

Kurzbezeichnung: UFR1001E	Bezeichnung: Example connection plans UFR1001E	ZIEHL	
bearbeitet: 2021-02-18/Ba	Table of contents	Maßstab: -	Ers. für: 12420-0911-05
		EA-Nr.: 15390	Blatt: 1 of 16
			Zeichnungsnummer: 12420-0911-06

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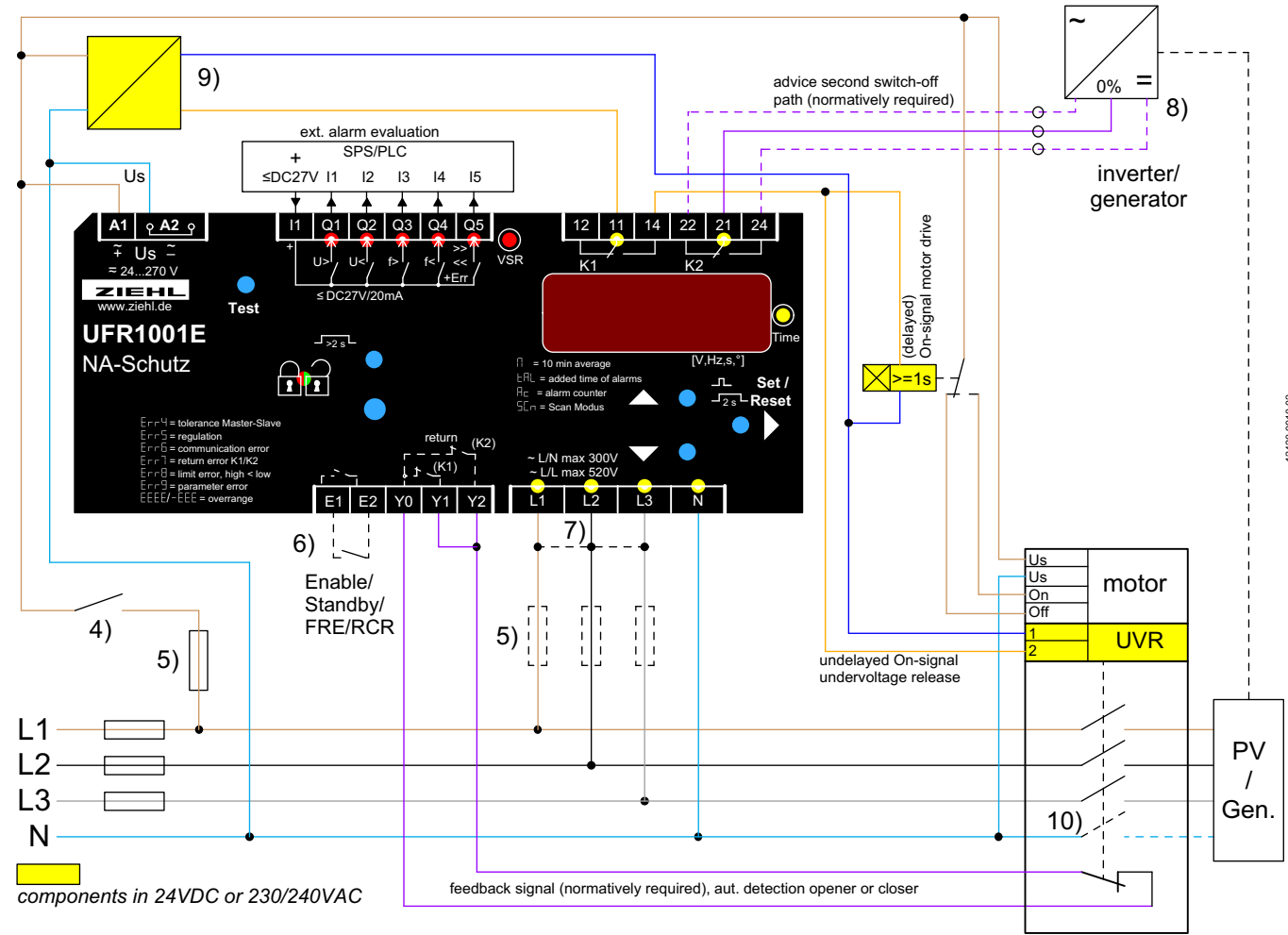
Questions to the circuit diagrams?
 Contact us:
 +49 791 5040
 sales@ziehl.de



UFR1001E operating videos

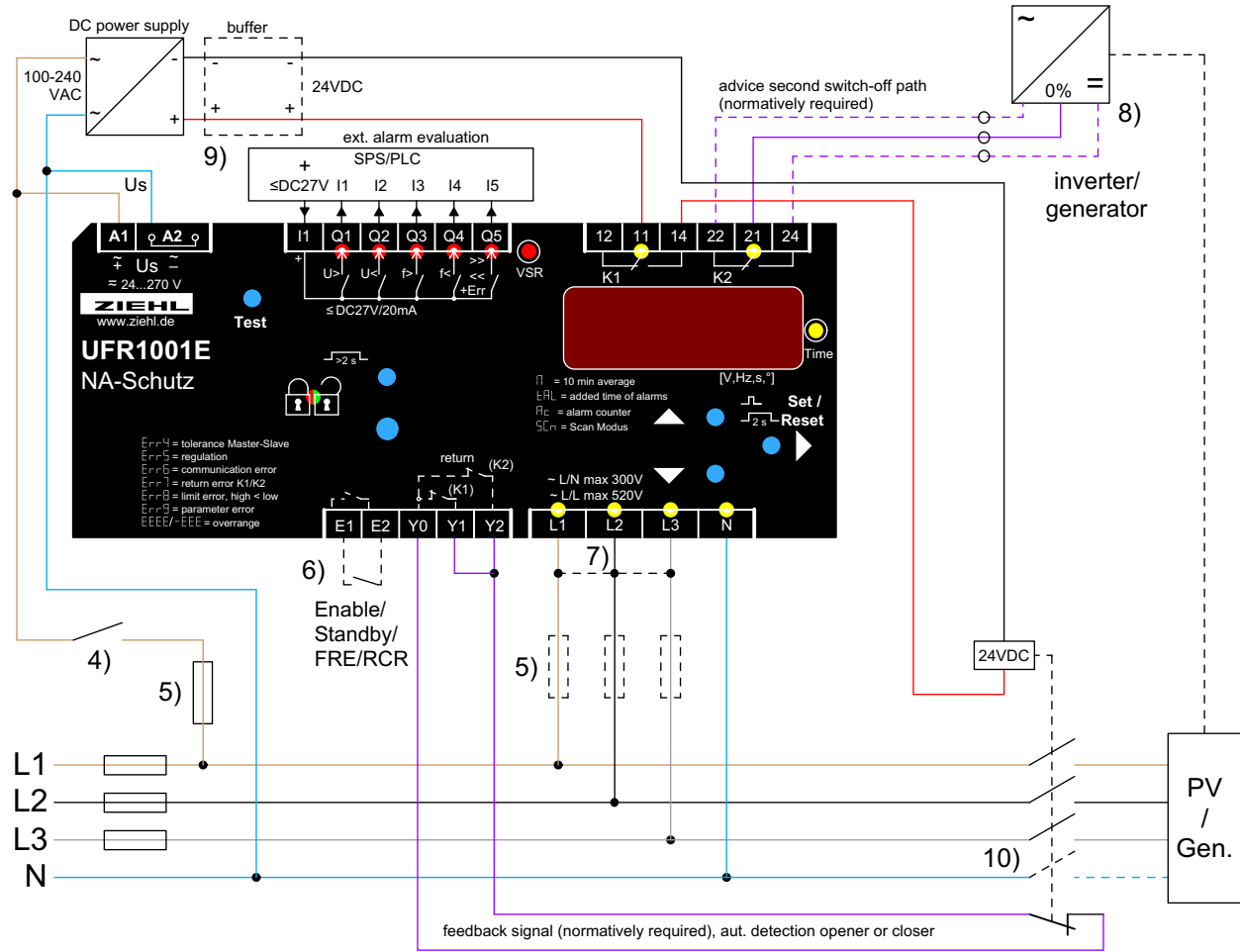
[Recommendations for the FRT component power supply / buffering, see separate document "FRT component recommendation"](#)

