mecotron <sup>®</sup>	) (E	Description		
Safety relay ESTOP-2 For emergency stop monitoring		The safety module ESTOP-2 fo stop monitoring is used for safety or more circuits and is desi incorporated in emergency sto circuits in accordance with relev EN 60204-1. These modules requirements of European stand 418 for emergency stops and EN safety circuits. These standards where a single emergency stop break several circuits (indi- emergency stop).	r emergency breaking one gned to be op or safety ant standard s meet the lards EB-EN 60204-1 for cover cases device must rect action	
Emergency Stop monitoring		Conforming to standards		
2 LED displays 3 supply voltage versions Safety category 3		Product : EN 954-1 - category 3 Machine : FLI-machine-quidelines 8	9/392 FWG	
		Machine :         EU-machine-guidelines 89/392 EWG           assemblies         IEC 204-1, EN 292, EN 418           EN 60204-1, BS 2771-1, DIN VDE 0113-1, NF C 79-130, NF E 09-053		
			P/N	
		24 V AC/DC	2 450 800 00	Supply Start button Emergency stop Emergency
		115 V AC (50/60 Hz)	2 450 800 10	voltage activated deactivated not operated Stop activated
		230 V AC (50/ 60 Hz)	2 450 800 20	Emergency stop *A2*
		Accessories	D/N	External start conditions (ESC) Output 13-14 (NO)
		Adapter for screw mounting	3 430 029 01	Output 23-24 (NO)
		Addptor for borow mounting	0 100 020 01	Legend 0 1
Technical data				Wiring diagrams
Technical data Input circuit Supply voltage - Power consumption	A1-A2 A1-A2 A1-A2	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA	,	Wiring diagrams       Emergency stop button with 2 NC contacts       L1 (+)
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 23 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % 15 % + 10 %	,	Wiring diagrams Emergency stop button with 2 NC contacts L1 (+) F1 (max. 4A) S2I-A K37 K37
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz	,	Wiring diagrams Emergency stop button with 2 NC contacts L1 (+) FI (max. 4A) S2H K37 K47 Esc
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz single-channel or dual-char Supply voltage	nel	Wiring diagrams           Emergency stop button with 2 NC contacts           L1 (+)         F1           (max. 4A)         S2H           K37           K47           Esc           A2           K1           K1           K1           K1           K37           K37           K47           Esc           A2           K1           K1           K1           K1           K1           K3           K3           K3
Technical data Input circuit Supply voltage - Power consumption Supply voltage tolerance Rated frequency AC variance Stop monitoring circuit Voltage potential Current over the command device	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA	nel	Wiring diagrams           Emergency stop button with 2 NC contacts           L1 (+)         F1           (max. 4A)         S2I-3           K3 7           K4 7           Esc           A2           K1           K1           K1           K1           K1           K2           K2           K2           K2           K2           K4
Technical data Input circuit Supply voltage - Power consumption Supply voltage tolerance Rated frequency AC variance Stop monitoring circuit Voltage potential Current over the command device Cross circuit protection Feedback circuit	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA -	nel	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) $FI$ $(max. 4A)$ $S2H$ $K37$ $K47$ $CESC$ $K47$ $CESC$ $K3$ $K3$ $K3$ $K3$ $K3$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$
Supply circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - -	nnel	Wiring diagrams Emergency stop button with 2 NC contacts L1 (+) $F1$ $K3$ $K4$ $K3$ $K3$ $K3$ $K3$ $K3$ $K3$ $K3$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$
Supply voltage - Power consumption         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -5060 Hz 5060 Hz 5060 Hz Supply voltage approx. 60 mA - Relay / contactors, force gu 24 V DC	nel	Wiring diagrams Emergency stop button with 2 NC contacts 11 (+) $F1(max. 4A)$ $S2 -3K3^{7}$
Supply voltage - Power consumption         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC Y1-Y2	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - Relay / contactors, force gu 24 V DC LED, green	nel ded	Wiring diagrams Emergency stop button with 2 NC contacts IT(+) FT (max. 4A) S2H K37 K47 CSC K37 K47 K37 K47 K37 K47 K47 K37 K47
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output relay energized         Output circuit / Safety exits	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green LED, green	nnel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K47 K47 ESC $K3^{-}$ $K4^{-}$ $K3^{-}$ $K3^{-}$ $K4^{-}$ ESC = External start conditions
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green Agenta (100 m) 25 A (at 240 M)	r Inel ided	Wiring diagrams Emergency stop button with 2 NC contacts L1 (+) $\overrightarrow{F1}$ (max. 4A) S2+ K37 K47 ESC K2 K2 K2 K2 K3 K3 K3 K3 K4 K3 K4 K3 K4 K4 K3 K4 K4 K4 K4 K4 K4 K4 K4 K4 K4
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational voltage         Rated operational current         Rated operational current	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 15 (inductive)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz Supply voltage approx. 60 mA - - Relay / contactors, force guided, into Relay, 2 NO contacts, force guided, into 300 V 2.5 A (at 240 V) 0.75 A (at 240 V)	r inel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts $I_1(+)$ $F_1$ $K_3$ $K_4$ $K_3$ $K_4$ $K_3$ $K_3$ $K_3$ $K_4$ $K_$
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output relay energized         Output circuit / Safety exits         Rated operational current	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 12 (resistive) DC 13 (inductive) DC 13 (inductive)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - - Relay / contactors, force guided, into Relay, 2 NO contacts, force guided, into 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 24 V) 1.25 A (at 24 V)	r inel ded ernal monitored	Wiring diagrams         Emergency stop button with 2 NC contacts         I (+)       FI         K37         K37         K47         Esc         K2         K2         K2         K2         K2         K2         K2         K3         K3         K3         K4         K4         K4         K4         K2         K2         K3         K4         K4         K4         K4         K4         K4         K3         K3         K4         K3         K3 </th
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current	A1-A2 A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 12 (resistive) DC 12 (resistive) DC 13 (inductive)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC - LED, green LED, green LED, green LED, green Alter and the second s	r inel ded	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K47 K37 K47 K37 K47
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback circuit         Supply voltage         Output circuit / Safety exits         Rated operational voltage         Rated operational current         Rated operational current </th <th>A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC <b>Y1-Y2</b> <b>Y1-Y2</b> AC 12 (resistive) AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)</th> <th>24 V AC/DC - &lt; 3 VA / W 115 V AC - &lt; 3 VA 230 V AC - &lt; 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz - Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green Relay, 2 NO contacts, force guided, intr 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 1.25 A (at 24 V) 1.25 A (at 24 V) 10 x 10<sup>6</sup> operations 6 x 10<sup>5</sup> operations</th> <th>r inel ded ernal monitored</th> <th>Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K47 K37 K47 K37 K47 K37 K47 K37 K47 K47 K47 K47 K47 K47 K47 K4</th>	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC <b>Y1-Y2</b> <b>Y1-Y2</b> AC 12 (resistive) AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz - Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green Relay, 2 NO contacts, force guided, intr 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 1.25 A (at 24 V) 1.25 A (at 24 V) 10 x 10 <sup>6</sup> operations 6 x 10 <sup>5</sup> operations	r inel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K47 K37 K47 K37 K47 K37 K47 K37 K47 K47 K47 K47 K47 K47 K47 K4
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Ra	A1-A2 A1-A2 A1-A2 A1-A2 A1-A2 A1-A2 A1-A2 A1-A2 AC/DC HIS VAC 230 VAC AC AC AC AC AC AC AC AC AC AC AC AC A	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green Relay, 2 NO contacts, force guided, intr 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 1.25 A (at 24 V) - - - - - - - - - - - - -	r Innel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts $11 (+)$ $\overline{F1}$ (max. 4A) $S2I-3K37$ $K47$ $K3$ $K3$ $K3$ $K3$ $K3S10^{24} -7 K2 K2 K2 K2 K3 K3 K3 K3 K3K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$ $K4$
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output relay energized         Output circuit / Safety exits         Rated operational current         Mechanical lif	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz Supply voltage approx. 60 mA - - Relay / contactors, force guided, into Relay / contactors, force guided, into 24 V DC LED, green LED, green Relay, 2 NO contacts, force guided, into 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 24 V) 1.25 A (at 24 V) 10 x 10 <sup>6</sup> operations 6 x 10 <sup>5</sup> operations 4 A / fast, type gL 4 kV -20°C +55°C	r inel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts $1 + \frac{1}{F1}$ $1 + \frac{1}{F2}$ $1 + \frac{1}{F2}$ 1
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Peedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Bated operational current         Rated operational current         Mechanical life (max.)         Electrical life (max.)         Electrical life m	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 230 V AC 7115 V AC 230 V AC 7115 V AC 230 V AC 715 V AC 230 V AC 715 V AC 230 V AC 715 V AC	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz single-channel or dual-char Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green LED, green Relay, 2 NO contacts, force guided, intr 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 24 V) 1.	r Inel ded ernal monitored	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K47 ESC K2 K2 K2 K2 K3 K4 K3 K4 K3 K4 K4 K3 K4 K4 K4 K4 K4 K4 K4 K4 K4 K4
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Mounical life (max.)         Electrical life (max.)         Impulse withstand voltage Vi	A1-A2 A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)	24 V AC/DC         - < 3 VA / W           115 V AC         - < 3 VA           230 V AC         - < 3 VA           -10 % +10 %         -15 % +15 %           -15 % +15 %         -15 % +10 %           5060 Hz         5060 Hz           5060 Hz         5060 Hz           single-channel or dual-char         Supply voltage           approx. 60 mA         -           -         -           Relay / contactors, force gu         24 V DC           LED, green         LED, green           LED, green         LED, green           00 V         2.5 A (at 240 V)           0.75 A (at 240 V)         2.5 A (at 24 V)           1.25 A (at 24 V)         1.25 A (at 24 V)           1.25 A (at 24 V)         10 × 10° operations           6 × 10° operations         4 A / fast, type gL           4 kV         -20°C +85°C           -25°C +85°C         -300 v	r inel ded ernal monitored sing adapter	Wiring diagrams Emergency stop button with 2 NC contacts LT (+) FT (max. 4A) S2H K37 K4 K3 K3 K3 K3 K3 K3 K3 K3 K3 K3
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Me	A1-A2 A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC 715 V AC 230 V AC 715 V AC 230 V AC 715 V AC 230 V AC 715	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz Supply voltage approx. 60 mA - - Relay / contactors, force gu 24 V DC LED, green LED, green LED, green Relay, 2 NO contacts, force guided, intr 300 V 2.5 A (at 240 V) 0.75 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 240 V) 1.25 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 240 V) 1.25 A (at 240 V) 1.25 A (at 240 V) 1.25 A (at 240 V) 2.5 A (at 240 V) 1.25 A (at 240 V) 1	r inel ded ernal monitored sing adapter 2)	Wiring diagrams Emergency stop button with 2 NC contacts IT(+) Ray (max, 4A) $S10^{24}$ Ka (max, 4A) Ka (max, 4A) $S10^{24}$ Ka (max, 4A) Ka (max, 4A) Ka (max, 4A) Ka (max, 4A) Ka (max, 4A) Ka (max, 4A) $S10^{24}$ Ka (max, 4A) Ka (max, 4A) $S10^{24}$ Ka (max, 4A) $S10^{24}$ Ka (max, 4A) $S10^{24}$ Ka (max, 4A) $S10^{24}$ Ka (max, 4A) $S10^{24}$ Ka (max, 4A) $S10^{24}$ Ka (max, 4A) Ka (max, 4A) $S10^{24}$ Ka (max, 4A) Ka (max, 4A)
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Rated operational current <t< th=""><td>A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)</td><td>24 V AC/DC - &lt; 3 VA / W 115 V AC - &lt; 3 VA 230 V AC - &lt; 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz 5060 Hz </td><td>r inel ded ernal monitored sing adapter 2)</td><td>Wiring diagrams Emergency stop button with 2 NC contacts T(+) F(-) F</td></t<>	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC Y1-Y2 Y1-Y2 AC 12 (resistive) AC 15 (inductive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)	24 V AC/DC - < 3 VA / W 115 V AC - < 3 VA 230 V AC - < 3 VA -10 % +10 % -15 % +15 % -15 % +10 % 5060 Hz 5060 Hz 5060 Hz 5060 Hz 5060 Hz 	r inel ded ernal monitored sing adapter 2)	Wiring diagrams Emergency stop button with 2 NC contacts T(+) F(-) F
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback method         Voltage potential in feedback loop         Display of operating status (LED)         Supply voltage         Output circuit / Safety exits         Rated operational current         Mechanical life (max.)         Electrical life max.)         Electrical life the max.)         Operating temperat	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC Y1-Y2 13-14, 23-24 AC 12 (resistive) DC 12 (resistive) DC 13 (inductive) 12 / 240 V / 2.5 A)	24 V AC/DC         - < 3 VA / W	r inel ded ernal monitored sing adapter 2)	Wiring diagrams Emergency stop button with 2 NC contacts I'(+)
Technical data         Input circuit         Supply voltage - Power consumption         Supply voltage tolerance         Rated frequency AC variance         Stop monitoring circuit         Voltage potential         Current over the command device         Cross circuit protection         Feedback circuit         Feedback circuit         Feedback circuit         Feedback circuit         Supply voltage         Output circuit / Safety exits         Rated operational voltage         Bated operational current         Rated operating temperature range         Impulse withstand voltage Vimp         Operating temperature range         Mounting position <th>A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC <b>115 V AC</b> 230 V AC <b>115 V AC</b> 230 V AC <b>115 V AC</b> 230 V AC <b>12 ( resistive)</b> DC 12 (resistive) DC 12 (resistive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive)</th> <th>24 V AC/DC         - &lt; 3 VA / W           115 V AC         - &lt; 3 VA           230 V AC         - &lt; 3 VA           -10 % +10 %         -15 % +15 %           -15 % +15 %         -15 % +10 %           5060 Hz         5060 Hz           5060 Hz         5060 Hz           Supply voltage         approx. 60 mA          </th> <th>r inel ded ernal monitored sing adapter 2)</th> <th>Wiring diagrams Emergency stop button with 2 NC contacts I + H + H + H + H + H + H + H + H + H +</th>	A1-A2 A1-A2 A1-A2 24 V AC/DC 115 V AC 230 V AC 115 V AC 230 V AC <b>115 V AC</b> 230 V AC <b>115 V AC</b> 230 V AC <b>115 V AC</b> 230 V AC <b>12 ( resistive)</b> DC 12 (resistive) DC 12 (resistive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive) DC 13 (inductive)	24 V AC/DC         - < 3 VA / W           115 V AC         - < 3 VA           230 V AC         - < 3 VA           -10 % +10 %         -15 % +15 %           -15 % +15 %         -15 % +10 %           5060 Hz         5060 Hz           5060 Hz         5060 Hz           Supply voltage         approx. 60 mA	r inel ded ernal monitored sing adapter 2)	Wiring diagrams Emergency stop button with 2 NC contacts I + H + H + H + H + H + H + H + H + H +

