SIEMENS

SIRIUS
Sanftstarter 3RW40 **3RW40 5**
Soft starter 3RW40 **3RW40 7**
Démarreur progressif 3RW40
Arrancador suave 3RW40
Avviatore dolce 3RW40
Chave de partida suave 3RW40
Yumuşak yol verici 3RW40
Устройство плавного пуска 3RW40
软启动器 3RW40

EN/IEC 60947-4-2

www.siemens.com/lowvoltage/manuals

SIRIUS-Systemhandbuch / SIRIUS system manual : http://www.siemens.de/sirius-systemhandbuch

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Sanftstarter 3RW40 5, 3RW40 7

Vor der Installation, dem Betrieb oder der Wartung des Geräts muss diese Anleitung gelesen und verstanden werden.

⚠ GEFAHR

Gefährliche Spannung.
Lebensgefahr oder schwere Verletzungsgefahr.
Vor Beginn der Arbeiten Anlage und Gerät spannungsfrei schalten.

VORSICHT

Eine sichere Gerätefunktion ist nur mit zertifizierten Komponenten gewährleistet!

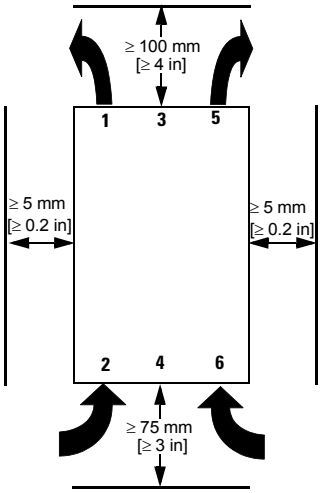
⚠ GEFAHR

Gefährliche Spannung. Lebensgefahr oder schwere Verletzungsgefahr.
Um elektrischen Stromschlag oder Verbrennungen zu vermeiden, dürfen die Klemmen des Motorsteuergeräts nicht berührt werden, wenn das Gerät mit Spannung versorgt wird. An den Ausgangsklemmen steht auch im AUS-Zustand des Motorsteuergeräts Spannung an.

ACHTUNG

Der Sanftstarter 3RW40 wurde als Gerät der Funkentstörgrad-Klasse A gebaut. Der Gebrauch dieses Produkts in Wohnbereichen könnte zu Funkstörungen führen.

Einbauabstände in Einzelaufstellung (Dicht-an-dicht-Aufstellung siehe Sanftstarter-Handbuch)



ACHTUNG

Beachten Sie beim Einbau des Geräts die angegebenen Abstände, damit genügend Luft für Kühlung zirkulieren kann. Das Gerät wird von unten nach oben belüftet.

VORSICHT

Gefahr von Sachschäden.
Achten Sie darauf, dass keine Flüssigkeit, kein Staub oder leitender Gegenstand in den Sanftstarter gelangt.

Motorstromeinstellwerte

Zulässige Motorstromeinstellwerte in Abhängigkeit von der CLASS-Einstellung bei 40° C Umgebungstemperatur

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programmieren des ON/RUN Ausgangs 13/14 (Werkseinstellung: ON) (Grafikteil, Bild 3)

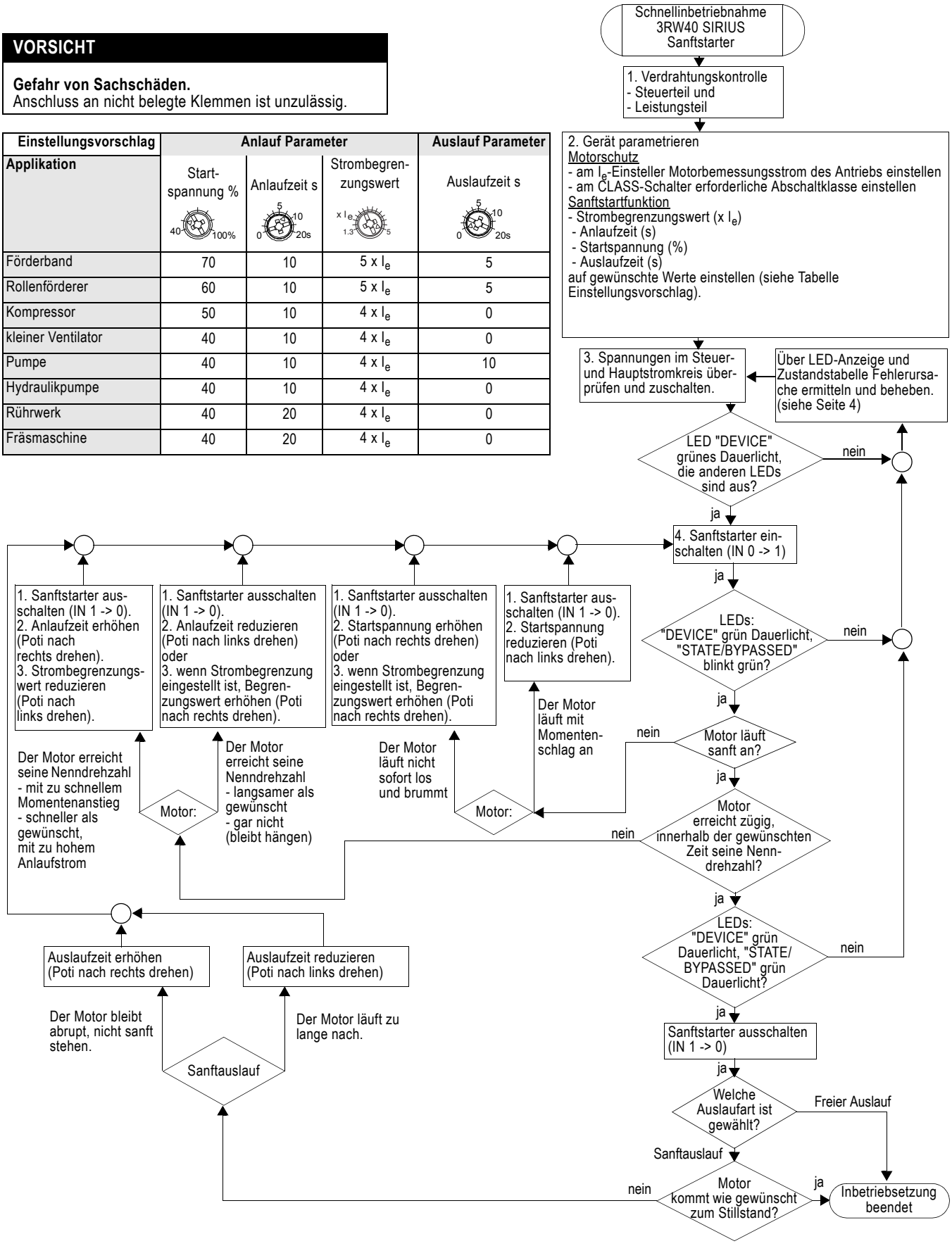
1. Programmierung starten: Die Taste "RESET MODE" (2) länger als 2 s drücken, bis die LED "DEVICE" (5) grün flimmert. Die Taste "RESET MODE" (2) gedrückt halten und zusätzlich die Taste "RESET/TEST" (1) länger als 1 s drücken, bis die LED "DEVICE" (5) am Gerät rot leuchtet.
2. Modus anzeigen: LED "STATE/BYPASSED" (6) blinkt grün: ON-Modus. LED "STATE/BYPASSED" (6) flimmert grün: RUN-Modus.
3. Modus wechseln: Taste "RESET MODE" (2) drücken.
4. Programmierung beenden und Einstellungen speichern: Taste "RESET/TEST" (1) länger als 1 s drücken, bis die LED "DEVICE" (5) grün leuchtet.

Schnellinbetriebnahmeanleitung

VORSICHT

Gefahr von Sachschäden.
Anschluss an nicht belegte Klemmen ist unzulässig.

Einstellungsvorschlag	Anlauf Parameter			Auslauf Parameter
Applikation	Start-spannung %	Anlaufzeit s	Strombegren-zungswert	Auslaufzeit s
Förderband	70	10	5 x I_e	5
Rollenförderer	60	10	5 x I_e	5
Kompressor	50	10	4 x I_e	0
kleiner Ventilator	40	10	4 x I_e	0
Pumpe	40	10	4 x I_e	10
Hydraulikpumpe	40	10	4 x I_e	0
Rührwerk	40	20	4 x I_e	0
Fräsmaschine	40	20	4 x I_e	0



Anzeigenübersicht

		LED-Anzeigen 3RW40					Hilfskontakte			
		Sanftstarter			Motorschutz					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_S = 0		●	●	●	●	●				
Betriebszustand	IN_1									
Aus	0	☼ gn	●	●	●	●				
Anlauf	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Auslauf	0	☼ gn	◑	●	●	●				
Warnung										
I_e/Class-Einstellung unzulässig		☼ gn	●	●	◑	●				
Start gesperrt, Thyristoren zu warm		◑ ylw	●	●	●	●				
Fehler										
Versorgungsspannung Elektronik unzulässig (U < 0,75 x Us) oder (U > 1,15 x Us)		●	●	☼	●	●				
unzulässige I_e/Class-Einstellung und IN (0 -> 1)		☼ gn	●	☼	◑	●				
Motorschutzabschaltung		☼ gn	●	●	☼	●				
Thermische Überlastung Thyristoren		☼ ylw	●	☼	●	●				
- fehlende Lastspannung - Phasenausfall, fehlende Last		☼ gn	●	☼	●	●				
Gerätefehler		☼ rd	●	☼	●	●				
Testfunktion										
1) TEST t < 2 s drücken		☼ gn	☼	☼	☼	●				
2) TEST 2 s < t < 5 s drücken; I_e > 0		◑ rd	◑/☼	●	●	●				
2) TEST 2 s < t < 5 s drücken; I_e = 0		⋈ rd	●	●	●	●				
3) TEST t > 5 s drücken		☼ gn	●	●	☼	●				
RESET MODE (Drücken zum Wechseln)										
Manual Reset		●	●	●	●	●				
Remote Reset		●	●	●	●	☼ gn				