VDE-AR-N 4105:2018-11



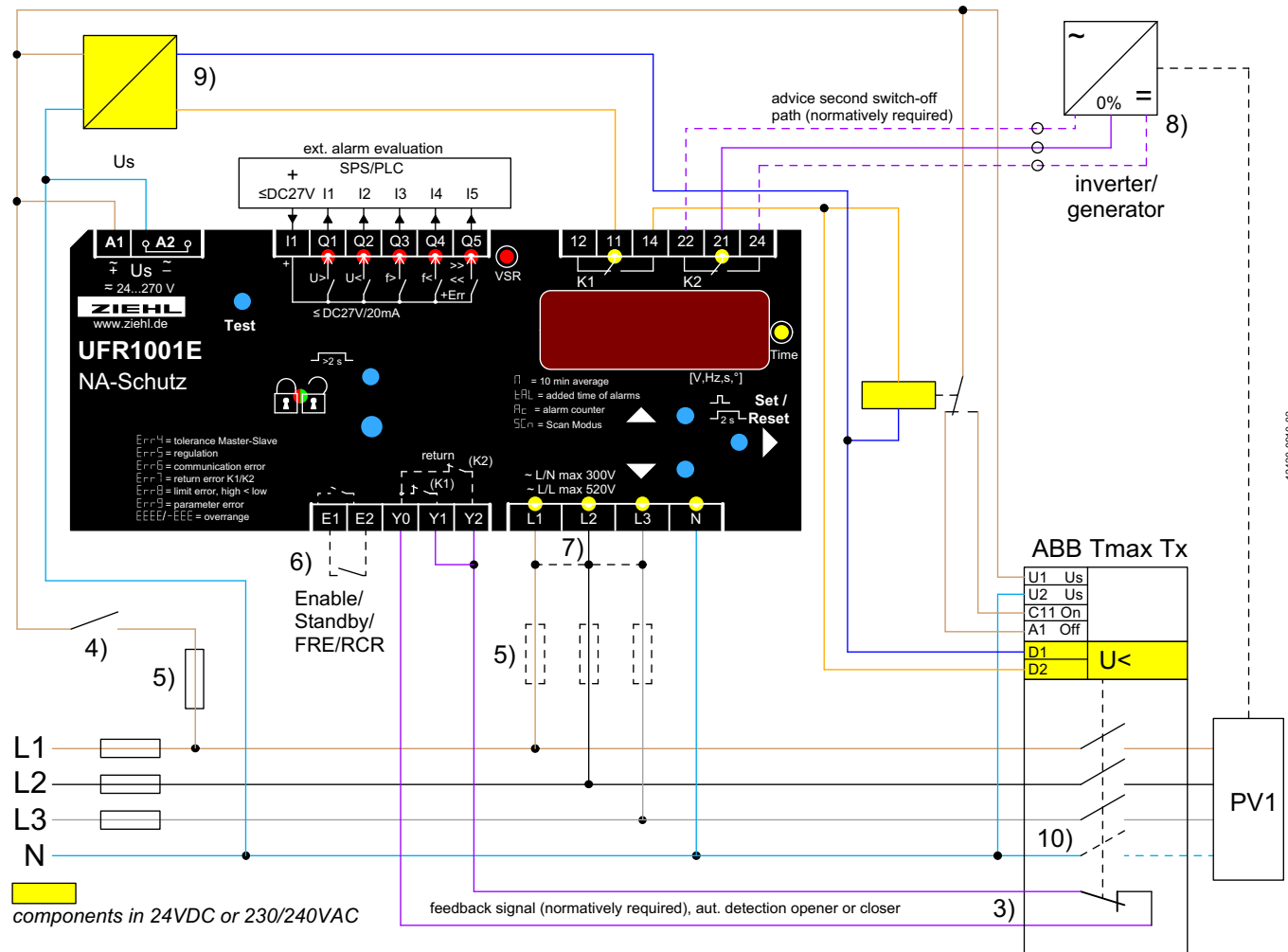
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sr} / 5 \leq U_L$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication of if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer) This second switch-off path must be tested separately during commissioning. (t_{5t2})
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponenteneempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

VDE-AR-N 4105:2018-11



- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sr} / 5 \leq U_{sr}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
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- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