entrelec



### mecotron® Safety relays **ESTOP-2a and ESTOP-2b** provides a safety interruption of one or several circuits



- Emergency Stop monitoring and monitoring of protective guards
- Cross circuit protection
- Start button monitoring / configurable
- 2 safety outputs
- 2 auxiliary transistor-outputs Monitoring of safety-mats (ESTOP-2b)
- 4 LED displays

#### Description

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The ESTOP-2a (ESTOP-2b) module provides a safety oriented interruption of one or several circuits and is designed to be integrated in emergency stop or safety circuits conforming to EN 60204-1. It meets the requirements of the European standard EN 418 for emergency stop equipment and EN 60204-1 for safety circuits. These standards concern the applications where a single command must open several circuits (emergency stop by indirect action). The module also meets the safety requirements for electrical monitoring of limit switches on protective equipment.

#### **Conforming to standards**

- Product · EN 954-1 - category 4 EU-machine-guidelines 89/392 EWG Machine :
  - assemblies IEC 204-1, EN 292, EN 418
    - EN 60204-1, BS 2771-1, DIN VDE 0113-1,
- NF C 79-130, NF E 09-053 BG (0) (6) Approvals :

ESTOP-2a : The module is equipped with two voltage free safety outputs of stop category 0 (EN 418, EN 60204).

ESTOP-2b : In addition to the two voltage free safety outputs of stop category 0 (EN 418, EN 60204-1), the module is equipped with two semiconductor outputs for signalling functions. Additionally it is possible to monitor sensor mats with the ESTOP-2b.

The module is designed for use with one or two input channels. For extended fault detection and increased safety level, we recommend the use of two input channels. In this operation mode, the connection cables are integrated in the monitoring and all initial faults will be detected.

3 supply voltage versions							
ESTOP-2a		ESTOP-2b		A.			
Supply voltage	P/N	Supply voltage	P/N				
24 V AC/DC	2 450 803 00	24 V AC/DC	2 450 804 00	Supply voltage	Start	Emergency stop	Emergency
115 V AC (50/60 Hz)	2 450 803 10	115 V AC (50/60 Hz)	2 450 804 10	Supply tollage	otar	not actuated	stop
230 V AC (50 Hz)	2 450 803 20	230 V AC (50/60 Hz)	2 450 804 20	Input A (S11-S12)			
Technical data				Input B (S21-S22)			
recinical uata				Feedback loop Y1-Y2			
Input circuit				Start button S33-S34 (NO)			
Supply voltage - power consumption	A1-A2	24 V AC/DC - <	< 7 VA / W	Output 13-14 (NO)			
	A1-A2	115 V AC - <	< 10 VA	Output 23-24 (NO)			
	A1-A2	230 V AC - <	< 10 VA				
Supply voltage tolerance	24 V AC/DC	-20 % +	-10 %				
	115 V AC	-15 % +	10 %				
Detect frequency AC verience	230 V AC	-15 % +	-10 %				
Rated frequency AC variance	115 V AC	5060	HZ				
	230 V AC	5060	Hz	Supply voltage	Start	Emergency stop	Emergency stop
Stop monitoring circuit S11	1-S12, S21-S22, B1	single-channel or du	al-channel	Input & (S11-S12)	1	not dotadiod	actuated
Voltage potential VS11/S21	24 V AC/DC	VA1-A2-	-3 V	Input B (S21-S22)			
	115 V AC	> 42	v				
	230 V AC	> 42	V	Sensor (S31-S32)			
Synchronous time between input A ar	nd Input B	approx. 3	UU ms	Sensor (S41-S42)			
Cross circuit protection		through internal e	lectronic fuse				
Max. line resistance RL		50 02		Start button \$33-\$34 (NO)		2	
Other Inputs				Start button S33-S34 (NO)		2	
Connection of an external start button	S33-S34	volt-fre	ee				
Start button monitoring configurable (I	ESTOP-20) <b>Y3-Y4</b>	open-monitoring/link	ked-no monitoring	Output 23-24 (NO)			
Connection of short circuit making sense	or mats, <b>531-532</b>	VOIT-Tre	ee	Fuse ok Y33-Y34			
sarety mats or other volt-free contacts (E	STOP-20) 541-542	50.0		K1/K2 143-144			
Max. resistance between	531-532, 541-542	50 22		1 With start button monitoring V2	4 0000		
Feedback circuit	¥1-¥2	Delevi ( e entre stever f	and a surface of	2 Without start button monitoring, Y	3-Y4 shorted out	Legen	0 1
Feedback method	041/00	Relay / contactors, to	brce guided	L			
Voltage potential in feedback loop	24 V DC						
Display of operating status (LED)							
Supply Voltage/Internal electronic fuse	9	LED, gr	een				
Input A (S11-S12)		LED, gr					
Output roley operaized		LED, gr					
Output relay energized	12-14 02-04	LED, yri	co quidod intornal monitorod				
Bated operational voltage	10-14, 20-24	300 \					
Bated operational current	AC 12 (resistive)	2 5 A (at 2	240.1/0				
Bated operational current	AC 15 (inductive)	0.75 A (at 2	240 \/				
Bated operational current	DC 12 (resistive)	2.5 A (at )	24 V)				
Bated operational current	DC 13 (inductive)	1.2 A (at 24 V) I	/B = 50  ms				
Short circuit protection max fuse rati	ing	4 A type	al				
Response time of the output relays		< 40 n	15				
Output circuit auxiliary circuit		2 transistor-outputs	NO contact function				
Transistor-output (ESTOP-2b)	Y33-Y34	typ 24 V/20 mA status of the	internal electronic fuse				
Transistor-output (ESTOP-2b)	Y43-Y44	typ. 24 V/20 mA, status of the	output relays K1, K2				
Other details							
Impulse withstand voltage Vimp		4 kV					
Mechanical life (max.)		10 x 10 <sup>6</sup> one	erations				
Electrical life (max.) (on Al	C 12 / 240 V / 2.5 A)	6 x 10 <sup>5</sup> ope	rations				
Operating temperature range		-10°C +	-55°C				
Storage temperature range		-25°C +	-85°C				
Mounting position		anv					
Mounting to DIN rail (EN 50022)		snap-on fastening/screw n	nounting using adapter				
Terminal capacity		2 x 14 AWG (2	x 2.5 mm <sup>2</sup> )	Accessories		P/N	
Weight 24 V AC/DC / 115 V AC and 2	30 V AC	approx. 0.77 lb (350 q) / a	pprox. 0.99 lb (450 g)	Adapter for screw mou	nting	3 430	0 029 01
Dimensions (W x H x D)		45 x 78 x 12	0 mm			0.101	