Anzeige der LEDs				gn =	ylw =	rd =
●	☼	◑	⋈			
aus	ein	blinkend	flimmernd	grün	gelb	rot

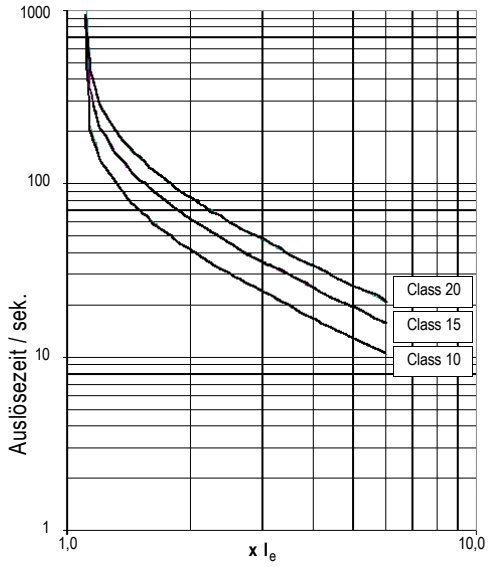
[1] LED-Test
[2] Test Stromerfassung
[3] Test Motorschutzabschaltung

⚠ WARNUNG

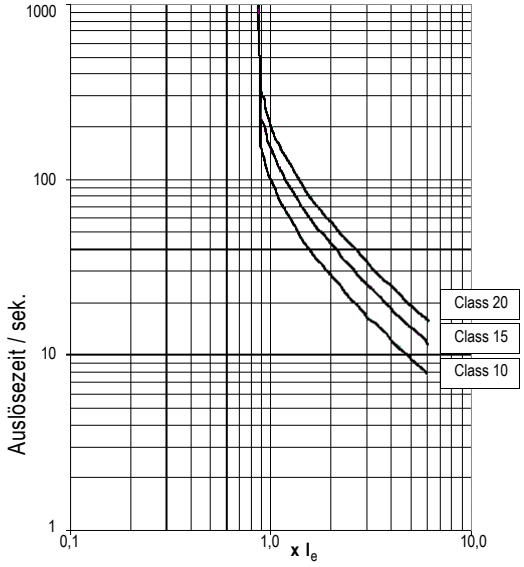
Automatischer Wiederanlauf.
Kann zu Tod, schwerer Körperverletzung oder Sachbeschädigung führen.
Der automatische Rücksetzmodus (RESET MODE) darf nicht in Anwendungen verwendet werden, in denen der unerwartete Neustart des Motors nach Ablauf der Wiederbereitschaftszeit zu Personen- oder Sachschäden führen kann.
Der Startbefehl (z. B. durch die SPS) muss vor einem Resetbefehl zurückgesetzt werden, da bei anstehendem Startbefehl nach dem Resetbefehl automatisch ein erneuter, selbsttätiger Wiederanlauf erfolgt. Dies gilt insbesondere bei Motorschutzauslösung. Aus Sicherheitsgründen wird empfohlen, den Sammelfehlerausgang (Klemmen 95 und 96) in die Steuerung einzubinden.

Auslösekennlinien

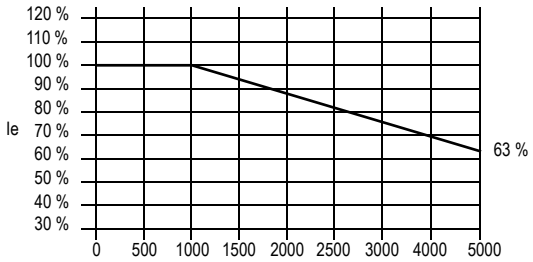
Auslösekennlinien bei Symmetrie



Auslösekennlinien bei Unsymmetrie



Zulässige Aufstellhöhe



Bei einer Aufstellhöhe über 2000 m ist die max. zulässige Betriebsspannung auf 460 V reduziert.

Read and understand these instructions before installing, operating, or maintaining the equipment.

⚠ DANGER

Hazardous voltage.
Will cause death or serious injury.
Turn off and lock out all power supplying this device before working on this device.

CAUTION

Reliable functioning of the equipment is only ensured with certified components.

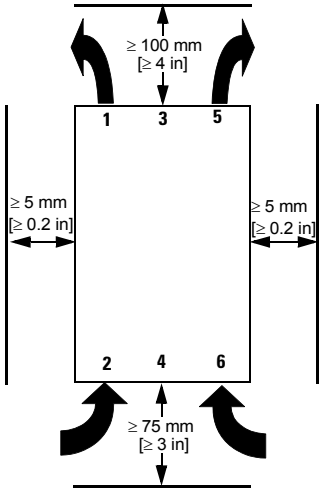
⚠ DANGER

Hazardous voltage.
Will cause death or serious injury.
The terminals of the motor control device must not be touched when it is connected to a voltage in order to prevent electrical shocks or burning. The output terminals of the motor control device are connected to a voltage even when it is in the OFF state.

NOTICE

The 3RW40 soft starter was designed as device with radio suppression level Class A. The use of this product in inhabited areas may lead to radio interference.

Stand-alone installation spacings (see soft starter manual for side-by-side installation)



NOTICE

Please adhere to the specified spacings when installing the device so that sufficient air can circulate for ventilation. The unit is ventilated from bottom to top.

CAUTION

Risk of damage to property.
Ensure that no liquids, dust or conductive parts enter the soft starter.

NOTE

Surrounding air temperature - A rating assigned to open type equipment that refers to the maximum ambient temperature of air immediately surrounding the equipment inside of the ultimate enclosure.

Setpoint values for motor current

Permitted setpoint values for the motor current, dependent on the CLASS setting at 40 °C surrounding air temperature

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programming the ON/RUN output 13/14 (factory setting: ON) (Fig. 3 in graphics section)

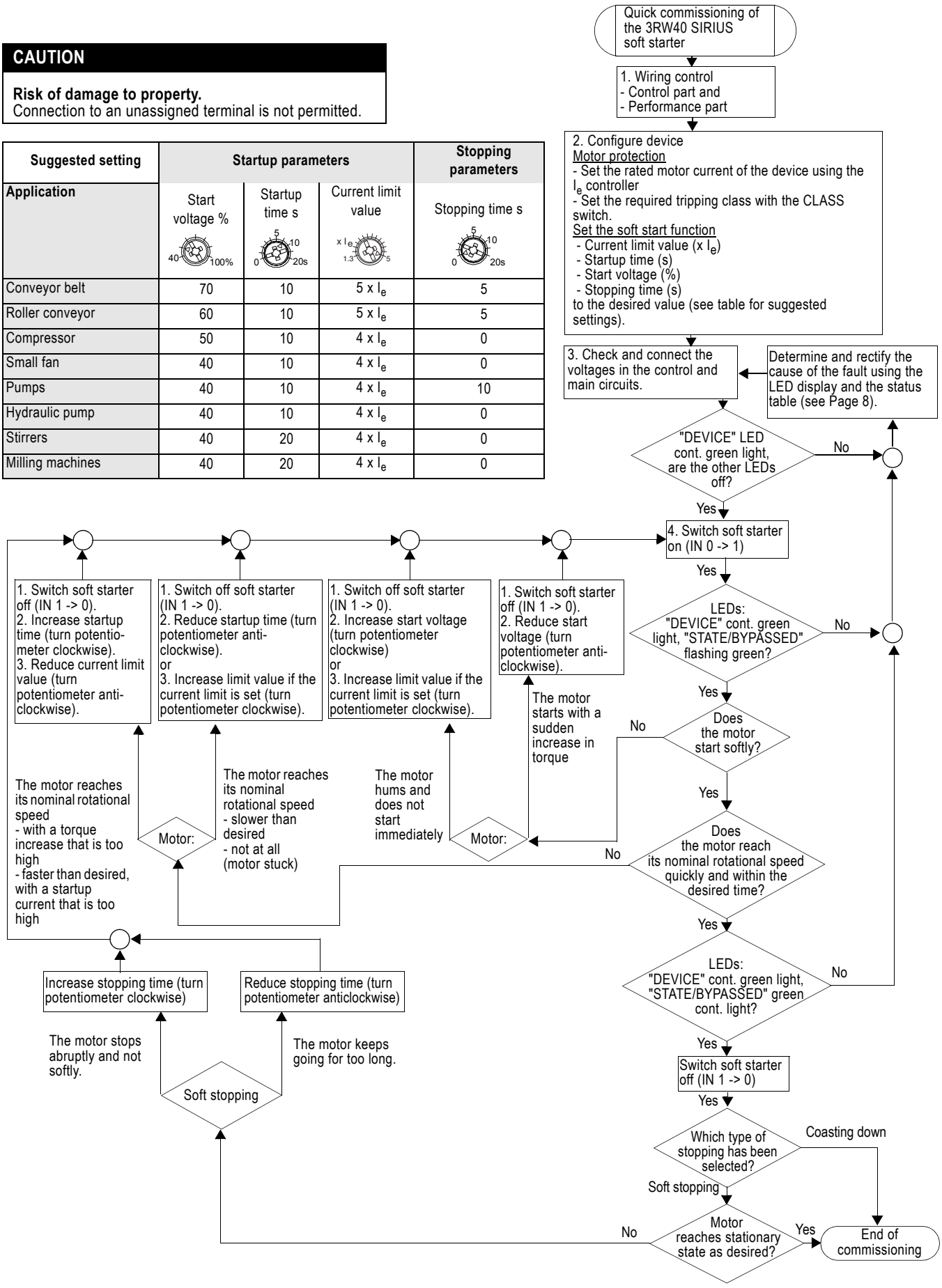
1. Start programming mode: Press and hold the "RESET MODE" button (2) for longer than 2 seconds until the LED "DEVICE" (5) flickers green. While pushing the "RESET MODE" button (2), press the "RESET/TEST" button (1) for longer than 1 second until the LED "DEVICE" (5) on the device lights up red.
2. Display mode: LED "STATE/BYPASSED" (6) flashes green: ON mode. LED "STATE/BYPASSED" (6) flickers green: RUN mode.
3. Change mode: Press the "RESET MODE" (2) button.
4. Exit programming mode and save settings: Press and hold the "RESET/TEST" button (1) for longer than 1 second until the LED "DEVICE" (5) lights up green.