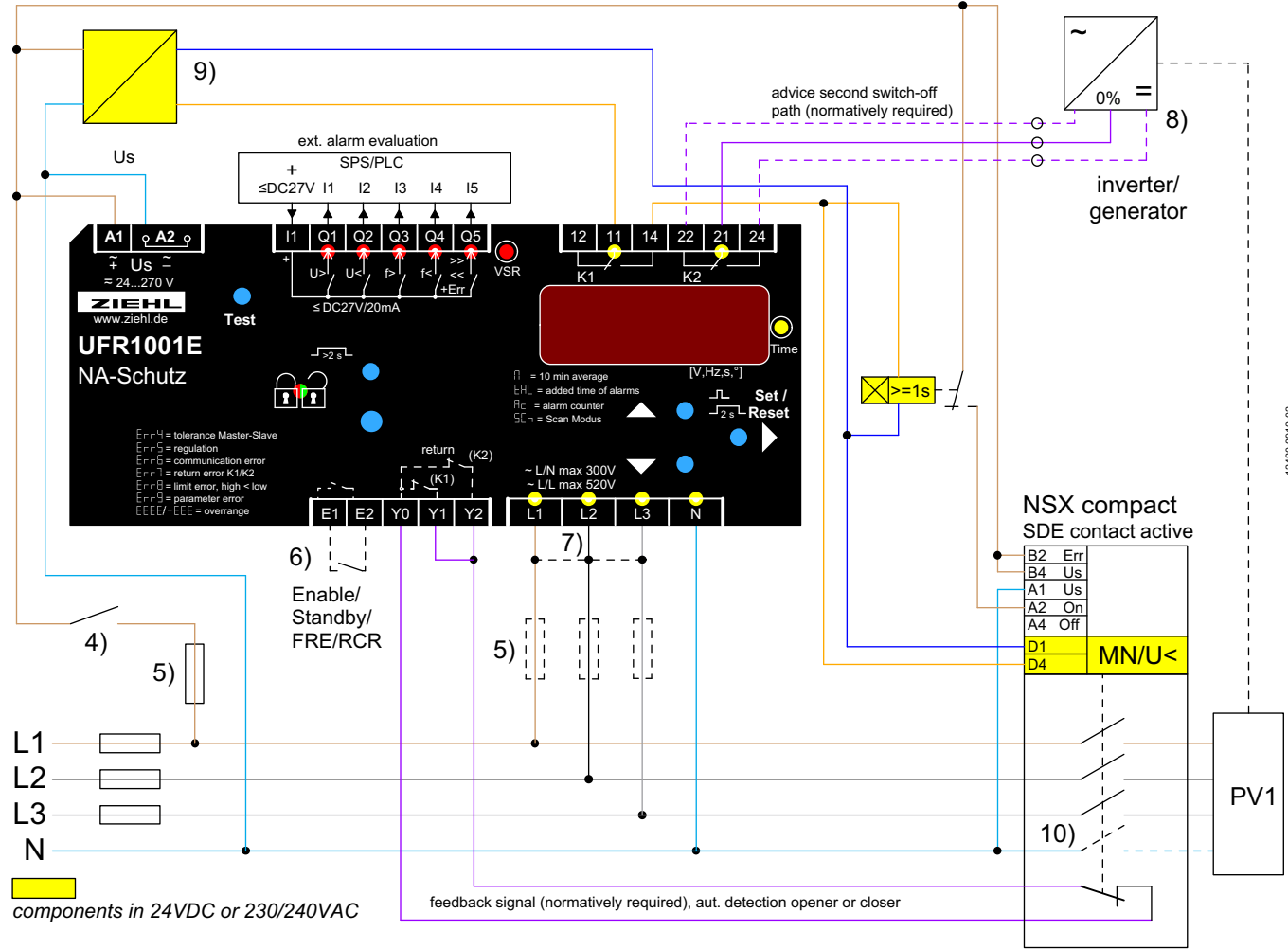
VDE-AR-N 4105:2018-11



- 3) NC- or NO-contacts can be connected, self-learning when switching on
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sr} / 5 \leq U_{s}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication of if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer) This second switch-off path must be tested separately during commissioning. (t_{5t2})
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponenteneempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping Us 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor



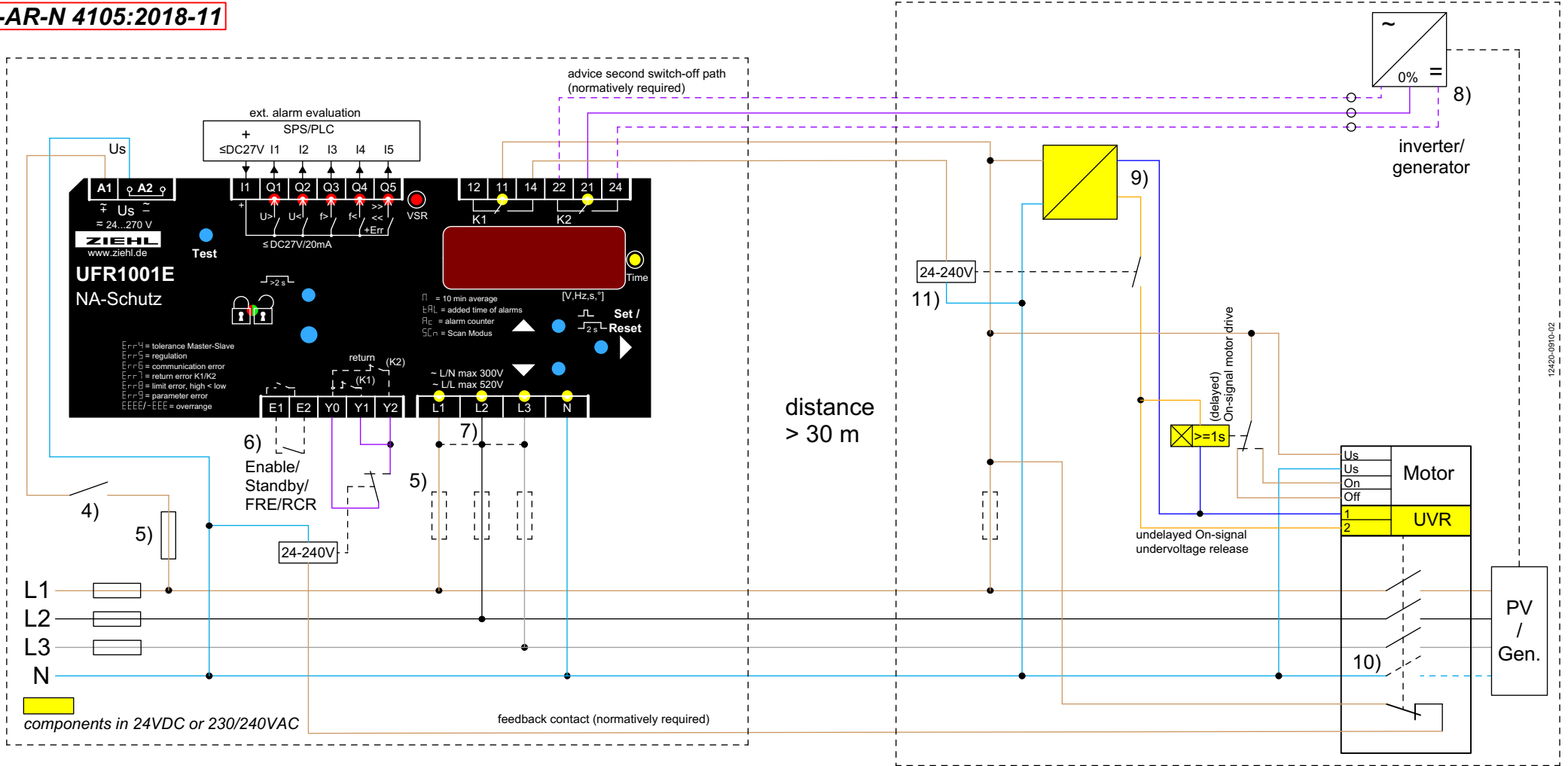
VDE-AR-N 4105:2018-11



- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $u_{sr} / 5 \leq b_{s}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer) This second switch-off path must be tested separately during commissioning. (t_{stz})
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponentenempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