## mecotron<sup>®</sup> Safety relays ESTOP-2a and ESTOP-2b

provide a safety interruption of one or several circuits



#### mecotron<sup>®</sup> Safety relays ESTOP-3a and ESTOP-3b provide a safety interruption of one or several circuits



 Emergency Stop monitoring and monitoring of protective guards
 Cross circuit protection
 start button monitoring / configurable (ESTOP-3b)
 3 safety outputs

1 NC auxiliary output

2 auxiliary transistor-outputs

Monitoring of safety mats

#### Description

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The ESTOP-3a (ESTOP-3b) module provides a safety oriented interruption of one or several circuits and is designed to be integrated in emergency stop or safety circuits conforming to EN 60204-1. It meets the requirements of the European standard EN 418 for emergency stop equipment and EN 60204-1 for safety circuits. These standards concern the applications where a single command must open several circuits (emergency stop by indirect action). The module also meets the safety requirements for electrical monitoring of limit switches on protective equipment.

#### **Conforming to standards**

- Product : EN 954-1 category 4
- Machine : EU-machine-guidelines 89/392 EWG assemblies IEC 204-1, EN 292, EN 418
  - EN 60204-1, BS 2771-1, DIN VDE 0113-1, NF C 79-130, NF E 09-053

**ESTOP-3a** :The module is equipped with three voltage free safety outputs of stop category 0 (EN 418, EN 60204-1) and one voltage free NC contact.

**ESTOP-3b** : In addition to the three voltage free safety outputs of stop category 0 (EN 418, EN 60204-1), the module is equipped with a voltage free NC contact and two semiconductor outputs for signalling functions.

Additionally it is possible to monitor sensor mats with the ESTOP-3b.

The module is designed for use with one or two input channels. For extended fault detection, and increased safety level, we recommend the use of two input channels. In this operation mode, the connection cables are integrated in the monitoring and all initial faults will be detected.