Quick commissioning instructions

CAUTION

Risk of damage to property.
Connection to an unassigned terminal is not permitted.

Suggested setting	Startup parameters			Stopping parameters
Application	Start voltage %	Startup time s	Current limit value	Stopping time s
Conveyor belt	70	10	5 x I_e	5
Roller conveyor	60	10	5 x I_e	5
Compressor	50	10	4 x I_e	0
Small fan	40	10	4 x I_e	0
Pumps	40	10	4 x I_e	10
Hydraulic pump	40	10	4 x I_e	0
Stirrers	40	20	4 x I_e	0
Milling machines	40	20	4 x I_e	0



Display overview

		LED displays on 3RW40					Auxiliary contacts			
		Soft starter			Motor protection					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
Operating state	IN_1									
OFF	0	☼ gn	●	●	●	●				
Start-up	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Run-out	0	☼ gn	◑	●	●	●				
Warning										
I_e / class setting invalid		☼ gn	●	●	◑	●				
Start-up locked, thyristors too warm		◑ ylw	●	●	●	●				
Error										
Supply voltage electronics invalid (U < 0,75 x Us) or (U > 1,15 x Us)		●	●	☼	●	●				
Invalid I_e / class setting and IN (0 -> 1)		☼ gn	●	☼	◑	●				
Motor protection switch-off		☼ gn	●	●	☼	●				
Thermal overload thyristors		☼ ylw	●	☼	●	●				
- Missing load voltage - Phase failure, no load		☼ gn	●	☼	●	●				
Device fault		☼ rd	●	☼	●	●				
Test function										
1) Press TEST for t < 2 s		☼ gn	☼	☼	☼	●				
2) Press TEST for 2 s < t < 5 s; I_e > 0		◑ rd	◑/☼	●	●	●				
2) Press TEST for 2 s < t < 5 s; I_e = 0		⋈ rd	●	●	●	●				
3) Press TEST for t > 5 s		☼ gn	●	●	☼	●				
RESET MODE (press to change)										
Manual Reset		●	●	●	●	●				
Remote Reset		●	●	●	●	☼ gn				

LED display						
●	☼	◑	⋈	gn = green	ylw = yellow	rd = red
OFF	ON	flashing	flickering			

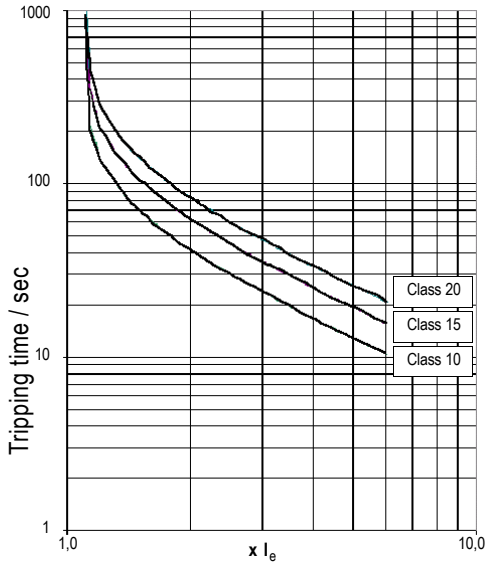
1) LED test
2) Current measuring test
3) Motor protection shutdown test

⚠ WARNING

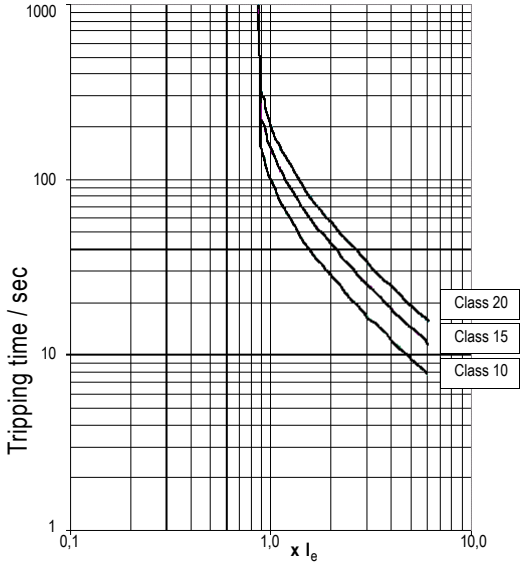
Automatic restart.
May result in death, serious injury or damage to property.
The automatic reset mode (RESET MODE) must not be used in applications where an unexpected restart of the motor after the recovery time has elapsed may lead to personal injury or damage to property.
The start command (e.g. by the PLC) must be reset before a reset command, since an automatic restart is executed when a start command is pending after the reset command. This especially applies to motor protection tripping. For safety reasons it is recommended to integrate the group fault output (terminals 95 and 96) into the control.

Tripping characteristics

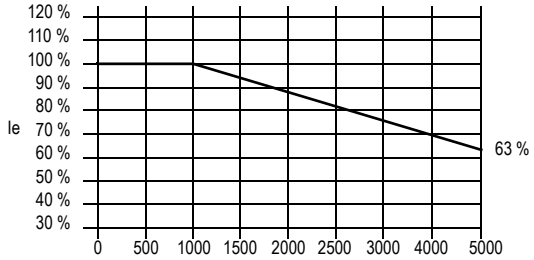
Tripping characteristics with symmetry



Tripping characteristics with asymmetry



Maximum permissible altitude



For altitudes above 2000 m the maximum permissible operating voltage is reduced to 460 V.

English

Ne pas installer, utiliser ou intervenir sur cet équipement avant d'avoir lu et assimilé les présentes instructions et notamment les conseils de sécurité et mises en garde qui y figurent.

⚠ DANGER

Tension dangereuse.
Danger de mort ou risque de blessures graves.
Mettre hors tension avant d'intervenir sur l'appareil.

PRUDENCE

Le fonctionnement sûr de l'appareil n'est garanti qu'avec des composants certifiés.

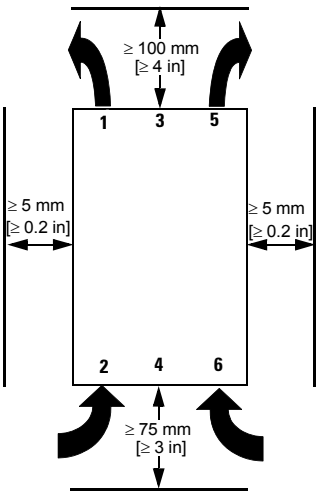
⚠ DANGER

Tension dangereuse.
Danger de mort ou risque de blessures graves.
Il est interdit de toucher les bornes du bloc de commande du moteur lorsque l'appareil est sous tension pour éviter les chocs électriques ou les brûlures. Une tension est présente aux bornes de sortie même à l'ARRET du bloc de commande du moteur.

IMPORTANT

Le démarreur progressif 3RW40 a été conçu pour le degré d'antiparasitage de classe A. L'utilisation de ce produit peut provoquer des perturbations dans un environnement domestique.

Distances de montage pour installation séparée (installation juxtaposée, voir le manuel Démarreurs progressifs)



IMPORTANT

Veuillez respecter au montage de l'appareil les distances indiquées pour assurer une circulation suffisante de l'air de refroidissement. L'appareil est ventilé du bas vers le haut.

PRUDENCE

Risque de dommages matériels.
Veillez à ce que ni liquide, ni poussière ou objet conducteur ne puisse pénétrer dans le démarreur progressif.

Valeurs de réglage du courant du moteur

Valeurs de réglage du courant du moteur admissible en fonction du CLASS à une température ambiante de 40° C

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programmation de la sortie ON/RUN 13/14 (réglage standard : ON) (partie graphique, figure 3)