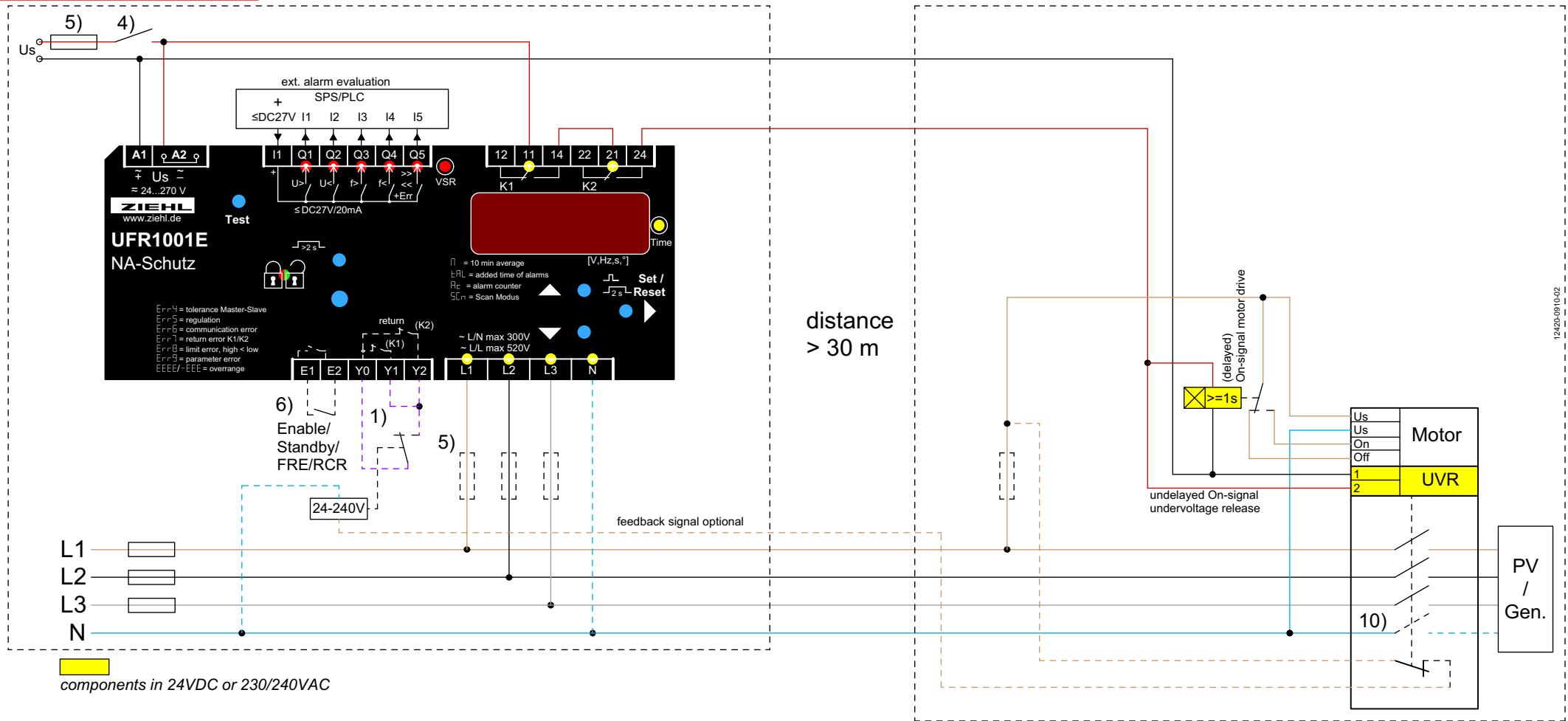


VDE-AR-N 4105:2018-11



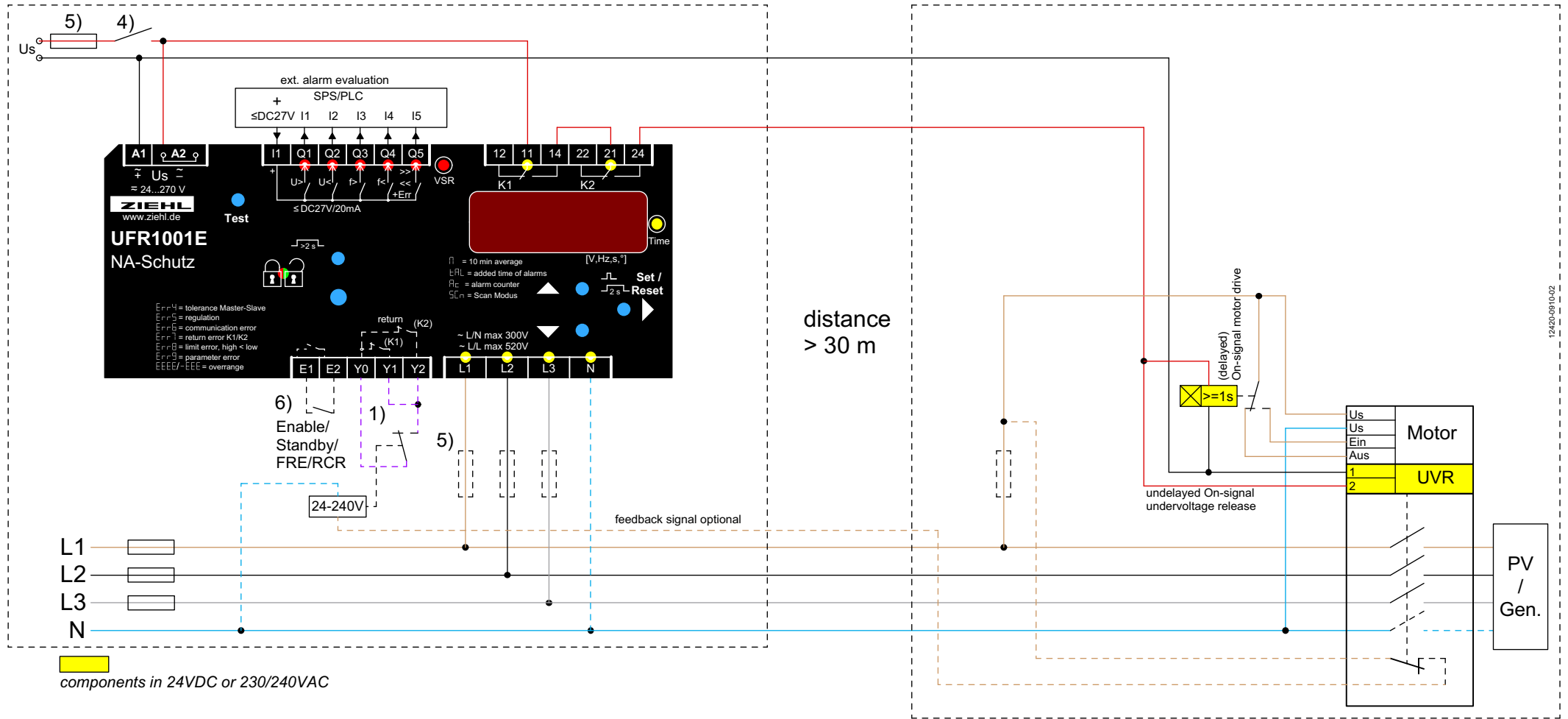
- 4) Switch off of plant without recording an alarm 5) Fuses only when line protection necessary, e.g. 16 A
6) contact closed and $u_{sr} / 5 \leq b_{sr}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication of if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer)
This second switch-off path must be tested separately during commissioning. ($\leq 5 \leq 2$)
9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT)
The power supplies listed in the separate document "FRT Komponenteneempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
10) TT-system: switch all line conductors and N, TN-system: only switch line conductor 11) Coupling relay extends switch-off time (total switch-off time must be ≤ 100 ms)
- This information is supplied without liability.