ESTOP-36:     PN     Supply voltage     P/N       24 V AC/DC     2 450 855 00     24 V AC/DC     2 450 855 00       15 V AC (S001 tr)     2 450 855 00     24 V AC/DC     2 450 855 00       220 V AC (50/40)     2 450 855 00     220 V AC (50/40)     2 450 855 00       220 V AC (50/40)     2 450 855 00     220 V AC (50/40)     2 450 855 00       220 V AC (50/40)     2 450 855 00     220 V AC (50/40)     2 450 855 00       220 V AC (50/40)     2 450 AC (50/40)     2 450 AC (50/40)     10 40 AC (50/40)       Supply voltage foremore     14 V AC/DC     - < 10 V AC       Supply voltage foremore     115 V AC     - < 10 V AC       200 V AC (20/20)     200 V AC (50/40)     200 V AC       30 problematic grading and problematic state s	3 supply voltage versions	Approvals : 😼 🖲 🕼		
Supply voltage         PN         Supply voltage         P/N           24V AC/DC         2450 805 0         2450 805 0         2450 805 0           115 VAC 6000 Hz)         2450 805 0         2450 805 0         2450 805 0           Technical data         240 AC/DC         2460 805 0           Technical data         240 AC/DC         240 805 0           Supply voltage formany technical         240 AC/DC         240 805 0           Supply voltage formany technical         240 AC/DC         -7 VA (100)           Supply voltage formany technical         240 AC/DC         -7 VA (100)           Supply voltage formany technical         240 AC/DC         -7 VA (100)           Supply voltage formany technical         240 AC/DC         -7 VA (100)           Supply voltage formany technical         240 AC/DC         -7 VA (100)           Supply voltage formany technical (100 AC/DC)         -7 VA (100)         -7 VA (100)           Supply voltage formany technical (100 AC/DC)         -7 VA (100)         -7 VA (100)           Supply voltage formany technical (100 AC/DC)         -7 VA (100)         -7 VA (100)           Supply voltage formany technical (100 AC/DC)         -7 VA (100)         -7 VA (100)           Supply voltage formany technical (100 AC/DC)         -7 VA (100)         -7 VA (100)	ESTOP-3a	ESTOP-3b		
24/3/2000       2469 885 00       24/40/200       24/30 800 00         115 V AC (500 Hz)       2460 885 20       230 V AC (50/60 Hz)       24/50 800 00         230 V AC (50/Hz)       24/50 800 20       230 V AC (50/60 Hz)       24/50 800 20         230 V AC (50/Hz)       24/50 800 20       230 V AC (50/60 Hz)       24/50 800 20         Supply voltage - Powe consumption       A1-A2       24/1/200       - < 7 V/A /W	Supply voltage P/N	Supply voltage P/N		
115 VAC (2000) Hz)       2.450 805 10       115 VAC (2000) Hz)       2.450 805 20         230 VAC (5) Hz)       2.450 805 20       230 VAC (5) Hz)       2.450 805 20         Technical data       2.450 805 20       230 VAC (5) Hz)       2.450 805 20         Supply voltage - Power consumption       41-42       240 VAC (5) VAC       240 VAC (5) VAC         Supply voltage - Power consumption       41-42       240 VAC (5) VAC       200 VAC         At-4.20       230 VAC (5) VAC       - 0.0 VA       200 VAC         Supply voltage tolerance       24 VAC/DC       - 0.0 VA       200 VAC       - 0.0 VA         Supply voltage tolerance       115 VAC       - 10 VA       - 0.0 VA       - 0.0 VA         State frequency AC variance       115 VAC       - 20 VAC       - 0.0 VA       - 0.0 VA         Synchronous time between input A and input B       - 0.0 VA       - 42 V       - 0.0 VA       - 0.0 VA         Synchronous time between migut A and input B       - 0.0 VA       - 42 V       - 0.0 VA       - 0.0 V	24 V AC/DC 2 450 805 00	24 V AC/DC 2 450 806 00		
232 V AC [50/6]     2.450.805.20     220 V AC [50/60 Hz]     2.450.806.20       Imput circuit     Stopp) voltage - Power consumption     A1-A2       Supply voltage - Power consumption     A1-A2       Supply voltage tolerance     2.4 V AC/0C       115 V AC     - 10 VA       Att A2     2.30 V AC       Supply voltage tolerance     2.4 V AC/0C	115 V AC (50/60 Hz) 2 450 805 10	115 V AC (50/60 Hz) 2 450 806 10	Supply voltage Start Emergency stop Emergency not actuated stop	
Technical data     Implet drout       Implet drout     24 V AC/DC     - < 7 VA / W	230 V AC (50 Hz) 2 450 805 20	230 V AC (50/60 Hz) 2 450 806 20	Input A (S11-S12)	
Productional Paped area     Product Paped Paped Activity       Supply voltage - Power consumption     A1-42 A1-42     24 V AC/DC A15 VAC     - < 10 VA 200 VAC     - < 10 VA 200 VAC       Supply voltage tolerance     24 V AC/DC 115 VAC     - < 10 VA 200 VAC     - < 10 VA - < 15 VA	Technical data		Input B (S21-S22)	
Input virtual     24 V AC/DC     - 27 V/ W       Supply violage - Power consumption     A 1-A2     24 V AC/DC       Supply violage - Rover consumption     A 1-A2     21 V AC/DC       Supply violage - Rover consumption     A 1-A2     22 V AC/DC       Supply violage - Rover consumption     A 1-A2     22 V AC/DC       Supply violage tolerance     21 V AC/DC     - 10 V/A       230 vool totage tolerance     115 V AC     - 10 V/A       230 monitoring circuit     115 V AC (230 V AC     5060 Hz       Sign monitoring circuit     115 V AC     - 42 V       200 vool totage potential Visites     24 V AC/DC     - 42 V       Synchronous time between Input A and Input B     approx300 ms       Conscional protection     5060 Hz       Sinchronous time between Input A and Input B     approx300 ms       Conscional protection     533-534       Connection of an external Start Jution     534-532       Connection of an external Start Jution     534-532       Connection of an external Start Jution	Technical data		Eeedback loop Y1-Y2	
Supply voltage - Power consumption A1-A2 A1-A2 Supply voltage - Power consumption A1-A2 A1-A2 Supply voltage tolerance 24 47 A200C 210 VA 230 VAC 10 VA 200 VAC 10 VA 200 VAC 42 V 230 VAC 42 V 240 VAC 42 V 240 VAC	Input circuit		Start button \$33-\$34 (NO)	
A1-A2     230 VAC     - 10 VA       Supply voltage tolerance     24 V AC/DC    20 %,+10 %       119 VAC    10 %,+10 %       119 VAC    10 %,+10 %       119 VAC    10 %,+10 %       119 VAC    15 %,+10 %       119 VAC    15 %,+10 %       20 monoming circuit     S11-S12 821-822 B1       Support of the value     Single-channel rotal-channel       Voltage potential Varuer     24 VAC/DC       Synchronous time between Input A and Input B     approx.300 ms       Cortes circuit protection	Supply voltage - Power consumption A1-A2	24  V AC/DC - < 7  VA / W	Qutput 13-14 (NO)	
Supply voltage tolerance     241 VA2     2:30 VAC	A1-A2	115 V AC - < 10 VA		
Supply viritige toleration         24 VAC/Dc 115 VAC        20 % +110 % 15 % +115 % 15 % +15 %         The second provide toleration of the second provide toleratis toleration of the second provide toleration of the second prov	A1-A2	230 V AC - < 10 VA	Output 23-24 (NO)	
115 VAC     -15 % +15 %       Rated frequency AC variance     115 VAC       Stop monitoring direcut     S11-S12_S22_S1       Sign monitoring direcut     S11-S12_S22_S1       Sign monitoring direcut     S11-S12_S22_S1       Sign monitoring direcut     S11-S12_S22_S1       Sign monitoring direcut     S11-S12_S2_S1       Sign monitoring direcut     S11-S12_S12_S1       Sign monitoring direcut     S11-S12_S12_S1       Consection of an external start button     S33-S34       Other inputs     S13-S32_S12_Vol_Free       Sign to work monitoring direcut making sensor mats.     S31-S32_S12_Vol_Free       Sign to work monitoring direcut making sensor mats.     S31-S32_Vol_Free       Max. resistance between S13-S32_S1_Vol_Free     S10_L       Peedback method     Y1-Y2        Peedback method	Supply voltage tolerance 24 V AC/DC	-20 % +10 %	Signalling output 41-42	
Pated frequency AC variance     116 V/AC 230 V/AC     -15 % e +10 %       Stop monitoring circuit     \$116 V/AC 230 V/AC     Sing books of the second of the seco	115 V AC	-15 % +15 %	(NC)	
Halke Trequency AC variance     115 VAC 230 VAC     3000 Hz     5000 Hz     57	230 V AC	-15 % +10 %	Legend	
Stop monitoring circuit         S112, S21-S22, 81         single-channel           Voltage potential Vs11/S21         221-S22, 81         Single-channel         Single-channel           Voltage potential Vs11/S21         224 V AC/DC         > 442 V         > 442 V           Synchronous time between input A and input B         approx.300 ms         - 442 V           Synchronous time between input A and input B         approx.300 ms         - 442 V           Synchronous time between input A and input B         approx.300 ms         - 442 V           Cornection of an extension for configurable (ESTOP-30)         Y3-Y4         open-monitoring cinitek-no monitoring           Other input A         S31-S32         wolt-free         Second S13-S32           Voltage potential         S31-S32         Volt-free           Starb sution monitoring configurable (ESTOP-30)         Y3-Y4         Open-monitoring cinitek-no monitoring           Max. Inerestance between         S31-S32         Volt-free         Output 143 and N0           Max. Inerestance between         S31-S32         S0 Ω         Output 143 and N0           Max. Inerestance between         S31-S32         Output 143 and N0         Output 143 and N0           Synchronoution (S107-S10)         Y1-Y2         Relay volt-free         Output 143 and N0         Output 143 and N0	Rated frequency AC variance 115 V AC/ 230 V AC	5060 Hz		
Voltage potential Vs1/22122 V ACUC $3 42 V$ Value33 VSynchronous time between Input A and Input Bapprox.300 mswerk 4317-939Max, Line resistance RL $50 \Omega$ cover \$41.40Other inputs50 Ωcover \$41.40Consection of an external start buttonS33-S34volt-freeConnection of an external start buttonS33-S34volt-freeStart button monitoring configurable (STOP-3b)Y3-Y4open-monitoring/inked-normonitoringStart button monitoring configurable (STOP-3b)Y3-Y4open-monitoring/inked-normonitoringMax, resistance RL $50 \Omega$ cover \$41.40Work resistance RL $00 \Omega$ cover \$41.40Start button monitoring configurable (STOP-3b)Y3-Y4open-monitoring/inked-normonitoringStart button monitoring configurable (STOP-3b)Y3-Y4open-monitoring/inked-normonitoringMax, resistance betweenS31-S32sol $\Omega$ Feedback incuitY1-Y2Relay / contactors, force guidedVoltage potential infeedback loop24 V DCVoltage resistance RL300 V/Supply voltage/internal electronic fuseLED, greenInput A (S11-S12)LED, greenInput A (S11-Guductiva) </td <td>Stop monitoring circuit S11-S12, S21-S22, B1</td> <td>single-channel or dual-channel</td> <td></td>	Stop monitoring circuit S11-S12, S21-S22, B1	single-channel or dual-channel		
115 VAC $> 42.V$ ConstructionC	Voltage potential VS11/S21 24 V AC/DC	VA1-A2-3 V	Supply voltage Start Emergency step Emergency	
Synchronous time between Input A and Input B       230 VAc       > 42 V       Page A (811-812)         Gross circuit protection       through internal electronic fuse       Page A (811-812)         Max. line resistance RL       50 Ω         Other inputs       Sint button monitoring configurable (STOP-3b)       Y3-Y4         Connection of an external start button       S33-S34       volt-free         Start button monitoring configurable (STOP-3b)       Y3-Y4       open-monitoring/linked-normonitoring         Wax: resistance RL       50 Ω         Max: resistance Detween       S31-S32       volt-free         Peedback incuit       Y1-Y2       Sint button monitoring       Sint button monitoring         Voltage potential in feedback loop       24 V DC       Output 314 R00         Voltage potential in feedback loop       24 V DC       Sint button monitoring, Y2-Y4 agein         Display of operational status (LED)       EED, green       Sint button monitoring, Y2-Y4 agein       Viotage A (81-81), Y2-Y4 agein         Output relay energized       LED, green       IND contacts       /       NO contacts       /       NO contacts         Safet operational current       AC 12 (resistive)       S A (at 240)       /       2.5 (at 240)       /       2.5 (at 240)       /       2.5 (at 240)       /	115 V AC	> 42 V	not actuated stop	
Synchronous time between input A and input B     approx.300 ms     How of 80:1500       Cross circuit protection     through intranal electronic fuse     Bown (81:1500       Max. line resistance Ri.     50 Ω       Connection of an external start button     S33-S34     volt-free       Start button moloring configurable (ESTOP-3b)     S41-S42     S41       Connection of short circuit making sensor mats.     S31-S32     volt-free       Safety mats or other voltree contacts (ESTOP-3b)     S41-S42     S50 Ω       Peedback circuit     Y1-Y2     Peedback circuit     Piestore start (Field S42)       Voltage optential in feedback loop     24 V DC     Optar 134, 1400       Display of operational status (LED)     Piestore start (Field S42)     Piestore start (Field S42)       Output 14:23, 22, 23     LED, green     Piestore start (Field S42)       Display voltage potential in feedback loop     LED, green     Piestore start (Field S42)       Output 21:23:22     LED, green     Piestore start (Field S42)       Output 21:24:242     300 V     /     20V       Read operational voltage     30V     /     10X contact       Safety outputs / auxiliany circuit     3. No contacts     /     11X (Field S42)       Read operational current     AC 12 (resistive)     5. A (at 24 V)     /     2. A (at 24 V)	230 V AC	> 42 V	Input A (S11-S12)	