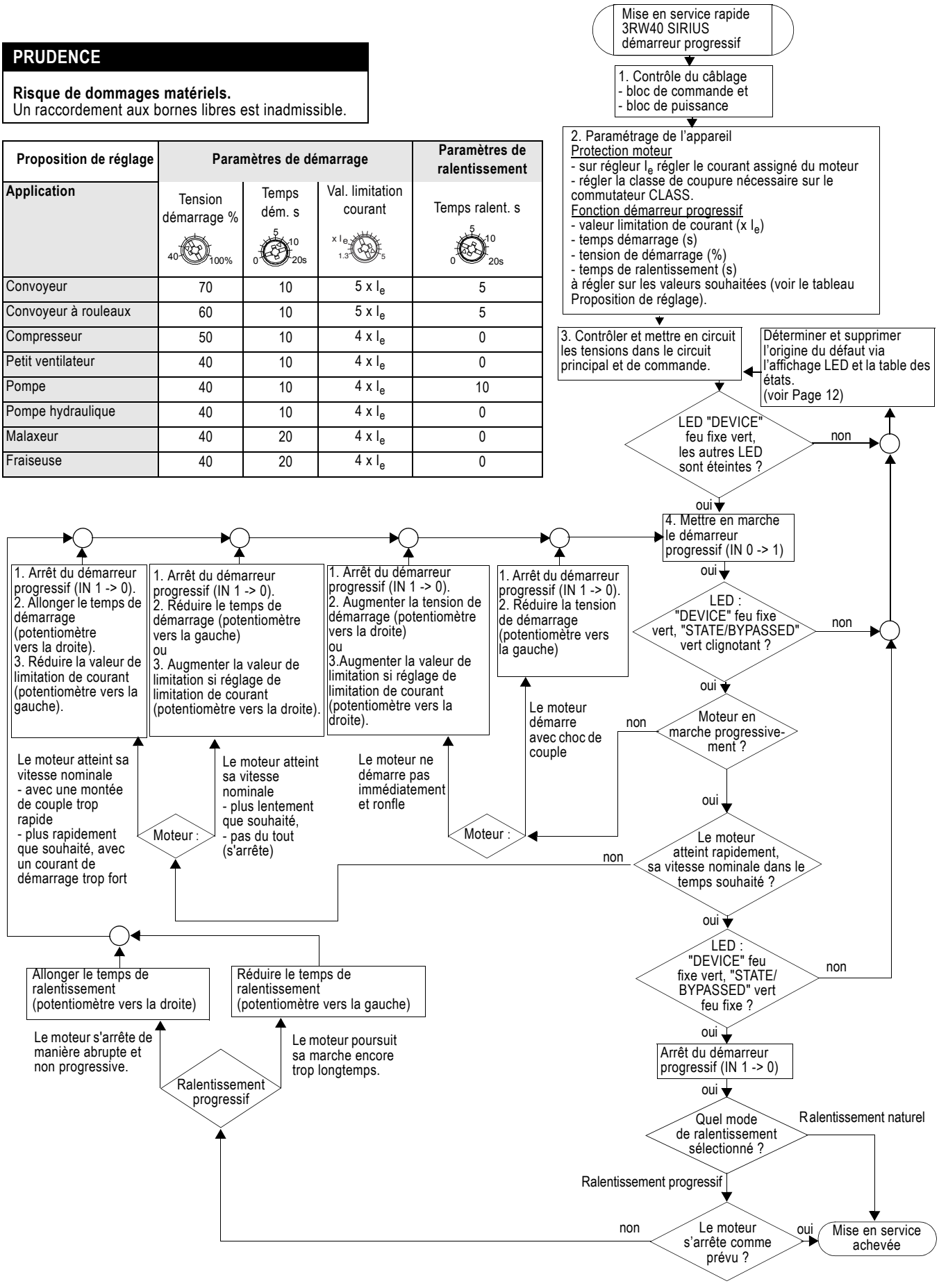
1. Lancement de la programmation : appuyez sur la touche "RESET MODE" (2) pendant plus de 2 secondes jusqu'à ce que la LED verte "DEVICE" (5) scintille. Maintenez la touche "RESET MODE" (2) appuyée et pressez la touche "RESET/TEST" (1) pendant plus d'1 s, jusqu'à ce que la LED rouge "DEVICE" (5) scintille sur l'appareil.
2. Affichage du mode : la LED verte "STATE/BYPASSED" (6) clignote : mode ON. La LED verte "STATE/BYPASSED" (6) scintille : mode RUN.
3. Changement de mode : appuyez sur la touche "RESET MODE" (2).
4. Fin de la programmation et enregistrement des réglages : appuyez sur la touche "RESET/TEST" (1) pendant plus d'1 seconde jusqu'à ce que la LED verte "DEVICE" (5) s'allume.

Instructions de mise en service rapide

PRUDENCE

Risque de dommages matériels.
Un raccordement aux bornes libres est inadmissible.

Proposition de réglage	Paramètres de démarrage			Paramètres de ralentissement
Application	Tension démarrage %	Temps dém. s	Val. limitation courant	Temps ralent. s
Convoyeur	70	10	5 x I_e	5
Convoyeur à rouleaux	60	10	5 x I_e	5
Compresseur	50	10	4 x I_e	0
Petit ventilateur	40	10	4 x I_e	0
Pompe	40	10	4 x I_e	10
Pompe hydraulique	40	10	4 x I_e	0
Malaxeur	40	20	4 x I_e	0
Fraiseuse	40	20	4 x I_e	0



Vue d'ensemble des affichages

		LED de signalisation 3RW40					Contacts auxiliaires			
		Démarreur progressif			Protection moteur					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_c = 0		●	●	●	●	●				
Etat de fonctionnement	IN_1									
Arrêté	0	☼ gn	●	●	●	●				
Démarrage	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Ralentissement	0	☼ gn	◑	●	●	●				
Alarme										
Réglage I_e/Class incorrect		☼ gn	●	●	◑	●				
Démarrage bloqué, thyristors trop chauds		◑ ylw	●	●	●	●				
Défauts										
Tension d'alimentation de l'électronique incorrecte ($U < 0{,}75 \times U_c$) ou ($U > 1{,}15 \times U_c$)		●	●	☼	●	●				
Réglage I_e/Class incorrect et IN (0 -> 1)		☼ gn	●	☼	◑	●				
Coupure du moteur par protection		☼ gn	●	●	☼	●				
Surcharge thermique des thyristors		☼ ylw	●	☼	●	●				
- manque de tension de charge - coupure de phase, charge non raccordée		☼ gn	●	☼	●	●				
Défaut sur l'appareil		☼ rd	●	☼	●	●				
Fonction de test										
1) Appuyer sur TEST t < 2 s		☼ gn	☼	☼	☼	●				
2) Appuyer sur TEST 2 s < t < 5 s; $I_e > 0$		◑ rd	◑/☼	●	●	●				
2) Appuyer sur TEST 2 s < t < 5 s; $I_e = 0$		⋈ rd	●	●	●	●				
3) Appuyer sur TEST t > 5 s		☼ gn	●	●	☼	●				
RESET MODE (appuyer pour changer)										
Reset manuel		●	●	●	●	●				
Reset à distance		●	●	●	●	☼ gn				

Affichage des LED						
●	☼	◑	⋈	gn = verte	ylw = jaune	rd = rouge
éteinte	allumée	clignotante	scintillante			

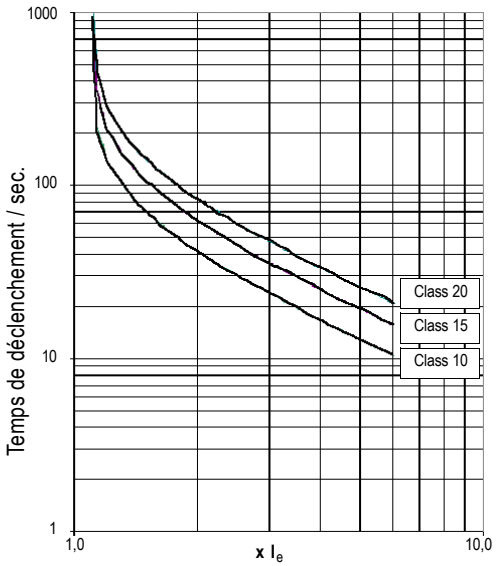
[1] Test LED
[2] Test Mesure de courant
[3] Test Coupure protection moteur

⚠ ATTENTION

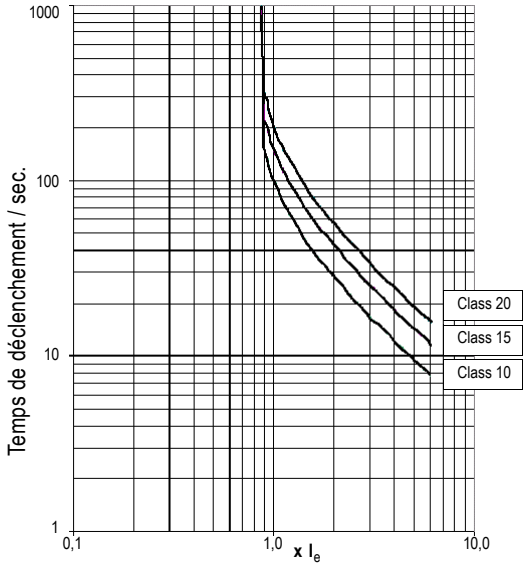
Redémarrage automatique.
Peut causer la mort, des lésions graves ou des dommages matériels.
Le réarmement automatique (RESET MODE) ne peut être utilisé dans des applications où le redémarrage inattendu du moteur après le temps du récupération peut provoquer des lésions ou des dommages matériels importants. L'ordre de marche (de l'API par ex.) doit être annulé avant de donner l'ordre de réarmement ; en effet, la présence de l'ordre de marche à la suite du réarmement donne lieu à un redémarrage automatique. Ceci vaut tout particulièrement pour le déclenchement de protection du moteur. Pour des raisons de sécurité, il est recommandé d'intégrer la sortie de signalisation de défauts groupés (bornes 95 et 96) à la commande.

Caractéristiques de déclenchement

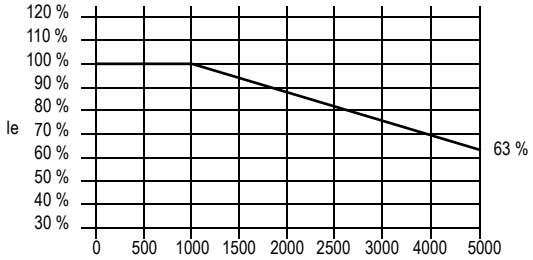
Caractéristique de déclenchement en régime d'équilibre



Caractéristique de déclenchement en régime de déséquilibre



Altitude d'implantation admise



Pour une altitude d'implantation supérieure à 2000 m, la tension de fonctionnement maximale admissible est réduite à 460 V.

Français

Leer y comprender este instructivo antes de la instalación, operación o mantenimiento del equipo.

⚠ PELIGRO

Tensión peligrosa.
Puede causar la muerte o lesiones graves.
Desconectar la alimentación eléctrica antes de trabajar en el equipo.

PRECAUCIÓN

El funcionamiento seguro del aparato sólo está garantizado con componentes certificados.