VDE-AR-N 4110+4120:2018-11



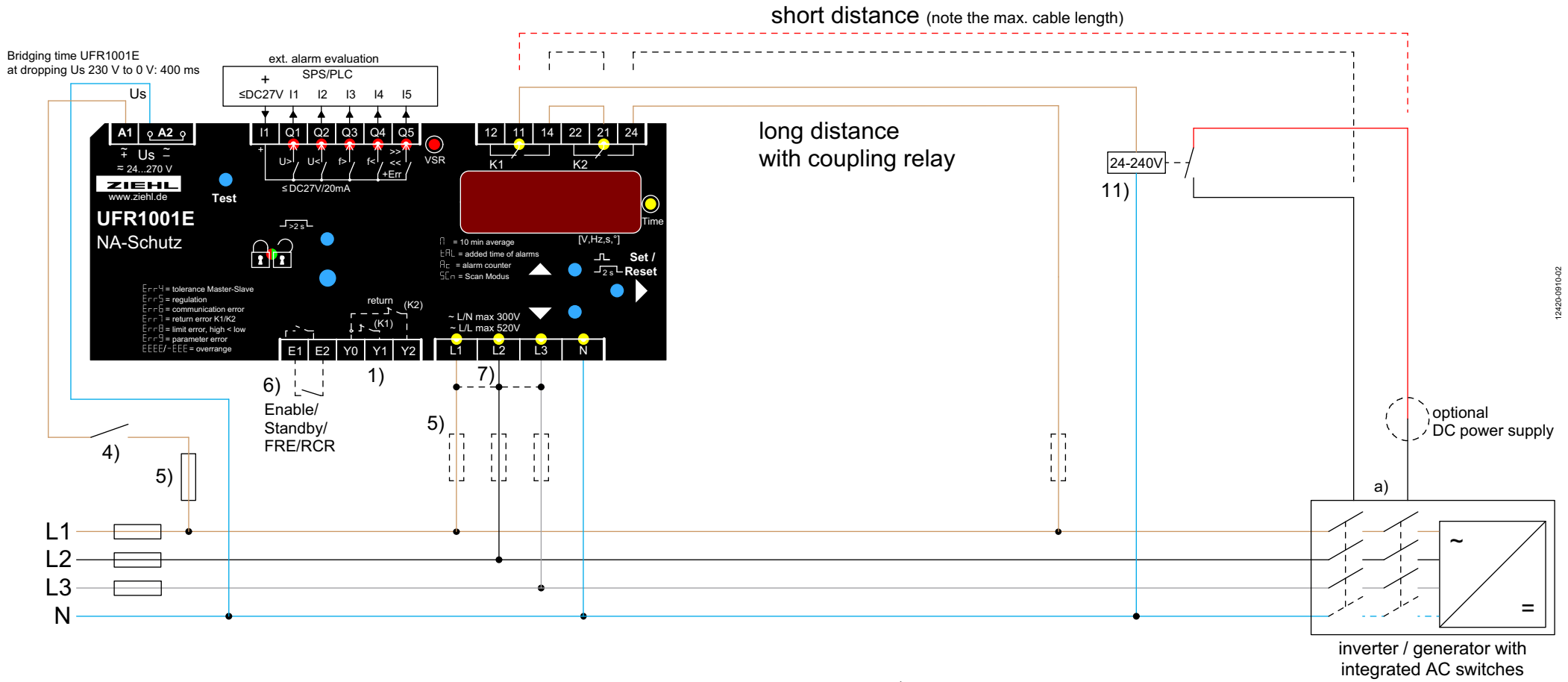
- 1) Feedback contacts not connected: set $\tau_{rEL} = \text{OFF}$ to deactivate feedback-contacts
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and τ_{rEL} / τ_{rEL} (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

VDE-AR-N 4110+4120:2018-11



- 1) Feedback contacts not connected: set $\tau_{rEL} = OFF$ to deactivate feedback-contacts
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and U_{rEL} / U_{EBU} . (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)

VDE-AR-N 4105:2018-11

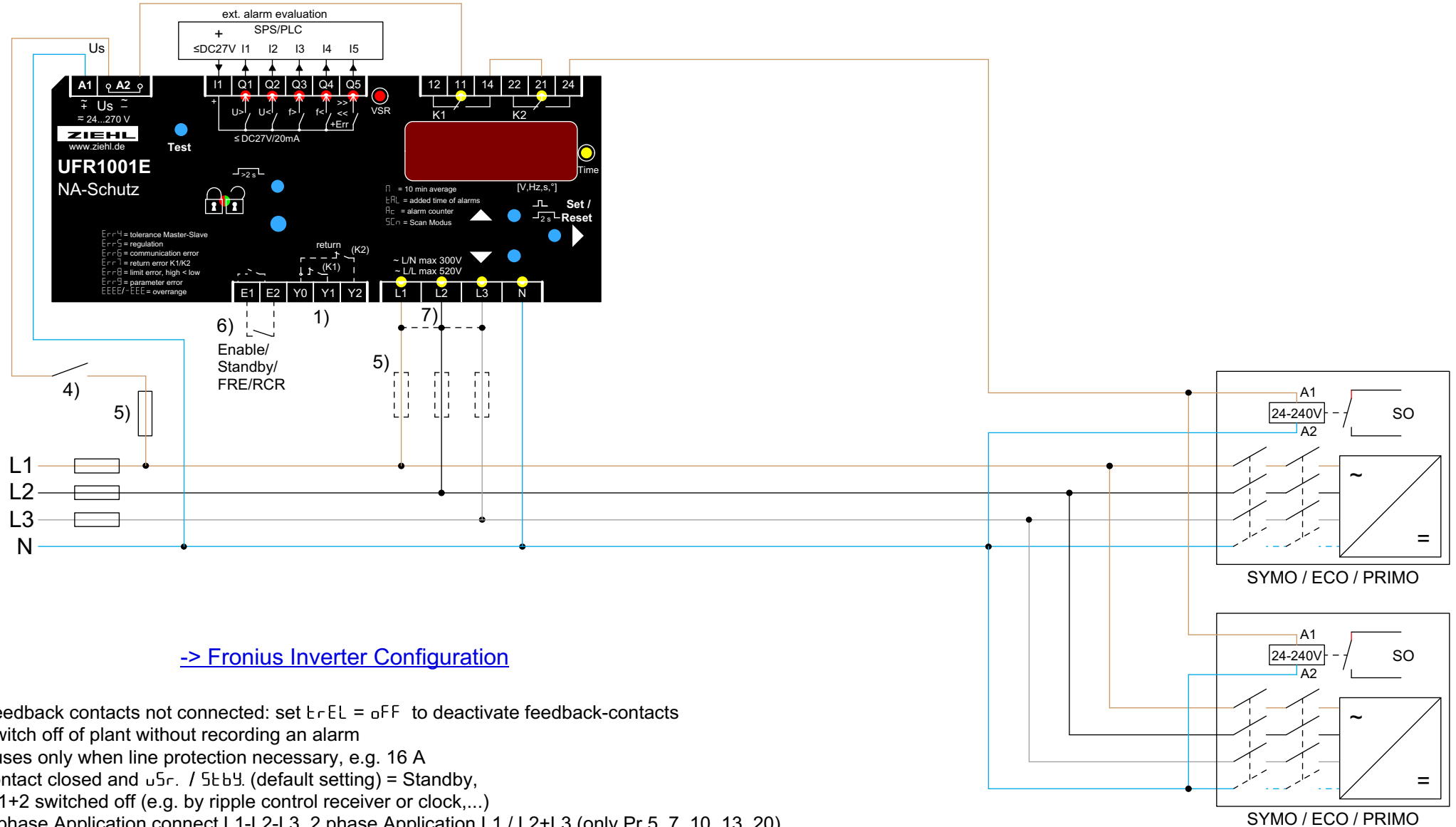


a)	Manufacturer	input module	connectors	max. cable length	ext. power supply
	SMA	MD.IO-40	A1 + A4	200 m	nein
	Solar Edge	Wechselrichter	5V + L1	-	nein

- 1) Feedback contacts not connected: set $t_{rEL} = OFF$ to deactivate feedback-contacts
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $u_{sr} / 5t_{b9}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 11) Coupling relay extends switch-off time (total switch-off time must be $\leq 100ms$)

