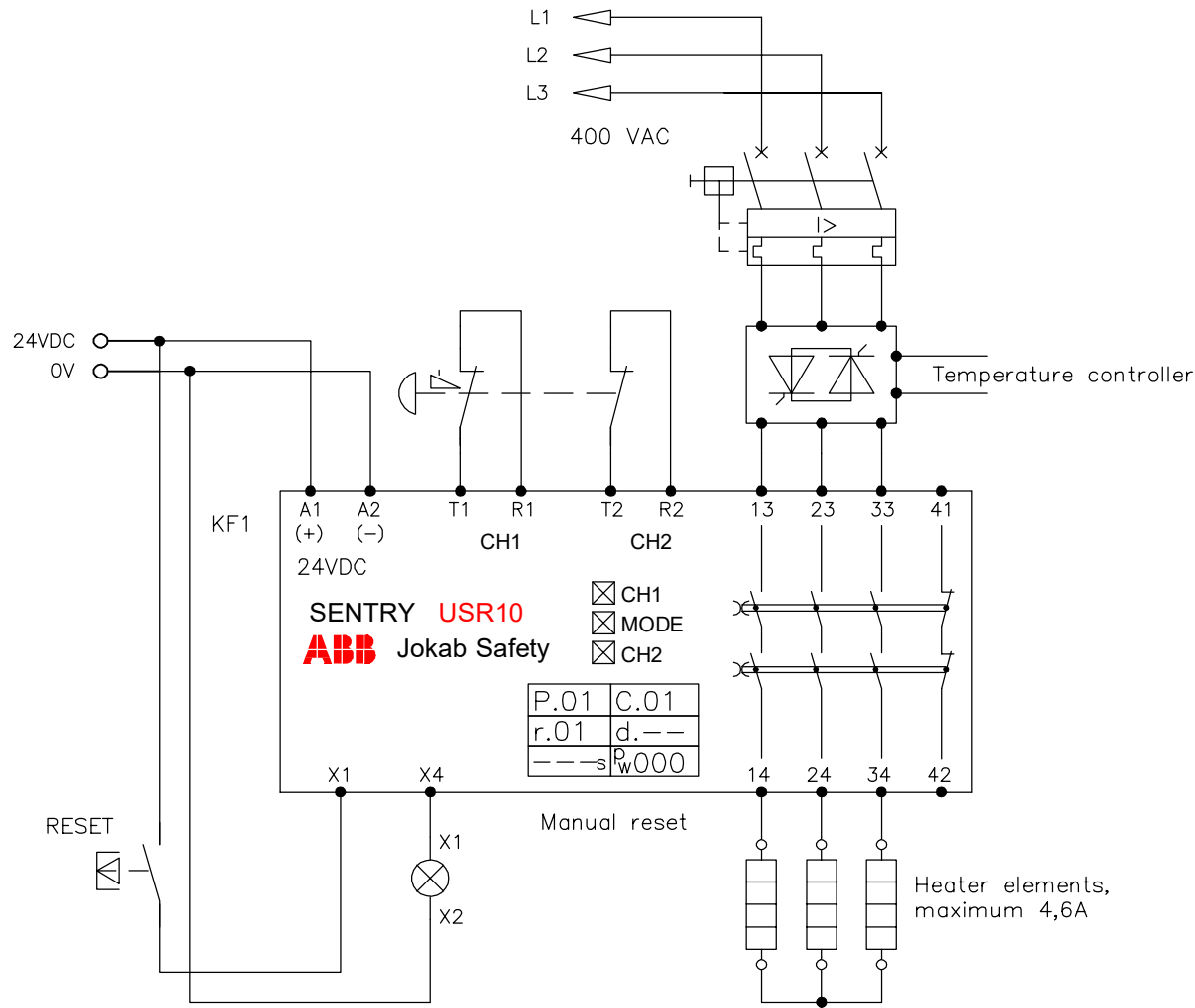
Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning	Remark
USR10 Multi reset	



Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210707	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010016T0011	

1 2 3 4 5 6 7 8 9 10



PLe
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

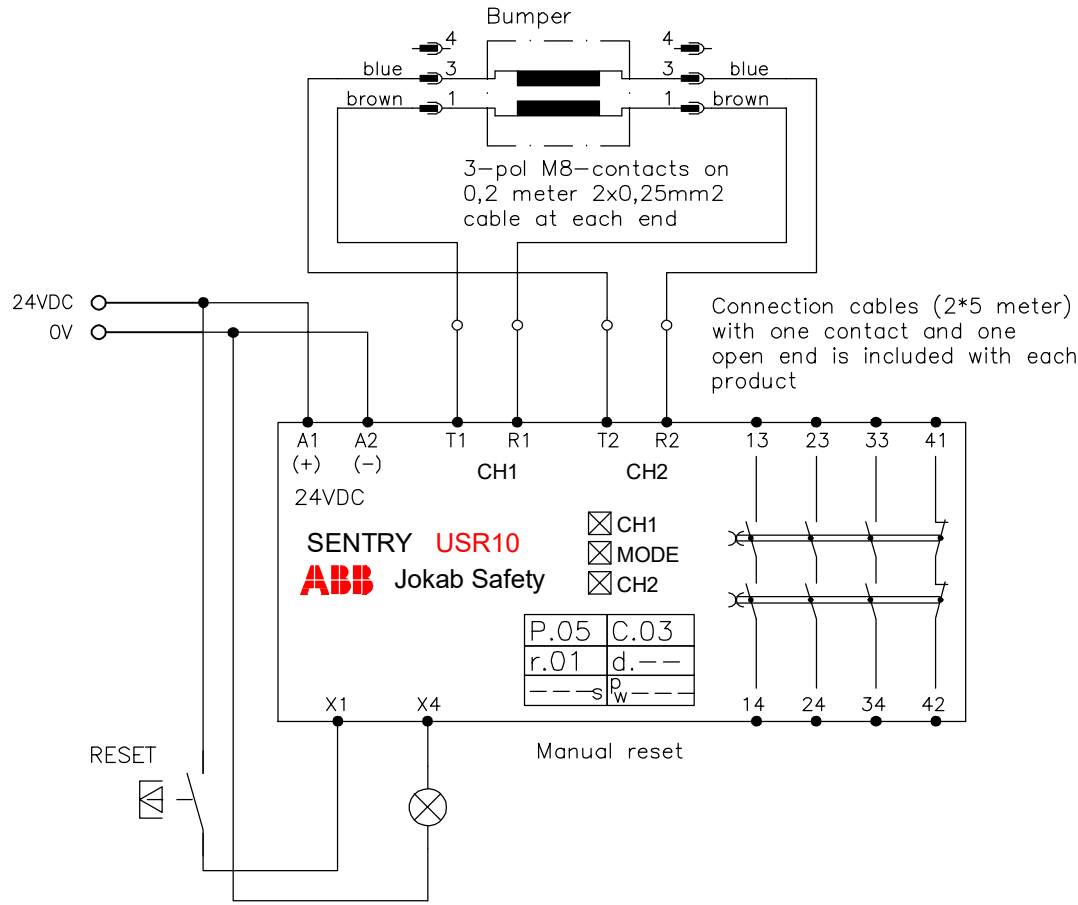
Anmärkning Remark

USR10 3-phase connection

ABB Safety Products

Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010016T0018	Forts Cont

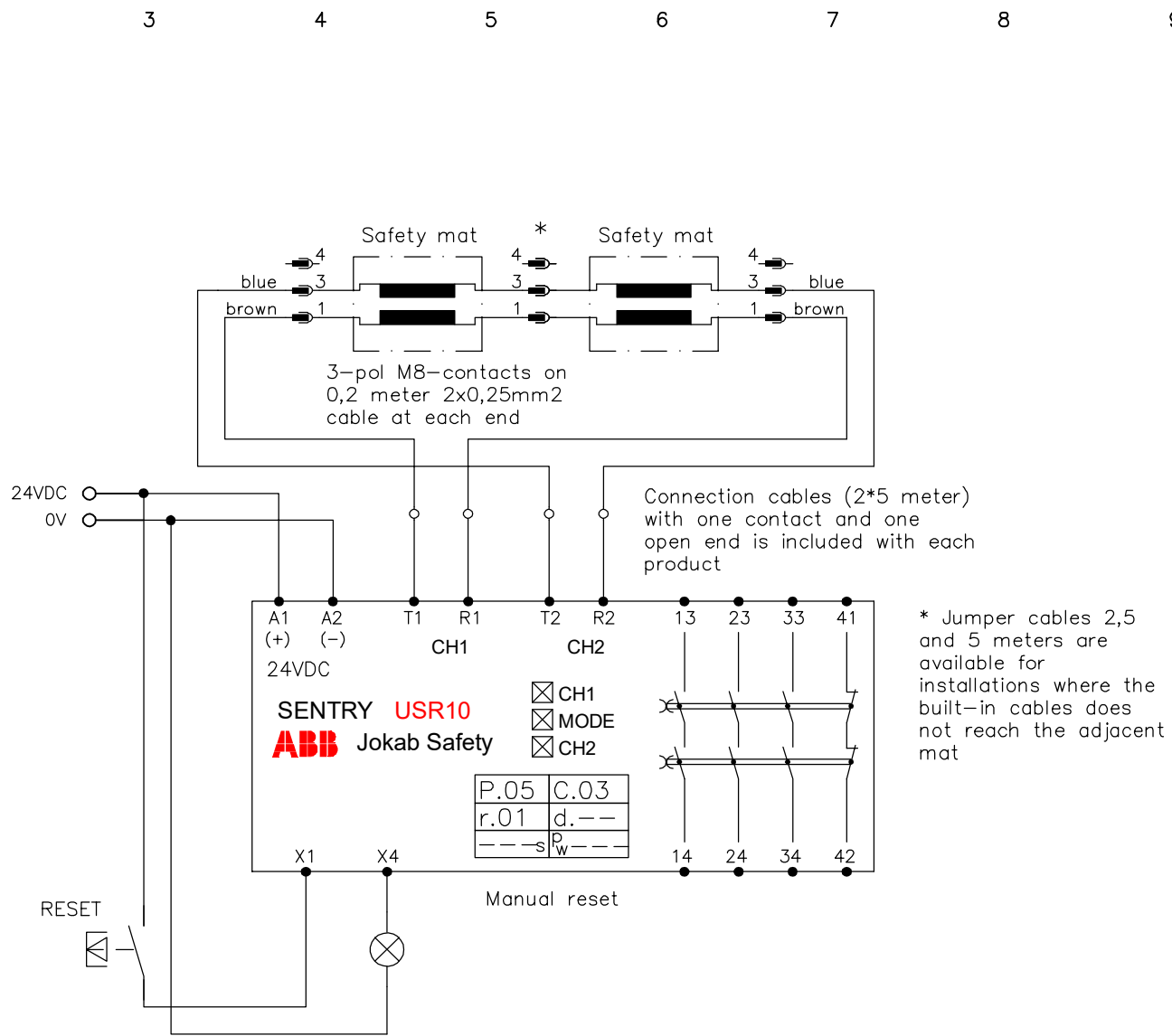
1 2 3 4 5 6 7 8 9 10



PLd
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark USR10 with bumper	ABB Safety Products	Konstr Design	Godk Appr	Datum Date	Blad Sheet
		ABB		20210706	
		Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
		ABB		2TLC010016R0021	