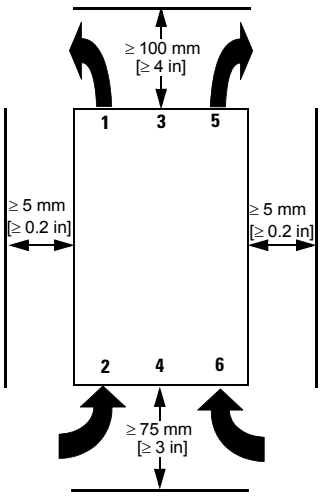
⚠ PELIGRO

Tensión peligrosa.
Puede causar la muerte o lesiones graves.
Para evitar todo riesgo de electrocución o de quemaduras, no tocar los bornes de la unidad de control del motor mientras estén bajo tensión. Los bornes de salida están bajo tensión aunque la unidad de control del motor esté desconectada.

ATENCIÓN

El arrancador suave 3RW40 ha sido concebido como un dispositivo con grado de desparasitaje clase A. La utilización de este producto en áreas residenciales podría causar perturbaciones radioeléctricas.

Distancias de montaje para instalación simple (para instalación junto a otros aparatos, ver manual arrancadores suaves)



ATENCIÓN

Al instalar el equipo, obsérvese las distancias mínimas indicadas para garantizar la circulación del aire necesario para la refrigeración. La ventilación del equipo se realiza desde abajo hacia arriba.

PRECAUCIÓN

¡Peligro de daños materiales!
Preste atención de que no pueda ingresar líquido, polvo o algún objeto conductor al interno del arrancador suave.

Valores de ajuste de la corriente del motor

Valores de ajuste admisibles de la corriente del motor en función del tipo CLASS a temperaturas ambiente de 40° C

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programación de la salida ON/RUN 13/14 (ajuste de fábrica: ON) (parte de gráficas, figura 3)

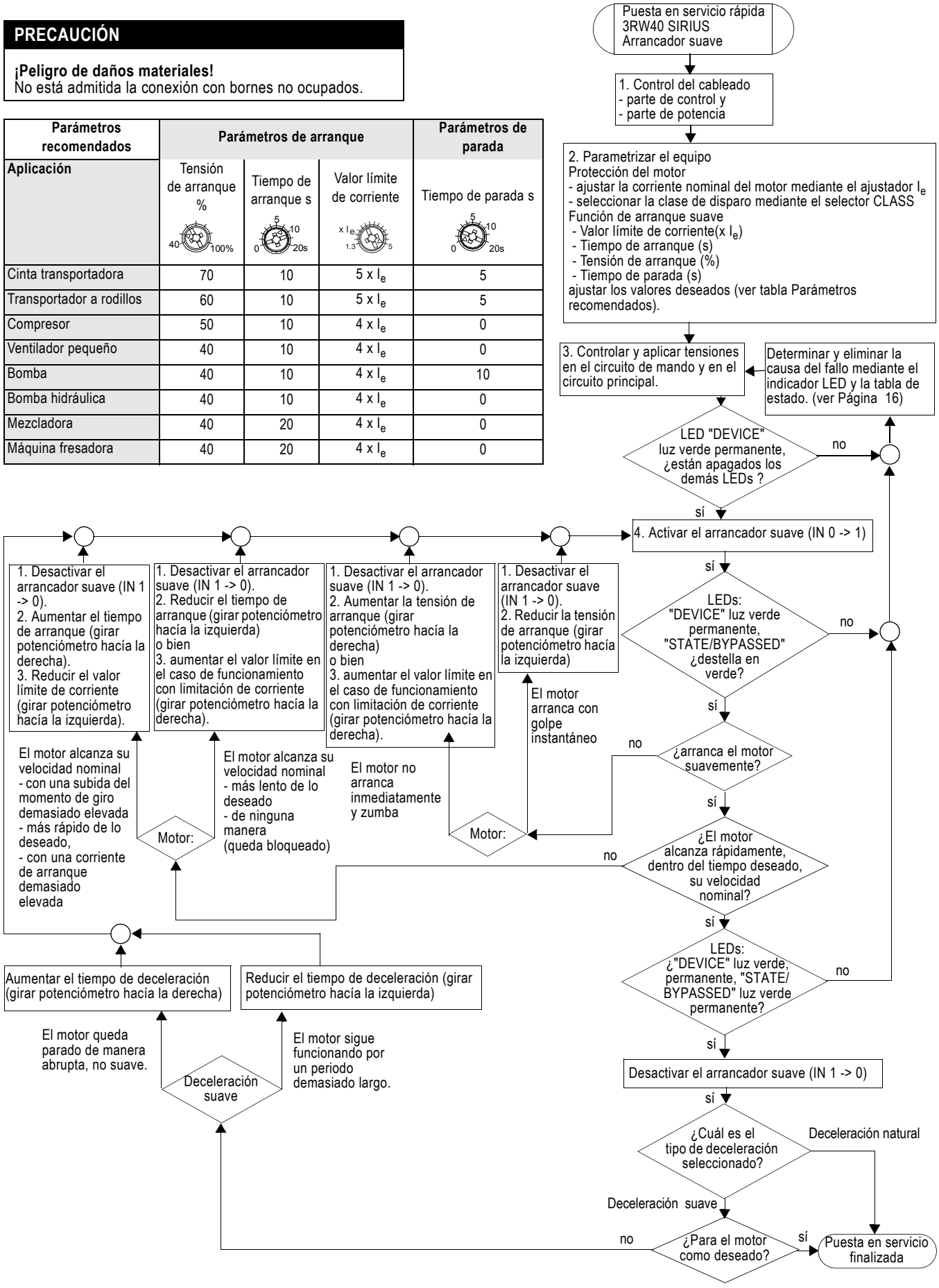
1. Iniciar programación: Mantenga pulsada la tecla " RESET MODE" (2) durante más de 2 s, hasta que el LED "DEVICE" (5) parpadee en verde. Mantenga pulsada la tecla "RESET MODE" (2), pulsando al mismo tiempo la tecla "RESET/TEST" (1) durante más de 1 s, hasta que el LED "DEVICE" (5) del equipo se ilumine rojo.
2. Indicar modo: el LED "STATE/BYPASSED" (6) destella verde: modo ON. El LED "STATE/BYPASSED" (6) parpadea en verde: modo RUN.
3. Cambiar modo: pulse la tecla "RESET MODE" (2).
4. Terminar programación y guardar ajustes: mantenga pulsada la tecla " RESET/TEST" (1) durante más de 1 s, hasta que el LED "DEVICE" (5) se ilumine verde.

Instrucciones para la puesta en servicio rápida

PRECAUCIÓN

¡Peligro de daños materiales!
No está admitida la conexión con bornes no ocupados.

Parámetros recomendados	Parámetros de arranque			Parámetros de parada
Aplicación	Tensión de arranque %	Tiempo de arranque s	Valor límite de corriente	Tiempo de parada s
Cinta transportadora	70	10	5 x I_e	5
Transportador a rodillos	60	10	5 x I_e	5
Compresor	50	10	4 x I_e	0
Ventilador pequeño	40	10	4 x I_e	0
Bomba	40	10	4 x I_e	10
Bomba hidráulica	40	10	4 x I_e	0
Mezcladora	40	20	4 x I_e	0
Máquina fresadora	40	20	4 x I_e	0



Español

Resumen de las indicaciones

		Indicadores LED 3RW40					Contactos auxiliares			
		Arrancador suave			Protección del motor					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
Estado operativo	IN_1									
Desconectado	0	☼ gn	●	●	●	●				
Arranque	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Deceleración	0	☼ gn	◑	●	●	●				
Alarma										
Ajuste I_e/Class inadmisible		☼ gn	●	●	◑	●				
Arranque bloqueado, sobrecalentamiento de tiristores		◑ ylw	●	●	●	●				
Fallo										
Tensión de alimentación de la electrónica inadmisible (U < 0,75 x Us) o (U > 1,15 x Us)		●	●	☼	●	●				
Ajuste I_e/Class inadmisible e IN (0 -> 1)		☼ gn	●	☼	◑	●				
Desconexión protección del motor		☼ gn	●	●	☼	●				
Sobrecarga térmica de tiristores		☼ ylw	●	☼	●	●				
- Falta tensión de carga - Corte de fase, falta carga		☼ gn	●	☼	●	●				
Fallo del equipo		☼ rd	●	☼	●	●				
Función de prueba										
1) Pulsar TEST t < 2 s		☼ gn	☼	☼	☼	●				
2) Pulsar TEST 2 s < t < 5 s; I_e > 0		◑ rd	◑/☼	●	●	●				
2) Pulsar TEST 2 s < t < 5 s; I_e = 0		⋈ rd	●	●	●	●				
3) Pulsar TEST t > 5 s		☼ gn	●	●	☼	●				
RESET MODE (pulsar para cambiar)										
Reset manual		●	●	●	●	●				
Reset automático		●	●	●	●	☼ gn				

Indicación de los LEDs				gn =	ylw =	rd =
●	☼	◑	⋈			
Apagado	Encendido	Intermitente	Centelleante	verde	amarillo	rojo

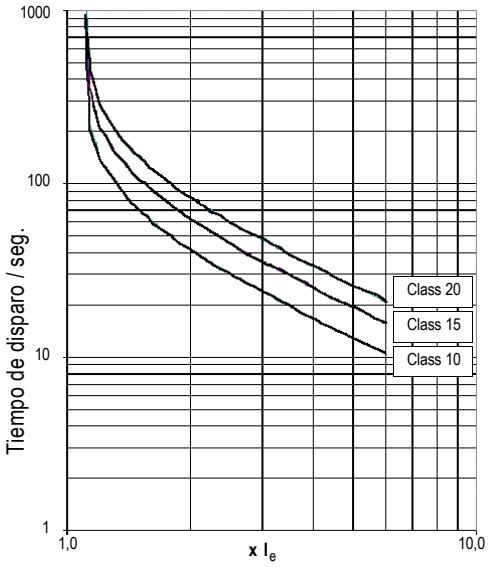
[1] Test LED
[2] Test medida de intensidad
[3] Test desconexión protección motor