VDE-AR-N 4105:2018-11

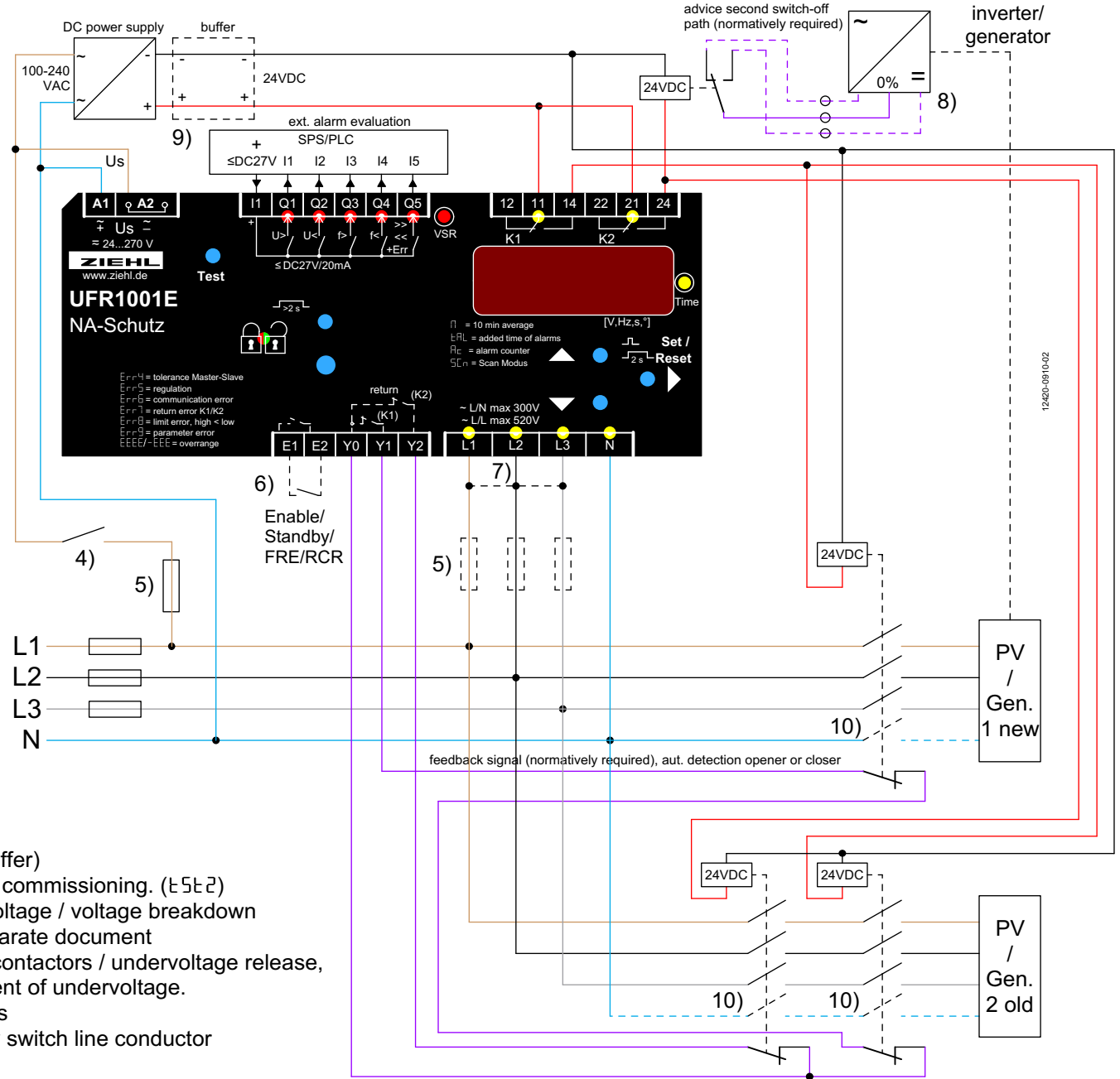
Überbrückungszeit UFR1001E
bei Spannungsausfall 230 V auf 0 V: 400 ms



- 1) Feedback contacts not connected: set ErrEL = OFF to deactivate feedback-contacts
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and ErrSC (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)

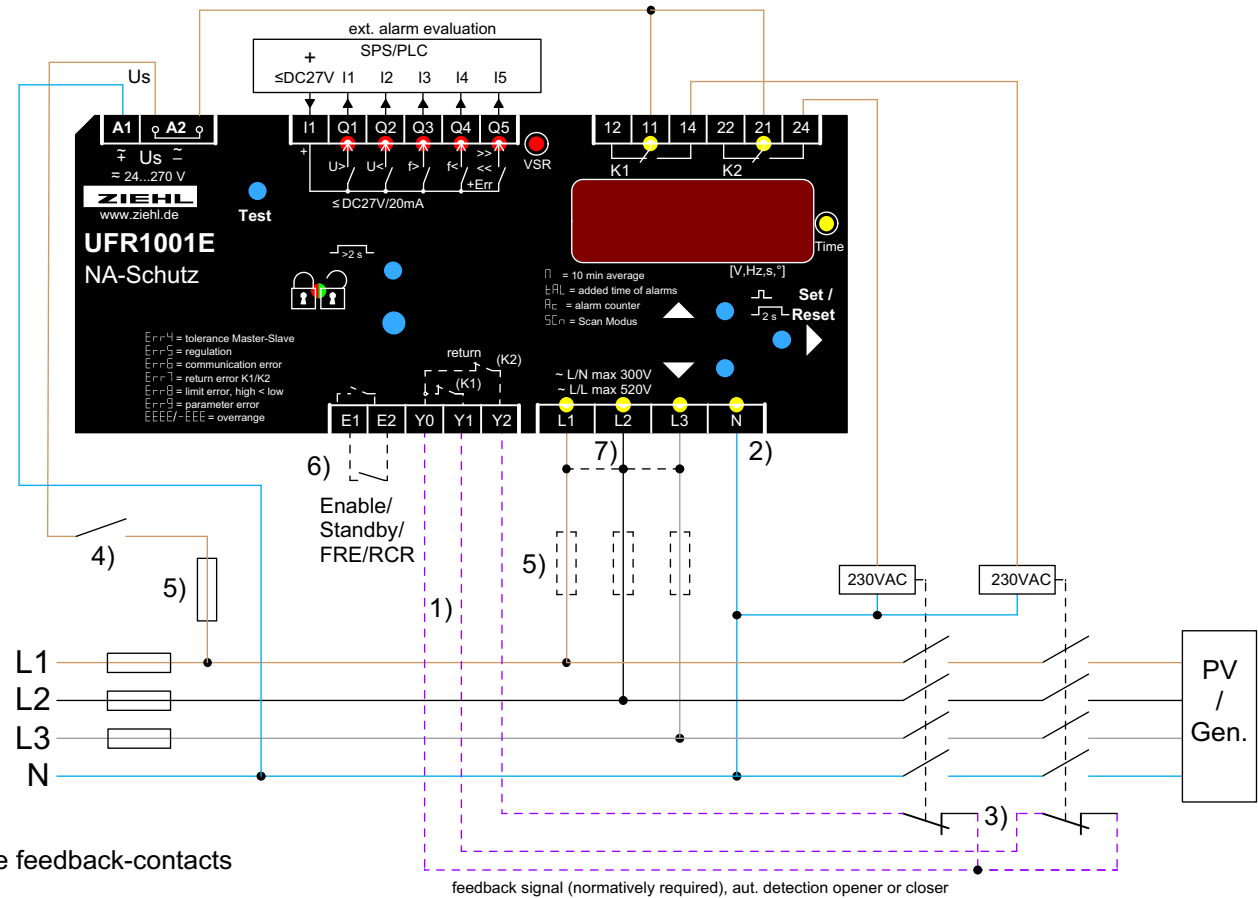


VDE-AR-N 4105:2018-11



- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sc} / 5t_{sb}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication if safe isolation is required. (control voltage 24-230VAC or fed over power supply / buffer) This second switch-off path must be tested separately during commissioning. (t5t2)
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponentenempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