PLd
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

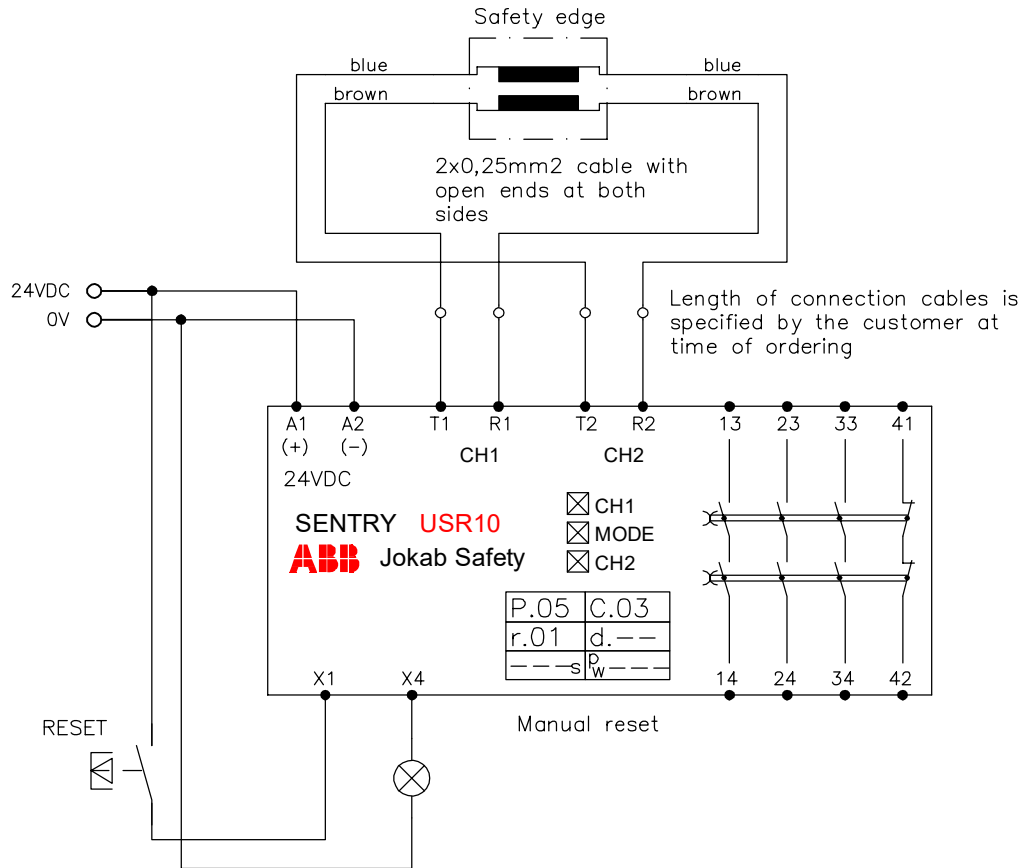
Anmärkning Remark

USR10 with safety mat

ABB Safety Products

Konstr Design	Godk Appr	Datum Date	Blad Sheet
ABB		20210706	
Ritad Drawn	Sidor Pages	Ritn nr Drawing no	Forts Cont
ABB		2TLC010016R0022	