⚠ ADVERTENCIA

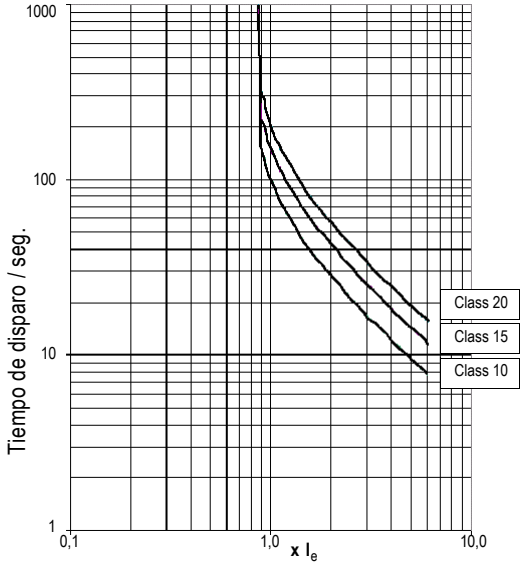
Rearranque automático.
Puede causar la muerte, lesiones graves o daños materiales.
No está permitido utilizar el modo automático de Reset (RESET MODE) en aplicaciones en las cuales el rearranque imprevisto después del tiempo de recuperación pueda provocar lesiones físicas o daños materiales. La orden de marcha (p. ej. por medio de la PLC) deberá anularse antes de una orden de rearme; en efecto, la presencia de la orden de marcha después de la orden de rearme provoca un rearranque automático. Esto es especialmente válido para el disparo de protección del motor. Por razones de seguridad se recomienda integrar la salida de señalización de fallo agrupado (bornes 95 y 96) en la unidad de control.

Características de disparo

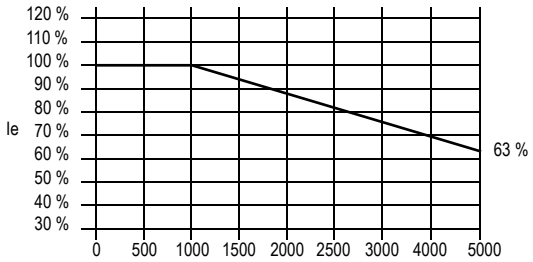
Características de disparo con simetría



Características de disparo con asimetría



Altitud de instalación permitida



En caso de altitud de instalación superior a 2000 m deberá reducirse a 460 V la tensión de empleo máx. permitida.

Español

Leggere con attenzione queste istruzioni prima di installare, utilizzare o eseguire manutenzione su questa apparecchiatura.

⚠ PERICOLO

Tensione pericolosa.
Può provocare morte o lesioni gravi.
Scollegare l'alimentazione prima di eseguire interventi sull'apparecchiatura.

CAUTELA

Il funzionamento sicuro dell'apparecchiatura è garantito soltanto con componenti certificati.

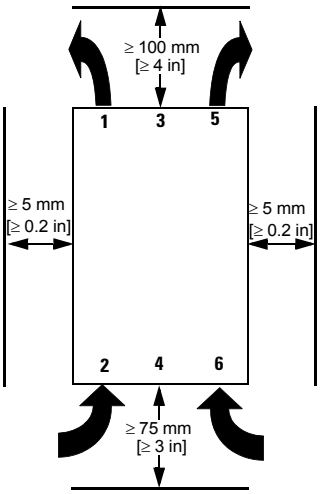
⚠ PERICOLO

Tensione pericolosa.
Può provocare morte o lesioni gravi.
Per evitare folgorazioni o ustioni, i morsetti dell'avviatore non devono essere toccati quando l'apparecchiatura è sotto tensione.
I morsetti di uscita sono sotto tensione anche quando l'avviatore è disinserito.

ATTENZIONE

L'avviatore dolce 3RW40 è stato costruito come apparecchio con grado di soppressione radiodisturbi A. L'utilizzo di questo prodotto in ambienti abitativi potrebbe portare a disturbi radio.

Distanze di montaggio nell'installazione singola (per l'installazione compatta vedi manuale avviatore dolce)



ATTENZIONE

Durante il montaggio osservare le distanze indicate per consentire una circolazione sufficiente di aria di raffreddamento. L'apparecchio viene ventilato dal basso verso l'alto.

CAUTELA

Pericolo di danni alle cose.
Evitare che liquidi, polvere o altri conduttori finiscano nell'avviatore dolce.

Valori di impostazione della corrente motore

Valori di impostazione della corrente motore a seconda del tipo di CLASS a 40° C temperatura ambiente

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programmazione dell'uscita ON/RUN 13/14 (impostazione di fabbrica: ON) (grafiche, figura 3)

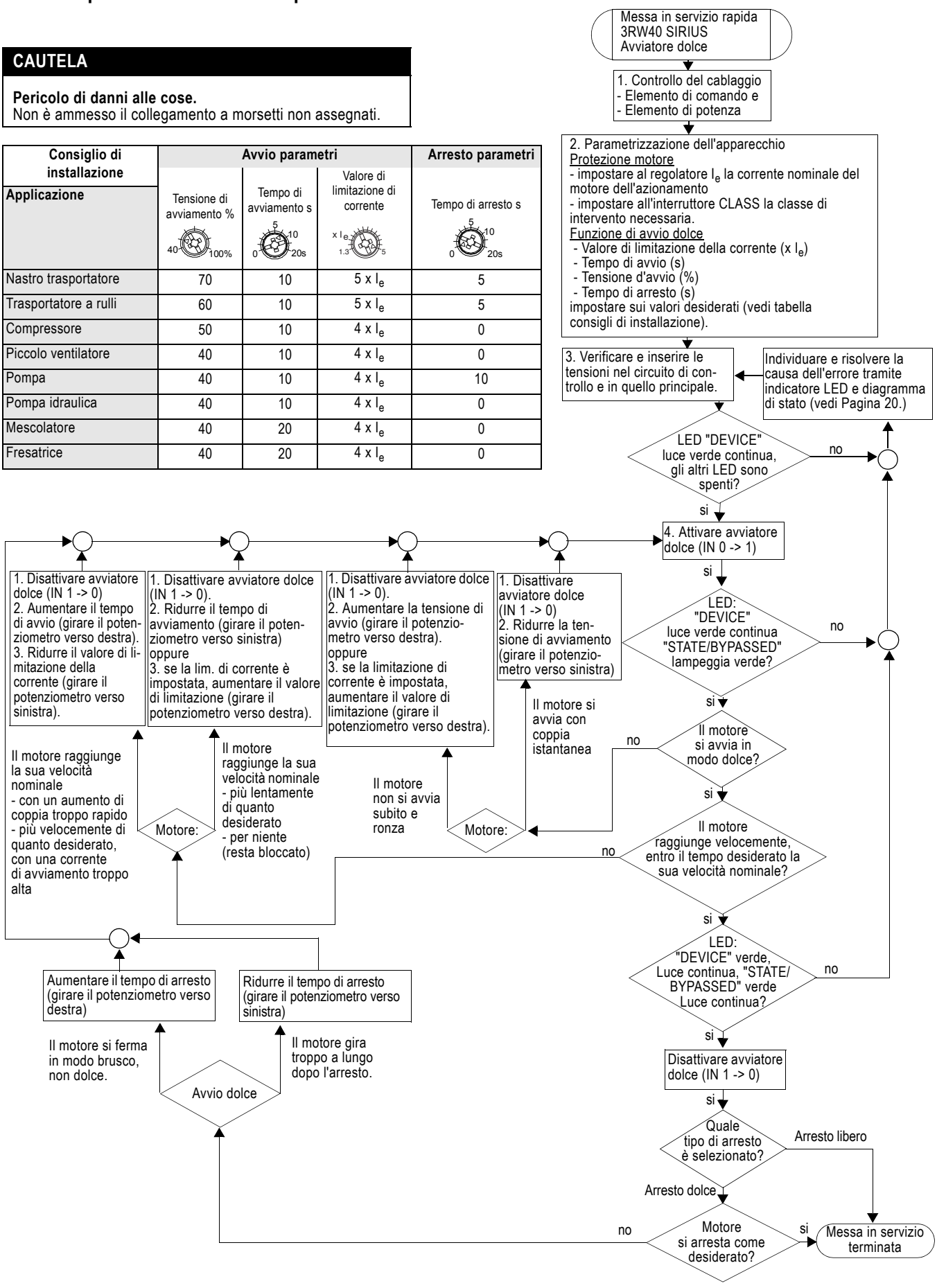
1. Avvio della programmazione: Tenere premuto il tasto "RESET MODE" (2) per più di 2 secondi. Il LED "DEVICE" (5) verde sfarfalla. Tenere premuto il tasto "RESET MODE" (2) e premere allo stesso tempo il tasto "RESET/TEST" (1) per più di 1 secondo. Il LED "DEVICE" (5) rosso dell'apparecchio si illumina.
2. Indicazione del modo: il LED "STATE/BYPASSED" (6) lampeggia verde: modo ON. Il LED "STATE/BYPASSED" (6) sfarfalla verde: modo RUN.
3. Cambio del modo: premere il tasto "RESET MODE" (2).
4. Fine della programmazione e salvataggio delle impostazioni: tenere premuto il tasto "RESET/TEST" (1) per più di 1 secondo. Il LED "DEVICE" (5) verde illumina.

Istruzioni per messa in servizio rapida

CAUTELA

Pericolo di danni alle cose.
Non è ammesso il collegamento a morsetti non assegnati.