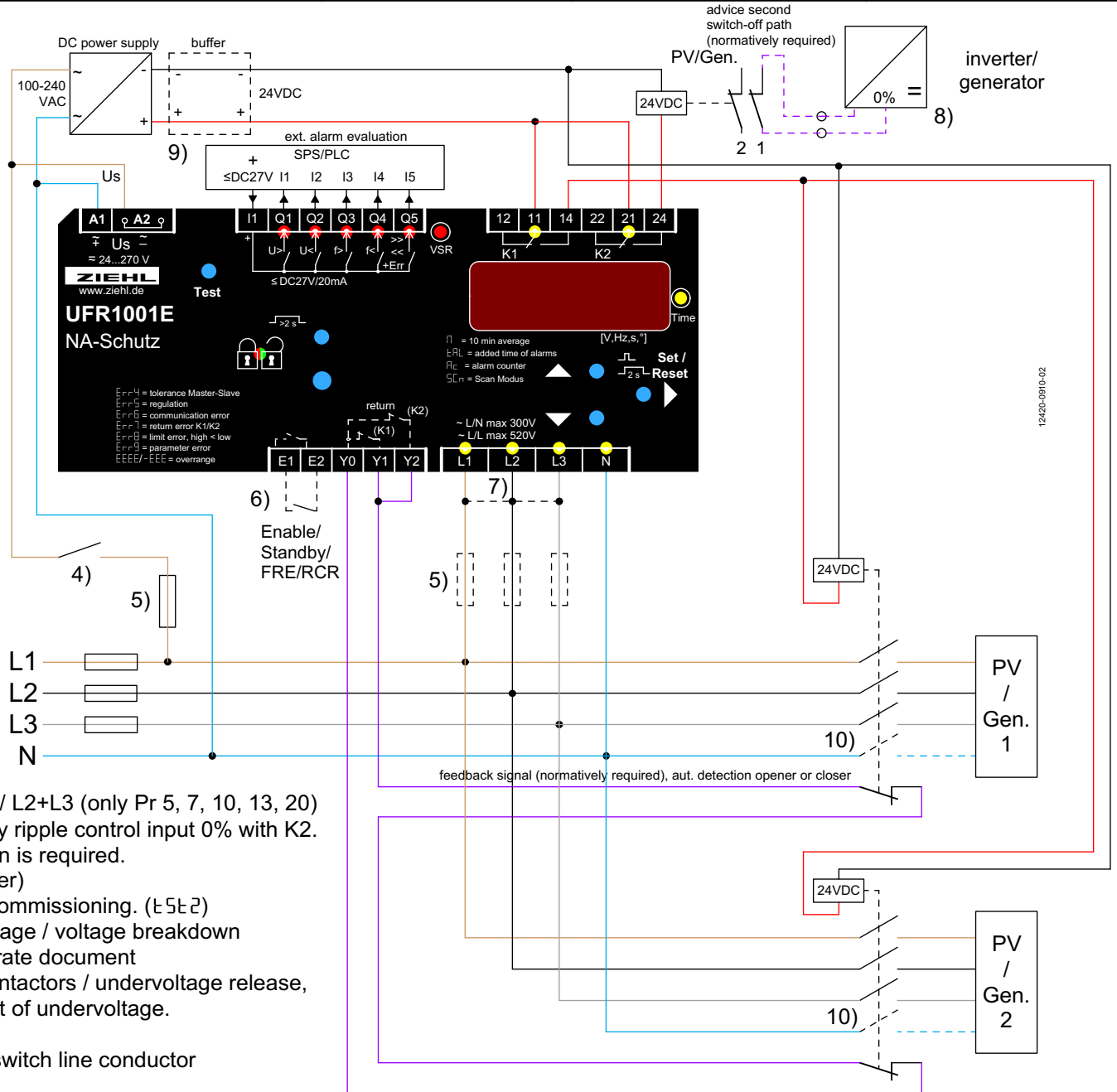
VDE-AR-N 4105:2011



- 1) Feedback contacts not connected: set E₁-E₂ = OFF to deactivate feedback-contacts
- 2) N connected → only for programs with N
- 3) NC- or NO-contacts can be connected, self-learning when switching on
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and U_{5r} / 5E₅ (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)

VDE-AR-N 4105:2018-11

Correct wiring of the 2 section switch:
With correct wiring monitoring of feedback contacts **MUST NOT RESPOND**, when one of the switches is switched off manually.