Cross circuit protection         through internal electronic tuse           Max. line resistance R.         50 Ω           Other inputs         Sint button monitoring configurable (ESTOP-3b)         Y3-Y4           Connection of an external start button         S33-S34         volt-free           Max. inerestation of an external start button         S33-S34         volt-free           Max. resistance R.         00 monitoring         Sate button 353-S48, NO1           Max. resistance between         S31-S32         volt-free           Max. resistance between         S31-S32         volt-free           Sate button 353-S48, NO1         Data         Data           Psecback circuit         Y1-Y2         Relay / contactors, force guided           Psecback circuit         Y1-Y2         Relay / contactors, force guided           Supply voltage/internal electronic fuse         LED, green         Not contact           Input B (S31-S22)         LED, green         Not contact           Output relay energized         1.5 A (at 240 V)         /         2.5 A (at 240 V)           Relat operational current         AC 12 (resistive)         5 A (at 240 V)         /         2.5 A (at 240 V)           Relat operational current         DC 13 (nductive)         1.5 A (at 240 V)         /         2.5 A (at 240 V)	Synchronous time between Input A and Input B	approx. 300 ms	Input B (S21-S22)	
Max. line resistance HL.     D012       Other inputs     voll-free       Start buttom monitoring conjuste (ESTOP-3b)     Y3-Y4       Connection of an external start button     S33-S34       Connection of an external start button     S33-S34       Connection of an external start button     S33-S34       Max. inter resistance between     S31-S32       safety mats or other volfree contacts (ESTOP-3b)     S41-S42       Max. resistance between     S31-S32, S41-S42       Feedback circuit     Y1-Y2       Feedback circuit     Y1-Y2       Feedback method     Relay / contactors, force guided       Voltage potential in feedback loop     24 VDC       Display of operational status (LED)     ELED, green       Input A (S11-S22)     LED, green       Input A (S11-S22)     LED, green       Output circuit     13-14, 23-24, 33-34, 41-2       Safety output a circuit     300 V       Atter doperational current     AC 12 (resistive)       S A (12 240 V)     2.5 A (12 240 V)       Pate doperational current     AC 15 (inductive)       1.5 A (at 24 V)     2.5 A (12 24 V)       Pate doperational current     AC 15 (inductive)       1.5 A (at 24 V)     2.5 A (12 24 V)       Pate doperational current     AC 15 (inductive)       1.5 A (at 24 V)     2.5 A (	Cross circuit protection	through internal electronic fuse	Sensor (S31-S32)	
Other imputs       Size button monitoring configurable (ESTOP-sb)       Y3-Y4       open-monitoring/linked-no monitoring         Start button monitoring configurable (ESTOP-sb)       Y3-Y4       open-monitoring/linked-no monitoring       Start button S33-S34       Not         Start button monitoring configurable (ESTOP-sb)       Y3-Y4       open-monitoring/linked-no monitoring       Start button S33-S34       Not         Max: resistance between       S31-S32       volt-free       Start button S33-S34       Not         Peedback circuit       Y1-Y2       Feedback circuit       Y1-Y2         Feedback circuit       Y1-Y2       Feelay/ contactors, force guided       Output 13-44 Not         Voltage potential in freedback loop       24 V DC       Diffuel of operational starts (LED)       Feelay, volt-free, force guided       If with air backs monitoring, Y3 V open         Output relay energized       LED, green       If with air backs monitoring, Y3 V open       If with air backs monitoring, Y3 V open       If with air backs monitoring, Y3 V open         Output relay energized       SA K1 24 V V       Z.5 K1 24 V V       Z.5 K1 24 V V       If with air backs monitoring, Y3 V open         Output relay energized       SA K1 24 V V       Z.5 K1 24 V V       Z.5 K1 24 V V       If with air backs monitoring, Y3 V open       If with air backs and backs and backs monitoring, Y3 V open         Reled oper	Max. line resistance RL	50 \\ \2	Sensor (S41-S42)	
Connection of an external start button	Other inputs		Feedback loop Y1-Y2	
Start button monitoring contigurable (ES10P-3b)       Y3-Y4       Open-monitoring/united-on monitoring         Connection of short circuit making sensor mask S31-S32       volt-free         Max. resistance between       S31-S32, S41-S42       50 Ω         Peedback circuit       Y1-Y2         Peedback nethod       Pelay / contactors, force guided         Voltage potential in feedback loop       24 V DC         Voltage potential in feedback loop       LED, green         Input 4 (S11-S12)       LED, green         Input 4 (S11-S12)       LED, green         Output relay energized       NO contacts       1 NC contact         Output relay energized       3NO contacts       1 NC contact         Rated operational voltage       3 NO v       2.5 A (at 240 V)         Rated operational voltage       3 NO v       2.5 A (at 240 V)         Rated operational current       AC 15 (inductive)       5 A (at 240 V)       2.5 A (at 240 V)         Rated operational current       DC 13 (inductive)       5 A (at 240 V)       2.5 A (at 240 V)         Rated operational current       DC 13 (inductive)       5 A (at 240 V)       2.5 A (at 240 V)         Rated operational current       DC 13 (inductive)       5 A (at 240 V)       2.5 A (at 240 V)         Rated operational current       DC 13 (i	Connection of an external start button S33-S34	volt-free	Start button S33-S34 (NO)	
Connection or short orcult making sensor mats, sol - saze     Volt-ree       Max, resistance between     S31-Saze       Max, resistance between     S31-Saze       Feedback rethod     Pelay / contactors, force guided       Voltage potential in feedback loop     24 V DC       Voltage potential in feedback loop     24 V DC       Supply voltage/internal electronic fuse     LED, green       Input A (S11-Siz)     LED, green       Output circuit     13-14, 23-24, 33-34, 41-42       Relay, volt-free, force guided, internal monitored     300 V       Asted operational voltage     S00 V       Output circuit     13-14, 23-24, 33-34, 41-42       Relay, volt-free, force guided, internal monitored     300 V       Asted operational voltage     S00 V       Output circuit     15-14 (240 V)       Asted operational current     AC 12 (resistive)       Staft Y mass or output (STOP-3b)     Y43-Y44       Vince used time monescing     6 A type gL       Other details     Yuzzo mA, status of the output relays K1, K2       Other details     Yuzzo mA, status of the output relays K1, K2       Other details     Yuzzo mA, status of the output relays K1, K2       Other details     Yuzzo mA, status of the output relays K1, K2       Other details     Yuzzo mA, status of the output relays K1, K2       Other details     Y	Start button monitoring configurable (ESTOP-3b) <b>Y3-Y4</b>	open-monitoring/linkea-no monitoring	Start button S33-S34 (NO)	
Satety mats or other voltmee contact (ES10P-36) 541-542         Max. resistance between       S32, S41-S42         Feedback circuit       Y1-Y2         Feedback vircuit       S12, S41-S42         Voltage potential in feedback loop       24 V DC         Display of operational status (LED)       EED, green         Supply voltage/internal electronic fuse       LED, green         Input A (S11-S12)       LED, green         Output relay energized       3NO contacts         Output relay energized       3NO contacts         Output relay energized       3NO contacts         Safety outputs / auxiliary circuit       3 NO contacts         Rate operational structure       5 A (at 24 0 V)         Rate operational current       AC 15 (inductive)         5 A (at 24 V)       /         Rate operational current       DC 13 (inductive)         5 A (at 24 V)       /         Paraisitor-outputs       2 transistor-outputs, NO-function         Transistor-output (STDP-3b)       Y33-Y34         Yubica aur bubb membrane       A type gL         Imm of accun, currents at simultaneous load on several output circuit       5 A (at 24 V)         Cher outputs       Y24 Y20 MA, status of the output relays K1, K2         Cher outputs       2 transistor-output,	Connection of short circuit making sensor mats, S31-S32	voit-tree	Output 13-14 (NO)	
Mila, Resistance between     531-532, 531-532     3012       Feedback incluit     Y1-Y2     Relay / contactors, force guided       Feedback method     Relay / contactors, force guided       Objaplay of operational status (LED)     24 V DC       Supply voltage/internal electronic fuse     LED, green       Input B (S21-S22)     LED, green       Output clicouit     13-14, 23-24, 33-34, 41-42     Relay, volt-free, force guided, internal monitored       Safety outputs / auxiliary circuit     3 NO contacts     1 NC contact       Rated operational current     AC 12 (resistive)     5 A (at 240 V)       Rated operational current     DC 13 (inductive)     1.5 A (at 240 V)       Rated operational current     DC 13 (inductive)     1.5 A (at 240 V)       Other outputs     2 transistor-output (STOP-3b)     Y3-Y34       Umb of accum. currents at simultaneous doal on several output circuits     2 current In-c 8 A       Impulse withstand voltage     4 kV       Response time of the output relays     4 kV       Response time of the output relays     -4 kV       Response time of the output relays     -10° c+55°C       Storage temperature range     -10° c+55°C       Mounting position     any       Mounting to DIN rail (EN 5002)     snap-on fastening/screw mounting using adapter       AvK0 (2 x.25.mm²)     2 x 14 MG (2 x.2	safety mats or other voltfree contacts (ESTOP-3b) <b>S41-S42</b>	50.0	Output 23-24 (NO)	
Preduback circuit     T1+Z       Peedback kircuit     T1+Z       Peedback wirethod     Relay / contactors, force guided       Voltage potential in feedback loop     24 V DC       Supply voltage/internal electronic fuse     LED, green       Input A (S11-S12)     LED, green       Uutput circuit     13-14, 23-24, 33-34, 41-42       Safety outputs / auxiliary circuit     3 NO contacts       Aftety outputs / auxiliary circuit     3 NO contacts       Aftety outputs / auxiliary circuit     3 NO contacts       Att 20 perational surrent     AC 12 (resistive)       5A (at 240 V)     /       Rated operational current     AC 12 (resistive)       5A (at 240 V)     /       Rated operational current     DC 13 (inductive)       1.5 A (at 240 V)     /       7 Harasistor-output (ESTOP-3b)     Y33-Y34       Transistor-output (ESTOP-3b)     Y33-Y34       Transistor-output (ESTOP-3b)     Y33-Y34       Timpulse withstand voltage     -       Mechanical life (max)     (on AC 12 / 240 V/ 2.5 A)       6 A type gL     -       7 Other outputs     Y43-Y44       Transistor-output (ESTOP-3b)     Y33-Y34       Timpulse withstand voltage Vimp     -       Mechanical life (max)     (on AC 12 / 240 V/ 2.5 A)       10 x 10° operations <td>Max. resistance between S31-S32, S41-S42</td> <td>50 12</td> <td>Output 33-34 (NO)</td>	Max. resistance between S31-S32, S41-S42	50 12	Output 33-34 (NO)	
Precudat/IntellicitionPrecidity / Contract/OS (1002 guided)Voltage potential in feedback loop24 V DCDisplay of operational status (LED)Supply voltage/internal electoronic fuseLED, greenInput A (S11-S12)LED, greenUtiput of locuts / auxiliary circuit13-14, 23-24, 33-34, 41-42Safety outputs / auxiliary circuit300 VAtted operational voltage300 VRated operational currentAC 12 (resistive)AC 12 (resistive)5 A (at 240 V)Rated operational currentDC 13 (inductive)DC 13 (inductive)1.5 A (at 240 V)Rated operational currentDC 12 (resistive)DC 13 (inductive)5 A (at 24 V)Short-circuit protection, max. fuse rating2 transistor-output (ESTOP-3b)V33-Y34typ. 24 V/20 mA, status of the internal electronic fuseTransistor-output (ESTOP-3b)Y33-Y34Umit of accum. currents at simultaneous load on several output circuits2 current lin < 8 A	Feedback circuit fi-f2	Delay ( contratava favos guidad	Signalling output 41-42	
Windle potentianial status (LED)       24 V OC         Supplay Contradin Theodulax Nucley       24 V OC         Supplay Contradin Theodulax Nucley       1000000000000000000000000000000000000	Veltage petertiel in feedback leap	Relay / contactors, force guided	Fuse ok Y53-Y54	
Display of operational status (LEO)       I with a status (LEO)         Supply voltage/internal electronic fuse       LED, green         Input A (S11-S12)       LED, green         Upty tricuit       13-14, 23-24, 33-34, 41-42         Rated operational voltage       300 V         Safety outputs / auxiliary circuit       3NO contacts         Rated operational current       AC 12 (resistive)         S (at 240 V)       /         Rated operational current       AC 12 (resistive)         S (at 240 V)       /         Rated operational current       DC 13 (inductive)         D 1. A (at 24 V)       /         Rated operational current       DC 13 (inductive)         D 1. A (at 24 V)       /         Part outputs       /         Stort-circuit protection, max. fuse rating       6 (type 24 V/20 mA, status of the internal electronic fuse         Transistor-outputs       Y33-Y34         Unit of acoum. currents at simultaneous load on several output circuits       Σ current th. < 8 A	Display of exercised status (LED)	24 V DC	K1/K2 Y63-Y64	