Consiglio di installazione	Avvio parametri			Arresto parametri
Applicazione	Tensione di avviamento %	Tempo di avviamento s	Valore di limitazione di corrente	Tempo di arresto s
Nastro trasportatore	70	10	5 x I_e	5
Trasportatore a rulli	60	10	5 x I_e	5
Compressore	50	10	4 x I_e	0
Piccolo ventilatore	40	10	4 x I_e	0
Pompa	40	10	4 x I_e	10
Pompa idraulica	40	10	4 x I_e	0
Mescolatore	40	20	4 x I_e	0
Fresatrice	40	20	4 x I_e	0



Italiano

Elenco delle visualizzazioni

		LED di segnalazione 3RW40					Contatti ausiliari			
		Avviatore dolce			Protezione motore					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
Stato operativo	IN_1									
OFF	0	☼ gn	●	●	●	●				
Avviamento	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Decelerazione	0	☼ gn	◑	●	●	●				
Allarme										
Impostazione I_e/Class non ammessa		☼ gn	●	●	◑	●				
Avvio bloccato, tiristori troppo caldi		◑ ylw	●	●	●	●				
Errore										
Tensione di alimentazione dell'elettronica non ammessa (U < 0,75 x Us) o (U > 1,15 x Us)		●	●	☼	●	●				
Impostazione I_e/Class non ammessa e IN (0 -> 1)		☼ gn	●	☼	◑	●				
Disinserzione protezione motore		☼ gn	●	●	☼	●				
Sovraccarico termico tiristori		☼ ylw	●	☼	●	●				
- Tensione di carico assente - Caduta di fase, carico mancante		☼ gn	●	☼	●	●				
Guasto dell'apparecchio		☼ rd	●	☼	●	●				
Funzione test										
1) Premere TEST t < 2 s		☼ gn	☼	☼	☼	●				
2) Premere TEST 2 s < t < 5 s; I_e > 0		◑ rd	◑/☼	●	●	●				
2) Premere TEST 2 s < t < 5 s; I_e = 0		⋈ rd	●	●	●	●				
3) Premere TEST t > 5 s		☼ gn	●	●	☼	●				
RESET MODE (premere per cambiare)										
Reset manuale		●	●	●	●	●				
Reset remoto		●	●	●	●	☼ gn				

Indicazione dei LED						
●	☼	◑	⋈	gn =	ylw =	rd =
OFF	ON	lampeggiante	sfarfallante	verde	giallo	rosso

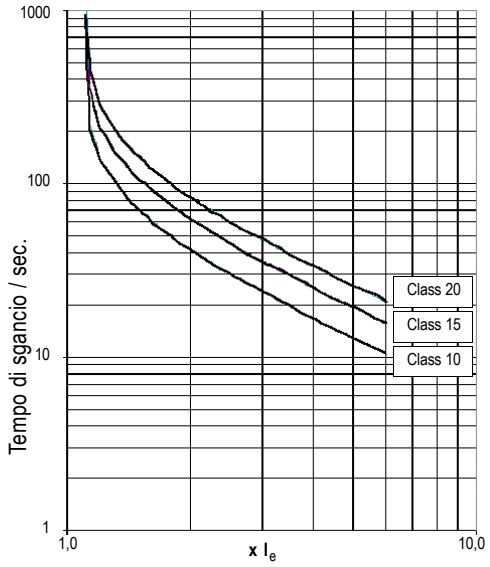
[1] Test dei LED
[2] Test del rilevamento di corrente
[3] Test della disinserzione di protezione motore

⚠ AVVERTENZA

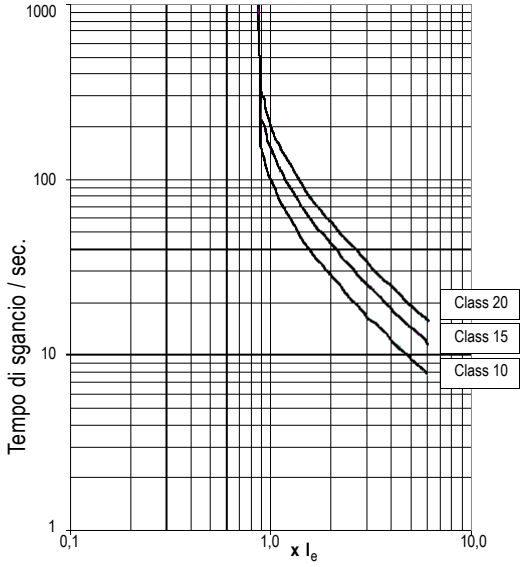
Riavvio automatico.
Può causare morte, gravi danni alle persone o danni alle cose.
Il modo di reset automatico (RESET MODE) non deve essere utilizzato in applicazioni nelle quali il riavvio inaspettato del motore dopo la scadenza del tempo di riattivazione può causare danni alle persone o alle cose.
Il comando di avvio (ad es. tramite il PLC) deve essere ripristinato prima di un comando di reset, dato che, in caso di comando d'avviamento imminente, dopo il comando di reset si verifica un ulteriore riavvio automatico. Ciò vale in particolar modo per lo sgancio di protezione motore. Per motivi di sicurezza si consiglia di includere l'uscita errore complessivo (morsetti 95 e 96) nel controllore.

Caratteristica di sgancio

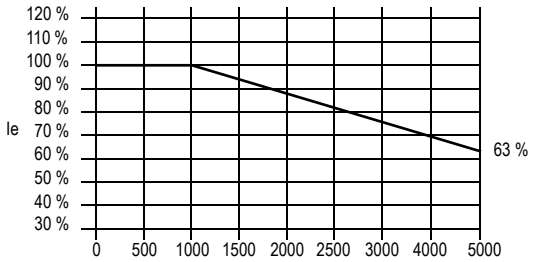
Caratteristica di sgancio in caso di simmetria



Caratteristica di sgancio in caso di asimmetria



Altitudine massima di installazione



In caso di altitudine di installazione superiore ai 2000 m, la tensione di esercizio max. ammessa si riduce a 460 V.

Italiano

Ler e compreender estas instruções antes da instalação, operação ou manutenção do equipamento.

⚠ PERIGO

Tensão perigosa.
Perigo de morte ou ferimentos graves.
Desligue a corrente antes de trabalhar no equipamento.

CUIDADO

O funcionamento seguro do aparelho apenas pode ser garantido se forem utilizados componentes certificados.

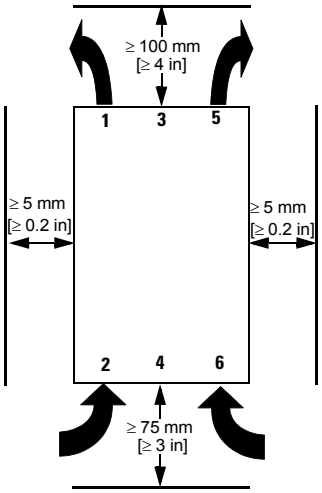
⚠ PERIGO

Tensão perigosa. Perigo de morte ou ferimentos graves.
Para evitar choque elétrico ou queimaduras, não podem ser tocados os bornes do aparelho de comando do motor quando este estiver sob tensão. Os bornes de saída também estão sob tensão quando o aparelho de comando do motor estiver desligado.

ATENÇÃO

A chave de partida suave 3RW40 foi construída como equipamento com supressão de interferências da classe A. O uso deste produto em áreas residenciais pode causar interferências.

Distâncias na montagem individual (montagem junto a outros aparelhos, veja o manual do softstarter)



ATENÇÃO

Considere as distâncias indicadas na montagem do aparelho para que possa circular suficiente ar para a refrigeração. O aparelho é ventilado de baixo para cima.

CUIDADO

Risco de danos materiais.
Tomar o devido cuidado para que não penetre nenhum líquido, pó ou objeto condutivo na chave de partida suave.

Valores de ajuste da corrente do motor

Valores de ajuste da corrente do motor permitidos dependendo do ajuste da CLASS em temperatura ambiente de 40°C

	I_e [A]	$I_{mín}$ [A]	$I_{máx}$ [A] CLASS 10	$I_{máx}$ [A] CLASS 15	$I_{máx}$ [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

Programação da saída 13/14 ON/RUN (Ajuste feito na fábrica: ON) (parte do gráfico, figura 3)