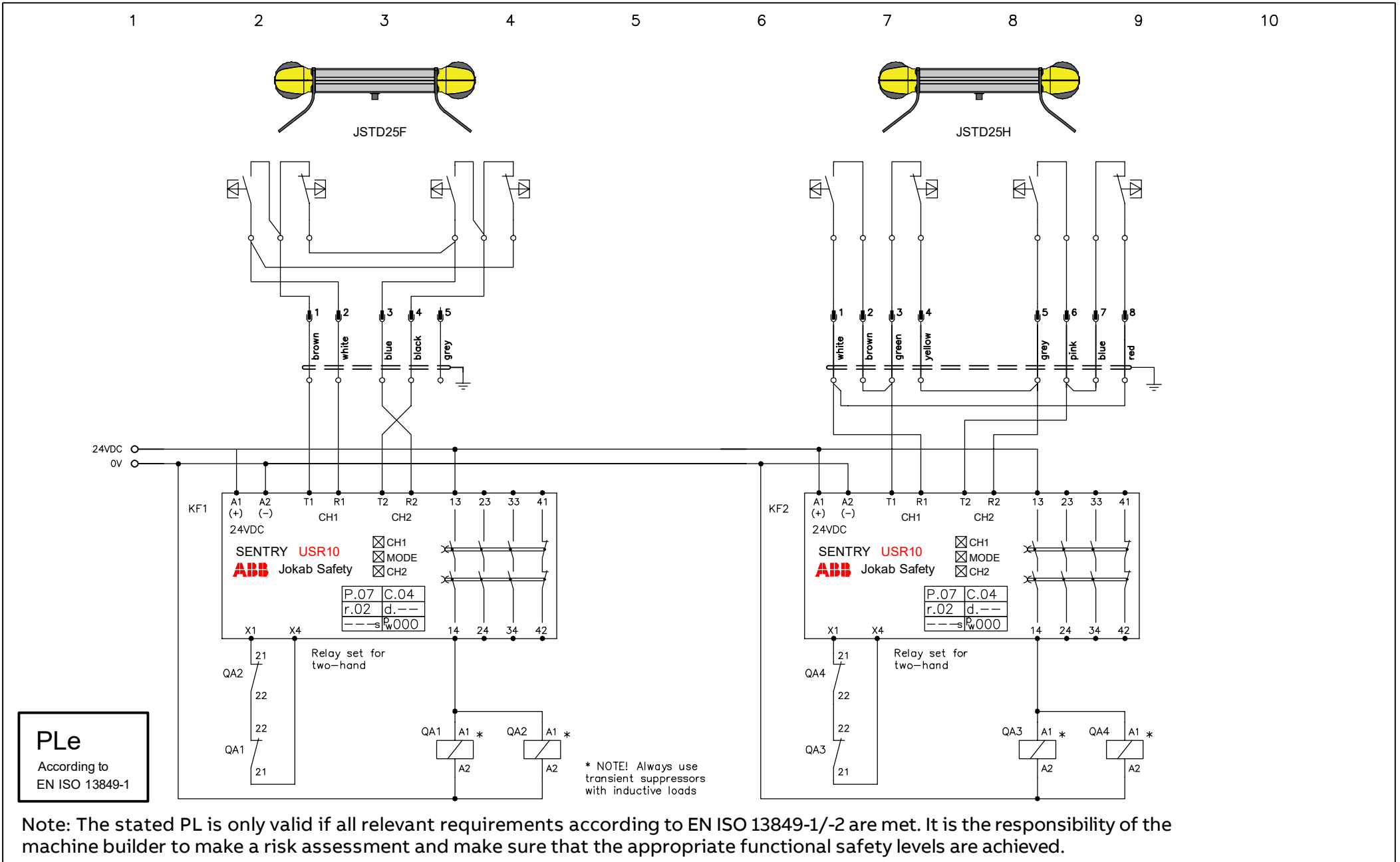
1 2 3 4 5 6 7 8 9 10



PLd
According to
EN ISO 13849-1

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark USR10 with safety edge	ABB Safety Products				Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
					Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010016R0023	Forts Cont