SUDply Volage/Internal electrolinic fuse       LED, green         Input A (S11-S12)       LED, green         Input B (S21-S22)       LED, green         Output relay energized       Relay, volt-free, force guided, internal monitored         Safety outputs / auxiliary circuit       3 N0 contacts       1 NC contact         Rated operational voltage       300 / 200	Display of operational status (LED)		1 With start button monitoring, Y3-Y4 open Legend	
Input R (S1-S22)       LED, green         Output relay energized       LED, green         Output circuit       13-14, 23-24, 33-34, 41-42       Relay, volt-free, force guided, internal monitored         Safety outputs / auxiliary circuit       3 NO contacts       /       1 NC contact         Rated operational voltage       300 V       /       300 V       /         Rated operational current       AC 12 (resistive)       5 A (at 240 V)       /       0.75 A (at 240 V)         Rated operational current       DC 12 (resistive)       5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 12 (resistive)       5 A (at 24 V)       /       2.6 (at 24 V)         Short-circuit protection, max. fuse rating       6 A type gL       /       4 A type gL         Other outputs       2 transistor-outputs, NO-function       1         Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the output relays K1, K2         Other details       2       10x 10° operations       10x 10° operations         Impulse withstand voltage Vmp       4 kV       4 kV       10x 10° operations         Response time of the output relays       < 40 ms	Supply voltage/internal electronic fuse	LED, green	2 Without start button monitoring, Y3-Y4 shorted out	
Initial is (21-322)       LED, green         Output circuit       13-14, 23-24, 33-34, 41-42       Relay, volt-free, force guided, internal monitored         Safety outputs / auxiliary circuit       3 NO contacts       /       1 NC contact         Rated operational voltage       300 V       /       300 V         Rated operational ourgent       AC 12 (resistive)       5 A (at 240 V)       /       2.5 A (at 240 V)         Rated operational current       AC 15 (inductive)       1.5 A (at 240 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.4 (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       4 (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       4 (at 24 V)         Short-circuit protection, max. fuse rating       6 A type gL       /       4 A type gL       /         Other outputs       2 transistor-output, NO-function       1       Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the output relays K1, K2       /         Umit of accum. curents at simultaneous load on several output ci	Input A (511-512)	LED, green		
LED, greenOutput forcuit13-14, 23-24, 33-34, 41-42Relay, volt-free, force guided, internal monitoredSafety outputs / auxiliary circuit3 NO contacts / 1 NC contactRated operational voltage300 V / 300 VRated operational currentAC 12 (resistive)5 A (at 240 V) / 2.5 A (at 240 V)Rated operational currentDC 13 (inductive)1.5 A (at 24 V) / 2.5 A (at 24 V)Rated operational currentDC 13 (inductive)1.5 A (at 24 V) / 2.5 A (at 24 V)Rated operational currentDC 13 (inductive)1.5 A (at 24 V) / 2.5 A (at 24 V)Short-circuit protection, max. fuse rating6 A type gL/ 4 A type gLOther outputsOther outputsV 24 V/20 mA, status of the internal electronic fuseTransistor-output (ESTOP-3b)Y43-Y44typ. 24 V/20 mA, status of the output relays K1, K2Other detailsImit of accur. currents at simultaneous load on several output circuitsEucricuit for (max.)(on AC 12 / 240 V / 2.5 A)6 A type gL/ 10° C + 85°CNote:Dimensions (W x H x D), 90 x 78 x 120 mmMounting positionanyo fastening/screw mounting using adapter <th c<="" td=""><td>Output B (521-522)</td><td></td><td></td></th>	<td>Output B (521-522)</td> <td></td> <td></td>	Output B (521-522)		
Output Critical       10-14, 23-24, 33-34, 14-22       Thetay, Volt-freq (Dice gluded), internationation         Safety outputs / auxiliary circuit       3 NO contacts       /       1 NC contact         Rated operational current       AC 12 (resistive)       5 A (at 24 0 V)       /       2.5 A (at 24 0 V)         Rated operational current       AC 12 (resistive)       5 A (at 24 0 V)       /       0.75 A (at 24 0 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       4 A type gL         Other outputs       2 transistor-outputs, NO-function       1       1.4 (at 24 V)       2.4 A type gL         Other outputs       2 transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the internal electronic fuse         Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2       0         Other details		Delay yelt free force guided internel menitored		
Select Outputs1 NC contactRated operational voltage300 VRated operational currentAC 12 (resistive)5 A (at 240 V)/Rated operational currentAC 15 (inductive)1.5 A (at 240 V)/Rated operational currentDC 12 (resistive)5 A (at 24 V)/Rated operational currentDC 13 (inductive)1.5 A (at 24 V)/2.5 A (at 24 V)Rated operational currentDC 13 (inductive)1.5 A (at 24 V)/2.5 A (at 24 V)Short-circuit protection, max. fuse rating6 A type gL74 A type gL0ther outputs1ransistor-output (ESTOP-3b)Y33-Y34typ. 24 V/20 mA, status of the internal electronic fuse1ransistor-output (ESTOP-3b)Y43-Y44typ. 24 V/20 mA, status of the internal electronic fuse1ransistor-output (ESTOP-3b)Y43-Y44typ. 24 V/20 mA, status of the internal electronic fuse1ransistor-output (ESTOP-3b)Y43-Y44typ. 24 V/20 mA, status of the output relays K1, K20ther details1mpulse withstand voltage Vmp4 kVResponse time of the output relays4 kvResponse time of the output relay0 cmax)(on AC 12 / 240 V / 2.5 A)6 x 10° operations0perating te	Sefety eutruite / euviliery eirevit	2 NO contacto		
Rated operational currentAC 12 (resistive)5A (at 240 V)/2.5A (at 240 V)Rated operational currentAC 15 (inductive)1.5 A (at 240 V)/0.75 A (at 240 V)Rated operational currentDC 12 (resistive)5A (at 24 V)/2.5 A (at 24 V)Rated operational currentDC 12 (resistive)5A (at 24 V)/2.5 A (at 24 V)Rated operational currentDC 13 (inductive)1.5 A (at 24 V)/2.5 A (at 24 V)Short-circuit protection, max. fuse rating6A type gL/4 A type gLOther outputs2 transistor-outputs, NO-functionTransistor-output (ESTOP-3b)Y33-Y34typ. 24 V/20 mA, status of the output relays K1, K2Other details2Limit of accum. currents at simultaneous load on several output circuits∑ current In < 8 A	Bated operational voltage	300 V / 300 V		
Rated operational current       AC 15 (inductive)       1.5 A (at 240 V)       /       0.75 A (at 240 V)         Rated operational current       DC 12 (resistive)       5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.5 A (at 24 V)         Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       /       2.5 A (at 24 V)         Short-circuit protection, max, fuse rating       6 A type gL       /       4 A type gL         Other outputs       2 transistor-outputs, NO-function         Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the output relays K1, K2         Other details       1       1/2 U/20 mA, status of the output relays K1, K2         Umit of accum. currents at simultaneous load on several output circuits       S current Ith < 8 A	Rated operational current AC 12 (resistive)	$500^{\circ}$ / $500^{\circ}$		
Rated operational currentDC 12 (resistive)5 A (at 24 V)/2.5 A (at 24 V)Rated operational currentDC 12 (resistive)5 A (at 24 V)/2.5 A (at 24 V)Short-circuit protection, max. fuse rating6 A type gL/4 A type gLOther outputs2 transistor-outputs, NO-functionTransistor-output (ESTOP-3b)Y33-Y34typ. 24 V/20 mA, status of the internal electronic fuseTransistor-output (ESTOP-3b)Y43-Y44typ. 24 V/20 mA, status of the output relays K1, K2Other detailsLimit of accum. currents at simultaneous load on several output circuits∑ current lth < 8 A	Bated operational current AC 15 (inductive)	15  A (at  240  V) / $0.75  A (at  240  V)$		
Rated operational current       DC 13 (inductive)       1.5 A (at 24 V)       L/R = 50 ms       1.2 A (at 24 V)         Short-circuit protection, max. fuse rating       6 A type gL       /       4 A type gL         Other outputs       2 transistor-outputs, NO-function         Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the internal electronic fuse         Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2         Other details	Rated operational current DC 12 (resistive)	5  A (at  24  V) / $25  A (at  24  V)$		
Short-circuit protection, max. fuse rating       6 A type gL       / 4 A type gL         Other outputs       2 transistor-outputs, NO-function         Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the internal electronic fuse         Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2         Other details	Rated operational current DC 13 (inductive)	1.5  A (at  24  V) $L/B= 50  ms$ $1.2  A (at  24  V)$		
Other outputs       2 transistor-outputs, NO-function         Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the internal electronic fuse         Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2         Other details	Short-circuit protection, max. fuse rating	6 A type gL / 4 A type gL		
Transistor-output (ESTOP-3b)       Y33-Y34       typ. 24 V/20 mA, status of the internal electronic fuse         Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2         Other details	Other outputs	2 transistor-outputs. NO-function		
Transistor-output (ESTOP-3b)       Y43-Y44       typ. 24 V/20 mA, status of the output relays K1, K2         Other details       Empty Status       Status of the output relays K1, K2         Limit of accum. currents at simultaneous load on several output circuits       Status of the output relays A         Impulse withstand voltage Vimp       4 kV         Response time of the output relays       < 40 ms         Mechanical life (max.)       10 x 10 <sup>6</sup> operations         Electrical life (max.)       (on AC 12 / 240 V / 2.5 A)       6 x 10 <sup>5</sup> operations         Operating temperature range       -10°C +55°C       Note:         Mounting position       any       Dimensions (W x H x D), 90 x 78 x 120 mm         Mounting to DIN rail (EN 50022)       snap-on fastening/screw mounting using adapter       Accessories       P/N	Transistor-output (ESTOP-3b) Y33-Y34	typ. 24 V/20 mA, status of the internal electronic fuse		
Other details       Difference of the control of the co	Transistor-output (ESTOP-3b) Y43-Y44	typ. 24 V/20 mA, status of the output relays K1, K2		
Limit of accum. currents at simultaneous load on several output circuits       Σ current lth < 8 A	Other details			
Impulse withstand voltage Vimp       4 kV         Response time of the output relays       < 40 ms	Limit of accum. currents at simultaneous load on several output circuits	$\Sigma$ current Ith < 8 A		
Response time of the output relays       < 40 ms	Impulse withstand voltage Vimp	4 kV		
Mechanical life (max.)       10 x 10 <sup>6</sup> operations         Electrical life (max.)       (on AC 12 / 240 V / 2.5 A)         Operating temperature range       -10°C +55°C         Storage temperature range       -40°C +85°C         Mounting position       any         Mounting to DIN rail (EN 50022)       snap-on fastening/screw mounting using adapter         Terminal capacity       2 x 14 AWG (2 x 2.5 mm²)	Response time of the output relays	< 40 ms		
Electrical life (max.)       (on AC 12 / 240 V / 2.5 A)       6 x 10 <sup>6</sup> operations         Operating temperature range       -10°C +55°C         Storage temperature range       -40°C +85°C         Mounting position       any         Mounting to DIN rail (EN 50022)       snap-on fastening/screw mounting using adapter         Terminal capacity       2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )	Mechanical life (max.)	10 x 10 <sup>6</sup> operations		
Operating temperature range       -10°C +55°C         Storage temperature range       -40°C +85°C         Mounting position       any         Mounting to DIN rail (EN 50022)       snap-on fastening/screw mounting using adapter         Accessories       P/N         Terminal capacity       2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )	Electrical life (max.) (on AC 12 / 240 V / 2.5 A)	6 x 10 <sup>5</sup> operations		
Storage temperature range       -40°C +85°C       Note:         Mounting position       any       Dimensions (W x H x D), 90 x 78 x 120 mm         Mounting to DIN rail (EN 50022)       snap-on fastening/screw mounting using adapter       Accessories       P/N         Terminal capacity       2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )       Example 100 mm and 1	Operating temperature range	-10°C +55°C		
Mounting position         any         Dimensions (W x H x D), 90 x 78 x 120 mm           Mounting to DIN rail (EN 50022)         snap-on fastening/screw mounting using adapter         Accessories         P/N           Terminal capacity         2 x 14 AWG (2 x 2.5 mm²)	Storage temperature range	-40°C +85°C	Note:	
Mounting to DIN rail (EN 50022)         snap-on fastening/screw mounting using adapter         Accessories         P/N           Terminal capacity         2 x 14 AWG (2 x 2.5 mm²)	Mounting position	any	Dimensions (W x H x D), 90 x 78 x 120 mm	
Terminal capacity 2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )	Mounting to DIN rail (EN 50022)	snap-on fastening/screw mounting using adapter	Accessories P/N	
	Terminal capacity	2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )		
Weight 24 V AC/DC / 115 V AC and 230 V AC         approx. 0.77 lb (350 g) / approx. 0.99 lb (450 g)	Weight 24 V AC/DC / 115 V AC and 230 V AC	approx. 0.77 lb (350 g) / approx. 0.99 lb (450 g)		