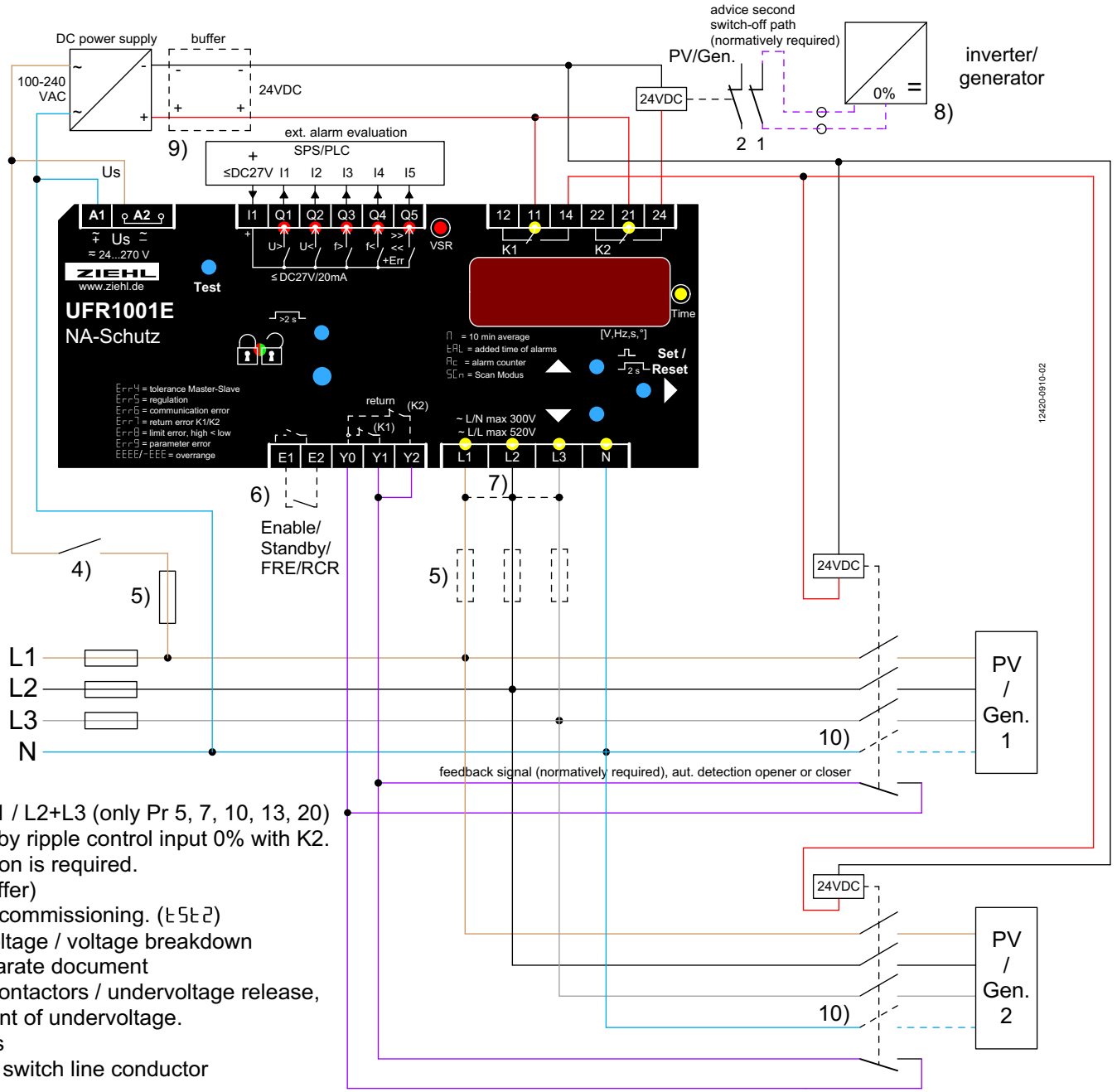


- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sr} / 5 \leq U_{b5}$ (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication of if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer) This second switch-off path must be tested separately during commissioning. ($5 \leq t \leq 2$)
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponentenempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor



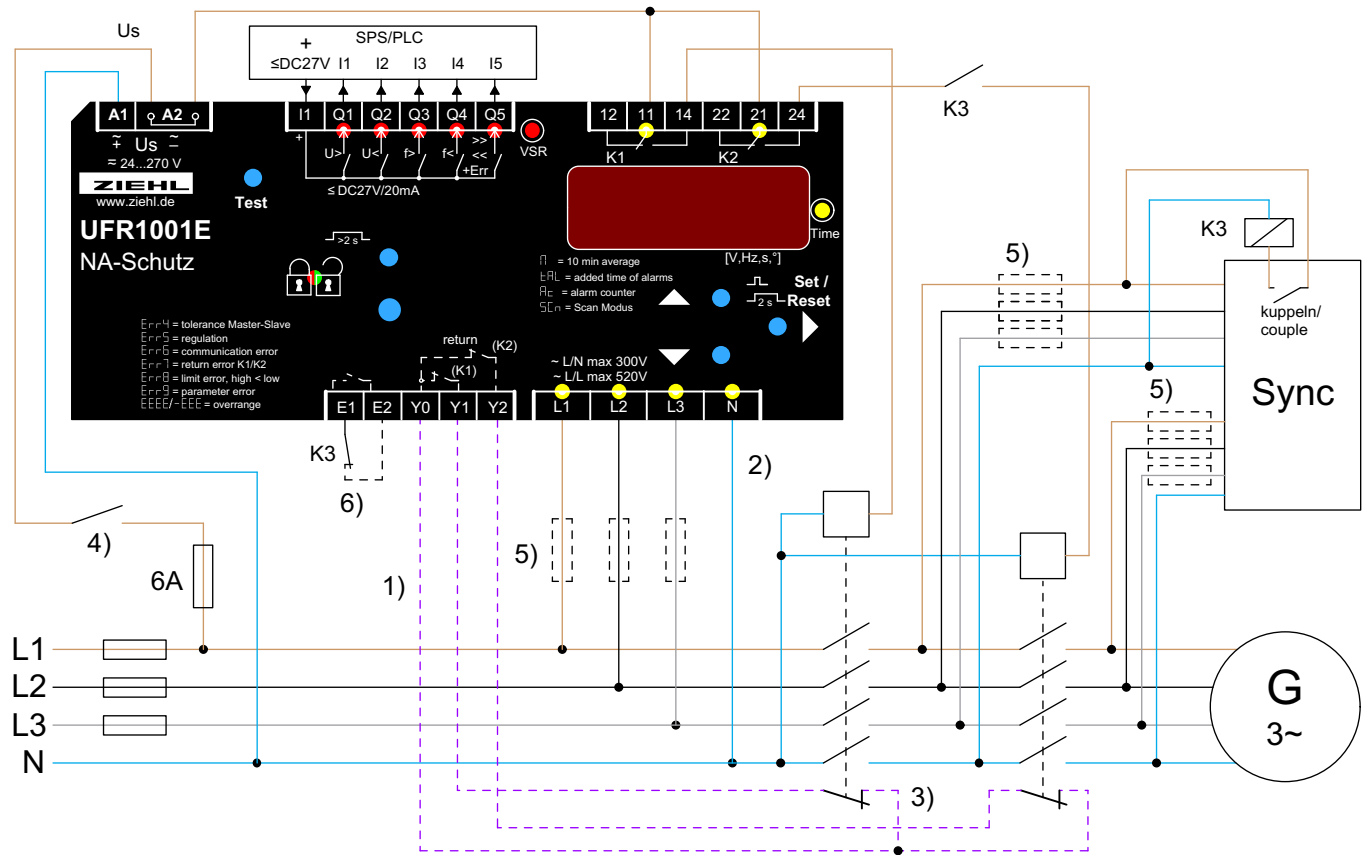
VDE-AR-N 4105:2018-11

Correct wiring of the 2x2 section switch:
With correct wiring monitoring of feedback contacts **MUST NOT RESPOND**, when one of the switches is switched off manually.



- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{sc} / 5 \leq U_{sc}$. (default setting) = Standby, K1+2 switched off (e.g. by ripple control receiver or clock,...)
- 7) 1 phase Application connect L1-L2-L3, 2 phase Application L1 / L2+L3 (only Pr 5, 7, 10, 13, 20)
- 8) Single-fault safety: shutdown of the self generation plant e.g. by ripple control input 0% with K2. Use coupling relays for contact multiplication of if safe isolation is required. (control voltage 24-230VAC or feeded over power supply / buffer) This second switch-off path must be tested separately during commissioning. (5552)
- 9) Power supply / buffering. Switches have to withstand undervoltage / voltage breakdown for min. 3 s / 0,3 s (FRT) The power supplies listed in the separate document "FRT Komponenteneempfehlung", in connection with 24VDC contactors / undervoltage release, ensure that the switch-off delay time (3s) is fulfilled in the event of undervoltage. Bridging time UFR1001E at dropping U_s 230 V to 0 V: 400 ms
- 10) TT-system: switch all line conductors and N, TN-system: only switch line conductor

VDE-AR-N 4105:2011
VDE-AR-N 4105:2018-11 Pgen ≤ 50kW



- 1) Feedback contacts not connected: set $E1-E2 = OFF$ to deactivate feedback-contacts
- 2) N connected → only for programs with N
- 3) NC- or NO-contacts can be connected, self-learning when switching on
- 4) Switch off of plant without recording an alarm
- 5) Fuses only when line protection necessary, e.g. 16 A
- 6) contact closed and $U_{5r} / U_{192} (adjust) = no\ evaluation\ Y1\ and\ Y2$