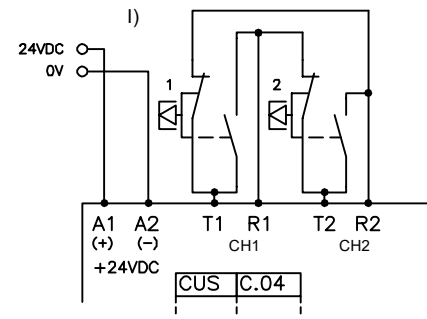
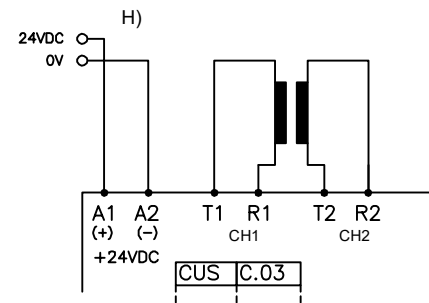
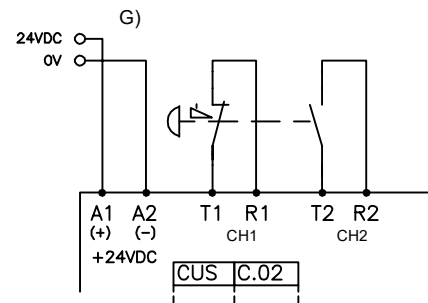
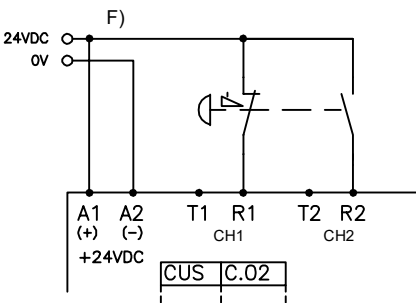
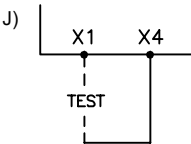
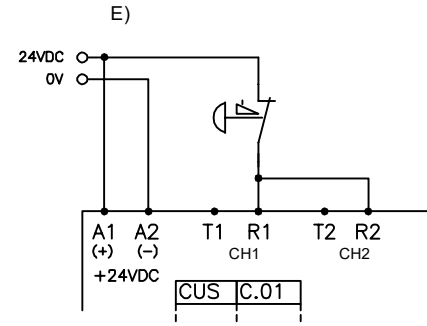
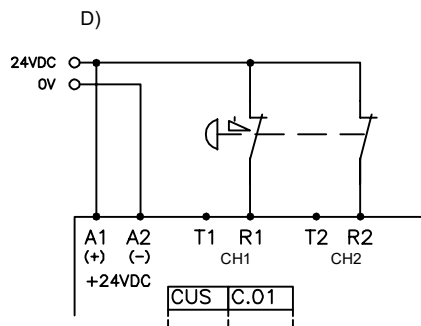
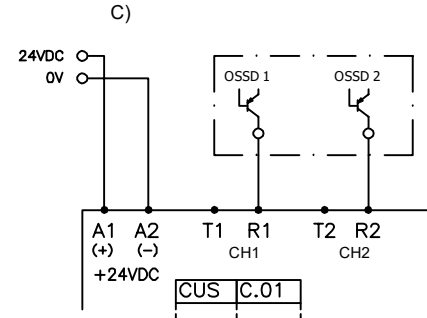
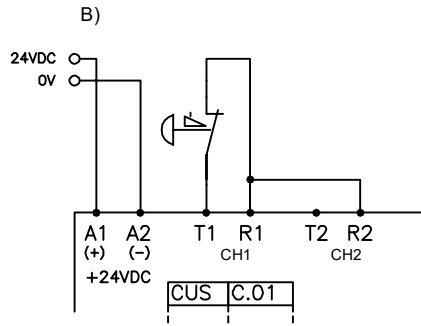
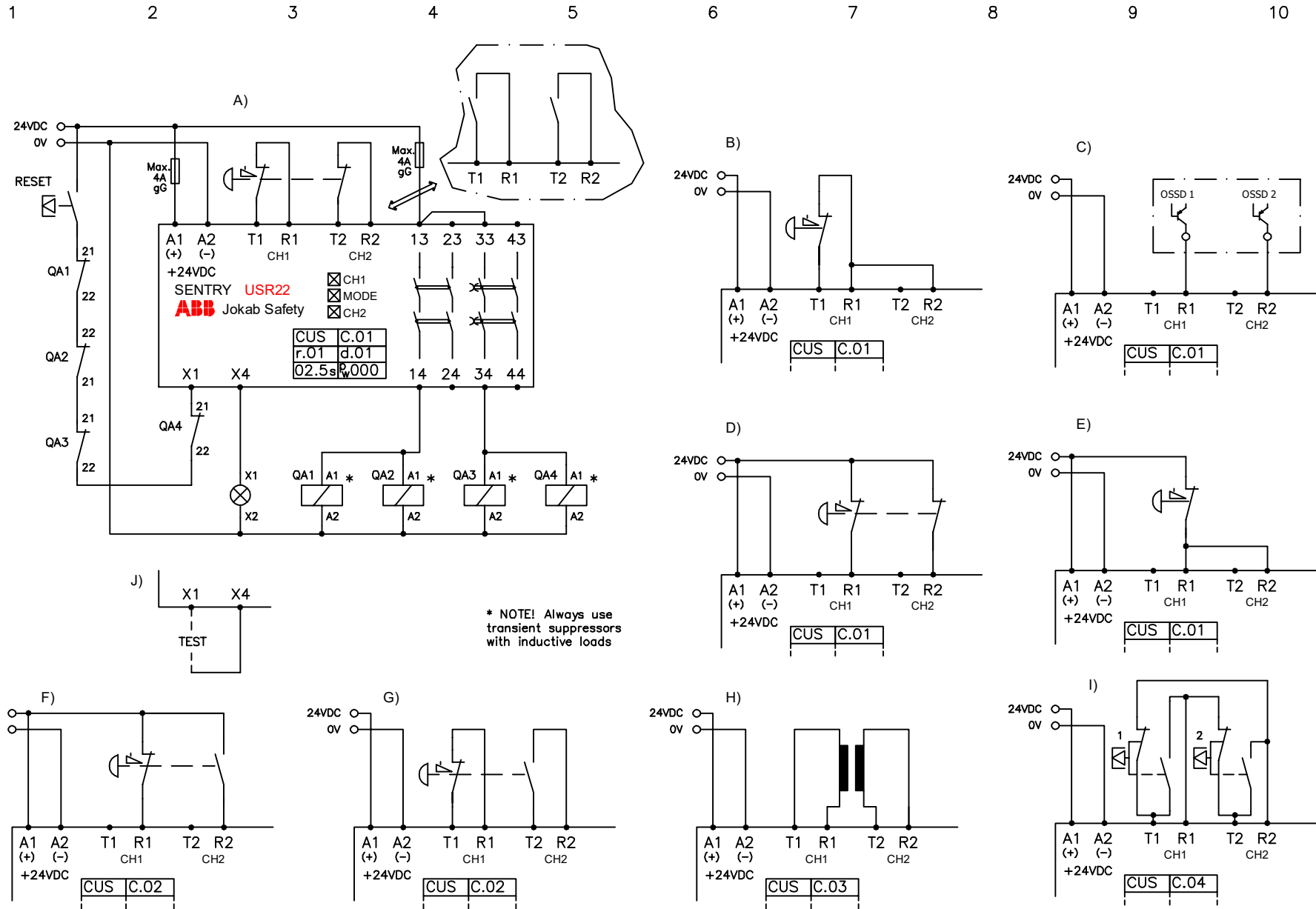


PLe
According to
EN ISO 13849-1

* NOTE! Always use transient suppressors with inductive loads

Note: The stated PL is only valid if all relevant requirements according to EN ISO 13849-1/-2 are met. It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning Remark USR10 with JSTD25F/H	ABB Safety Products	Konstr Design ABB	Godk Appr	Datum Date 20210706	Blad Sheet
		Ritad Drawn ABB	Sidor Pages	Ritn nr Drawing no 2TLC010016T0004	Forts Cont



Note: It is the responsibility of the machine builder to make a risk assessment and make sure that the appropriate functional safety levels are achieved.

Anmärkning	Remark
	USR22 general



Konstr	Design	Godk	Appr	Datum	Date	Blad	Sheet
ABB				20210707			
Ritad	Drawn	Sidor	Pages	Ritn nr	Drawing no	Forts	Cont
ABB				2TLC010017T0001			



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