# mecotron<sup>®</sup> Safety relays ESTOP-3a and ESTOP-3b provide a safety interruption of one or several circuits



# of one or several circuits



- Emergency Stop monitoring and
- monitoring of protective guards
- Cross circuit protection
- Start button monitoring / configurable (ESTOP-6b)
- 6 safety outputs
- INC contact and 2 auxiliary transistor-outputs
- Monitoring of safety mats

#### Description

The ESTOP-6a (ESTOP-6b) module provides a safety oriented interruption of one or several circuits and is designed to be integrated in emergency stop or safety circuits conforming to EN 60204-1. It meets the requirements of the European standard EN 418 for emergency stop equipment and EN 60204-1 for safety circuits. These standards concern the applications where a single command must open several circuits (emergency stop by indirect action). The module also meets the safety requirements for electrical monitoring of limit switches on protective equipment.

#### **Conforming to standards**

- Product : EN 954-1 category 4
- Machine : EU-machine-guidelines 89/392 EWG
  - assemblies IEC 204-1, EN 292, EN 418 EN 60204-1, BS 2771-1, DIN VDE 0113-1, NF C 79-130, NF E 09-053

**ESTOP-6a** : The module is equipped with six voltage free safety outputs of stop category 0 (EN 418, EN 60204-1) and one voltage free NC contact.

**ESTOP-6b** : In addition to the six voltage free safety outputs of stop category 0 (EN 418, EN 60204-1), the module is equipped with a voltage free NC contact and two semiconductor outputs for signalling functions.

Additionally it is possible to monitor sensor mats with the ESTOP-6b.

The module is designed for use with one or two input channels. For extended fault detection and increased safety level, we recommend the use of two input channels. In this operation mode, the connection cables are integrated in the monitoring and all initial faults will be detected.

4 LED displays	🗖 Approvals : 🛯 🚯 👁 🕼					
3 supply voltage versions	EOTOD AL					
ESTOP-6a	ESTOP-60					
Supply voltage P/N	Supply voltage P/N					
24 V AC/DC 2 450 807 00	24 V AC/DC 2 450 808 00	Supply voltage Start Emergency stop Emergency				
115 V AC (50/60 Hz) 2 450 807 10	115 V AC (50/60 Hz) 2 450 808 10	actuated				
230 V AC (50 Hz) 2 450 807 20	230 V AC (50/60 Hz) 2 450 808 20	Input A (S11-S12)				
Technical data		Input B (S21-S22)				
Input circuit		Feedback loop Y1-Y2				
Supply voltage - Power consumption A1-A2	24 V AC/DC - < 7 VA / W	Start button S33-S34 (NO)				
A1-A2	115 V AC - < 10 VA	Output 13-14 (NO)				
A1-A2	230 V AC - < 10 VA	Output 23-24 (NO)				
Supply voltage tolerance 24 V AC/DC	-20 % +10 %	Output 33-34 (NO)				
115 V AC	-15 % +15 %	Output 43-44 (NO)				
230 V AC	-15 % +10 %	Output 53-54 (NO)				
Rated frequency AC variance 115 V AC	5060 Hz	Output 63-64 (NO)				
230 V AC	5060 Hz	Signalling output 71-72 (NC)				
Stop monitoring circuit S11-S12 S21-S22 B1	single-channel or dual-channel					
Voltage potential Vs11/s21 24 V AC/DC	VA1-A2-3 V	0 1				
115 V AC	> 42 V					
230 V AC	> 42 V					
Synchronous time between Input A and Input B	approx 300 ms					
Cross circuit protection	through internal electronic fuse	Supply voltage Start Emergency stop Emergency				
Max line resistance Bi	50 0	not actuated stop actuated				
Other Inputs	0012	Input A (S11-S12)				
Connection of an external start button \$33-\$34	volt-free	Input B (S21-S22)				
Start button monitoring configurable (ESTOP-6b) <b>Y3-Y4</b>	open-monitoring/linked-no monitoring	Sensor (S31-S32)				
Connection of short circuit making sensor mats <b>S31-S32</b>	volt-free	Sensor (S41-S42)				
safety mats or other volt-free contacts (ESTOP-6b) <b>S41-S42</b>		Feedback loop Y1-Y2				
Max, resistance between S31-S32, S41-S42	50 Ω	Start button S33-S34 (NO)				
Feedback circuit Y1-Y2		Start button S33-S34 (NO)				
Feedback method	Relay / contactors, force guided	Output 13-14 (NO)				
Display of operating status (LED)		Output 23-24 (NO)				
Supply voltage/internal electronic fuse	LED, green					
Input A (S11-S12)	LED, green					
Input B (S21-S22)	LED, green					
Output relay energized	LED, green	Signalling output 71-72				
Output circuit 13-14, , 63-64, 71-72	Relay, volt-free, force guided, internal monitored	(NC) Fuse ok Y83-Y84				
Safety outputs / auxiliary circuit	6 NO contacts / 1 NC contact	K1/K2 Y93-Y94				
Rated operational voltage	300 V / 300 V					
Rated operational current AC 12 (resistive)	5 A (at 240 V) / 2.5 A (at 240 V)	1 With start button monitoring, Y3-Y4 open Legend				
Rated operational current AC 15 (inductive)	1.5 A (at 240 V) / 0.75 A (at 240 V)					
Rated operational current DC 12 (resistive)	5 A (at 24 V) / 2.5 A (at 24 V)					
Rated operational current DC 13 (inductive)	1.5 A (at 24 V) L/R= 50 ms 1.2 A (at 24 V)					
Short-circuit protection, max. fuse rating	6 A type gL / 4 A type gL					
Response time of the output relays	< 40 ms					
Other outputs	2 transistor-outputs, NO-function					
Transistor-output (ESTOP-6b) Y33-Y34	typ. 24 V/20 mA, status of the internal electronic fuse					
Transistor-output (ESTOP-6b) Y43-Y44	typ. 24 V/20 mA, status of the output relays K1, K2					
Other details						
Limit of accum. currents at simultaneous load on several output circuits	$\Sigma$ current Ith < 8 A					
Impulse withstand voltage Vimp	4 kV					
Mechanical life (max.)	10 x 10 <sup>6</sup> operations					
Electrical life (max.) (on AC 12 / 240 V / 5 A)	6 x 10 <sup>5</sup> operations					
Operating temperature range	-10°C +55°C					
Storage temperature range	-40°C +85°C	Note:				
Mounting position	any	Dimensions (W x H x D), 90 x 78 x 120 mm				
Mounting on DIN rail (EN 50022)	snap-on fastening/screw mounting using adapter	Accessories P/N				
Terminal capacity	2 x 14 AWG (2 x 2.5 mm <sup>2</sup> )					
Weight 24 V AC/DC / 115 V AC and 230 V AC	approx. 1.32 lb (600 g) / approx. 1.54 lb (700 g)					

# mecotron®

# Safety relays ESTOP-6a and ESTOP-6b

#### provide a safety interruption of one or several circuits







### mecotron<sup>®</sup> Delay on release Safety relay ESTOP-3+2 For emergency stop monitoring



#### 0 0 2 450 802 20 230 V AC (50/60 Hz) **Technical data** Input circuit Supply voltage - Power consumption A1-A2 24 V AC/DC - < 8 VA / W A1-A2 115 V AC - < 10 VA A1-A2 230 V AC - < 10 VA -20 % ... +10 % Supply voltage tolerance 24 V AC/DC 115 V AC -15 % ... +15 % 230 V AC -15 % ... +10 % Rated frequency AC variance 50...60 Hz 115 V AC 230 V AC 50...60 Hz Stop monitoring circuit S11-S12, S21-S22, B1 single-channel or dual channel 24 V AC/DC Voltage potenial Vs11/s21 VA1-A2-3 V > 42 V 115 V AC 230 V AC > 42 V Synchronous time between Input A and Input B approx. 75 ms Cross circuit protection through internal electronic fuse Max. line resistance Ru 50 Ω **Other inputs** S33, Y3-Y4, S31-S32, S41-S42 Connection of an external start button Y1-S33 volt-free Start button monitoring configurable Y3-Y4/Y3-Y5 linked-no monitoring/linked-monitoring Feedback circuit Y1-Y2 Feedback method Relay / contactors, force guided **Display of operating status (LED)** Supply voltage/internal electronic fuse LED, green Input A (S11-S12) LED, green Input B (S21-S22) LED, areen State of the time delayed output relays LED, green Relay, volt-free, force guided, internal monitored **Output circuit** 13-14, 23-24, 33-34, 57-58, 67-68, 71-72 3 NO contacts 2 NO contacts Safety outputs 1 NC contact **Auxiliary circuits** instantaneous delaved instantaneous opening opening closing Stop-category 0 Stop-category Stop-category 0 300 V Rated operational voltage 300 V 5 A (at 240 V) 2.5 A (at 240 V) Rated operational current AC 12 (resistive) Rated operational current AC 15 (inductive) 1.5 A (at 240 V) 0.75 A (at 240 V Rated operational current DC 12 (resistive) 5 A (at 24 V) 2.5 V (at 230 V) 4 A (at 24 V) L/R=50 ms Rated operational current DC 13 (inductive) 2 A (at 230 V) Short-circuit protection, max. fuse rating 6 A, fast / type gL 4 A fast / type gL Other details Limit of accum. currents at simultaneous load on several output circuits $\Sigma$ current Ith < 8 A Impulse withstand voltage Vimp 4 kV Response time of the output relays < 20 ms 10 x10<sup>6</sup> operations Mechanical life (max.) (on AC 12 / 230 V / 2.5 A) Electrical life (max.) 6 x 10<sup>5</sup> operations -10°C ... +55°C Operating temperature range Storage temperature range -40°C ... +85°C Mounting position any Mounting on DIN rail (EN 50022) snap-on mounting/screw mounting using adapter Terminal capacity 2 x 14 AWG (2 x 2.5 mm<sup>2</sup>) Weight 24 V AC/DC / 115 V AC and 230 V AC approx. 1.43 lb (650 g) / approx. 1.87 lb (850 g) Dimensions (W x H x D) 90 x 78 x 120 mm

#### Description

The safety module ESTOP-3+2 for emergency stop monitoring is used for safety breaking one or more circuits and is designed to be incorporated in emergency stop or safety circuits in accordance with relevant standards EN 60204-1. These modules meet the requirements of European standards BS-EN 418 for emergency stops and EN 60204-1 for safety circuits. These standards cover cases where a single emergency stop device must break several circuits (indirect action emergency stop). Module ESTOP-3+2 also meets the safety requirements for electrical monitoring of limit switches in safety guards.

#### **Conforming to standards**

<ul> <li>Product:</li> <li>Machine: assemblies</li> <li>Approvals:</li> </ul>	EN EU IEC EN NF	954- -mac 204 6020 C 79	1 - c hine -1, E )4-1, -130	ateg -guid N 29 BS 2 ), NF	ory 4 lelines 8 2, EN 4 2771-1, E 09-08	39/392   18 DIN VD 53	EWG DE 0113	3-1,
Supply voltage						P/N	1	
24 V AC/DC						2 45	50 802	00
115 V AC (50/60	Hz)					2 45	50 802	10

In addition to three outputs with instantaneous opening for stop category 0, module ESTOP-3+2 has two additional outputs with delayed opening for stop category 1, which allow controlled deceleration of motor components in order to obtain final stopping (for example braking of the motor by variable speed drive). At the end of the preset time delay, the power supply is switched off by opening the time delay output circuits. The time delay on the two output circuits between terminals 57-58 and 67-68 is adjustable from 0 to 30 seconds by means of a 12-position selector switch.

Stopping of the machine is achieved by pressing the emergency stop control. One or more emergency stop buttons, as required by the installation, allow the stop instruction to be transmitted to module ESTOP-3+2, which in turn controls stopping of several independent safety circuits. Restarting of the machine is possible when the emergency stop button is released. Restarting is achieved by pressing the start button.The function of the start button on module ESTOP-3+2 is determined by the terminal connections. When terminals Y3-Y5 are linked, the start button is included in the monitoring circuit and the safety outputs are activated after the output signal impulse ceases when the start button is released. When terminals Y3-Y4 are linked, the safety outputs are activated immediately after the start button is operated. This configuration allows the safety module to function automatically as soon as the safety guard is closed, provided that the start button is shorted.

Maximum fault detection will be achieved when the module is used in conjunction with one (or more) emergency stop(s) with 2 NC contacts. The feedback loop allows autochecking of any relay used to increase the number of output contacts and/or to increase the breaking capacity. Any relay used for this purpose must be provided with mechanically linked contacts. Several emergency stop buttons may be connected in series with a single module.

P/N

3 440 005 01

Accessories Sealable shroud

# mecotron<sup>®</sup> **Delay on release** Safety relay ESTOP-3+2

For emergency stop monitoring



## Without start button

#### Link from Y2 to S33



### **Connecting diagram**



#### Wiring diagram

Connection with one emergency stop button (without cross circuit monitoring)



S1: Emergency stop button with 2 contacts

(a short-circuit between the 2 inputs is not detected)

Configuration with start button monitoring



Configuration without start button monitoring











S1: Emergency stop button with 1 N/C contact Not all faults are detected: a short-circuit on the emergency stop button is not detected