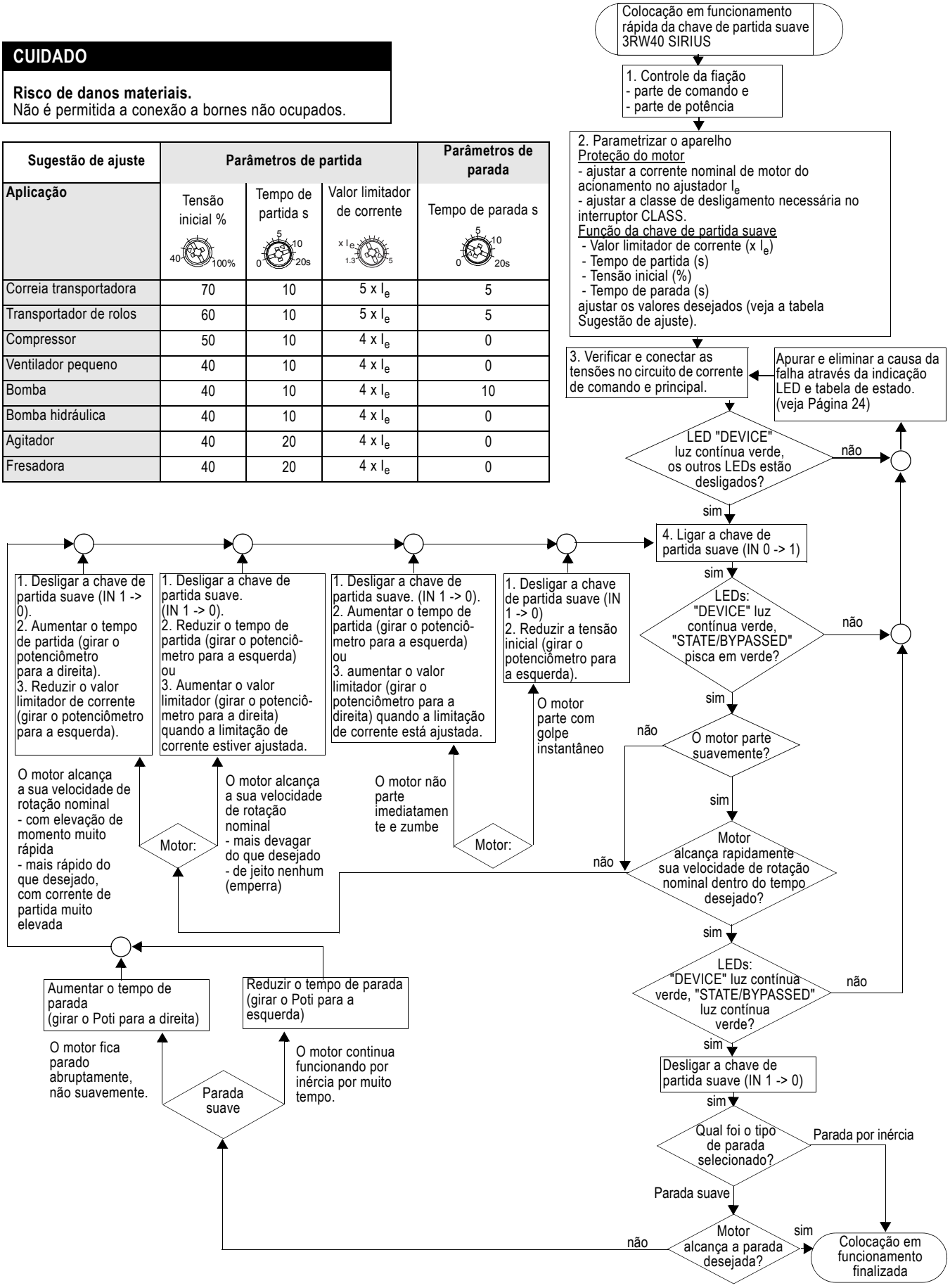
1. Iniciar a programação: Pressionar a tecla "RESET MODE" (2) por mais de 2 s, até que o LED "DEVICE" (5) cintile em verde. Manter a tecla "RESET MODE" (2) pressionada e, simultaneamente, pressionar a tecla "RESET/TEST" (1) por mais de 1 s, até que o LED "DEVICE" (5) acenda em vermelho no equipamento.
2. Exibir o modo: o LED "STATE/BYPASSED" (6) pisca em verde: modo ON. LED "STATE/BYPASSED" (6) cintila em verde: modo RUN.
3. Mudar o modo: pressionar a tecla "RESET MODE" (2).
4. Finalizar a programação e salvar os ajustes: pressionar a tecla "RESET/TEST" (1) por mais de 1 s, até que o LED "DEVICE" (5) acenda em verde.

Instrução para a colocação em serviço rápida

CUIDADO

Risco de danos materiais.
Não é permitida a conexão a bornes não ocupados.

Sugestão de ajuste	Parâmetros de partida			Parâmetros de parada
Aplicação	Tensão inicial %	Tempo de partida s	Valor limitador de corrente	Tempo de parada s
Correia transportadora	70	10	5 x I_e	5
Transportador de rolos	60	10	5 x I_e	5
Compressor	50	10	4 x I_e	0
Ventilador pequeno	40	10	4 x I_e	0
Bomba	40	10	4 x I_e	10
Bomba hidráulica	40	10	4 x I_e	0
Agitador	40	20	4 x I_e	0
Fresadora	40	20	4 x I_e	0



Português

Sinóptico de indicações

		Indicadores LED 3RW40					Contatos auxiliares			
		Chave de partida suave			Proteção do motor					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
Estado operacional	IN_1									
Desligado	0	☼ gn	●	●	●	●				
Partida	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Parada por inércia	0	☼ gn	◑	●	●	●				
Advertência										
Ajuste I_e/class não permissível		☼ gn	●	●	◑	●				
Partida bloqueada, tiristores muito quentes		◑ ylw	●	●	●	●				
Falha										
Tensão de alimentação do sistema eletrônico não permissível (U < 0,75 x Us) ou (U > 1,15 x Us)		●	●	☼	●	●				
Ajuste I_e/Class não permissível e IN (0 -> 1)		☼ gn	●	☼	◑	●				
Desativação de proteção do motor		☼ gn	●	●	☼	●				
Sobrecarga térmica dos tiristores		☼ ylw	●	☼	●	●				
- Falta tensão de carga - Falha de fase, falta de carga		☼ gn	●	☼	●	●				
Falha do equipamento		☼ rd	●	☼	●	●				
Função de teste										
1) TESTE presionar t<2 s		☼ gn	☼	☼	☼	●				
2) TESTE presionar 2 s < t < 5 s; I_e > 0		◑ rd	◑/☼	●	●	●				
2) TESTE presionar 2 s < t < 5 s; I_e = 0		⋈ rd	●	●	●	●				
3) TESTE presionar t > 5 s		☼ gn	●	●	☼	●				
RESET MODE (pressionar para mudar)										
Reset manual		●	●	●	●	●				
Reset remoto		●	●	●	●	☼ gn				

Indicação dos LEDs						
●	☼	◑	⋈	gn = verde	ylw = amarelo	rd = vermelho
Desligado	Ligado	Piscando	Cintilante			

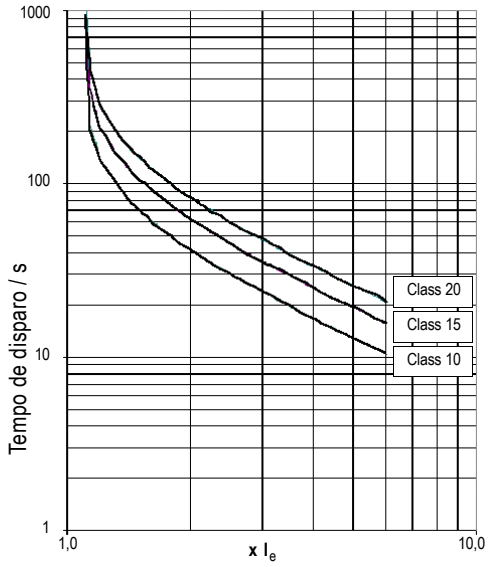
[1]) Teste de LEDs
[2]) Teste de detecção de corrente
[3]) Teste da desligamento da proteção do motor

⚠ AVISO

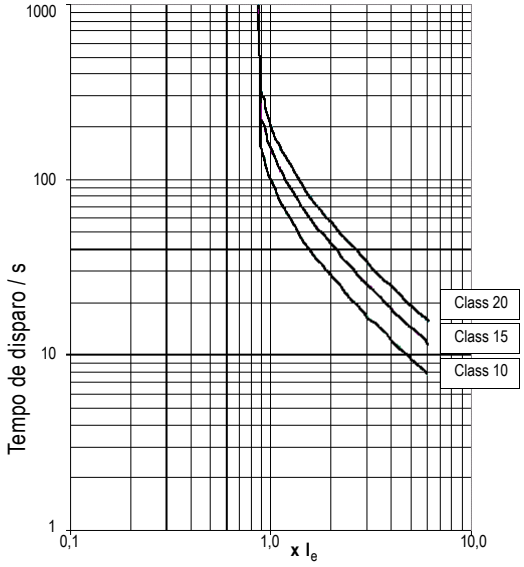
Reativação automática.
Pode provocar morte, graves lesões corporais ou graves danos materiais.
O modo de reset automático não deve ser usado em aplicações, nas quais uma reativação inesperada do motor possa causar ferimentos e danos materiais.
O comando de partida (p. ex. PLC) deve ser reposicionado antes de um comando de reset, uma vez que com um comando de partida em andamento, após o comando de reset, ocorre automaticamente uma nova reativação. Isto vale em especial no disparo da proteção do motor. Por motivos de segurança recomenda-se incluir a saída de falha coletiva (bornes 95 e 96) no comando.

Curva característica de disparo

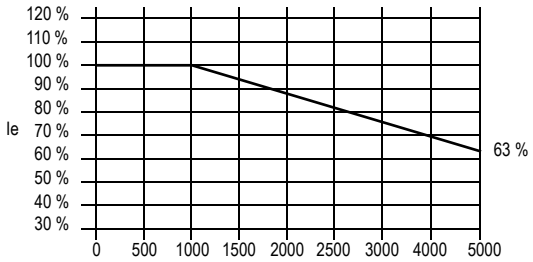
Curva característica de disparo em simetria



Curva característica de disparo em assimetria



Altitude de instalação permitida



A uma altitude de instalação acima de 2000 m a tensão de operação máxima permitida está reduzida a 460 V.

Português

Cihazın kurulumundan, çalıştırılmasından veya bakıma tabi tutulmasından önce, bu kılavuz okunmuş ve anlanmış olmalıdır.

⚠ TEHLİKE

Tehlikeli gerilim.
Ölüm tehlikesi veya ağır yaralanma tehlikesi.
Çalışmalara başlamadan önce, sistemin ve cihazın gerilim beslemesini kapatınız.

ÖNEMLİ DİKKAT

Cihazın güvenli çalışması ancak sertifikalı bileşenler kullanılması halinde garanti edilebilir.

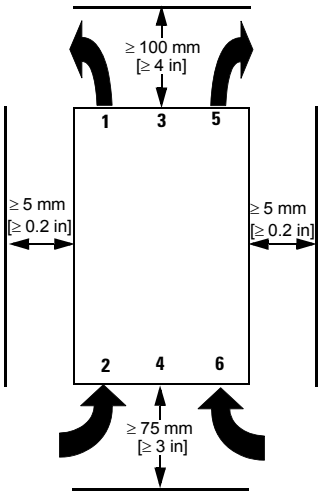
⚠ TEHLİKE

Tehlikeli gerilim.
Ölüm tehlikesi veya ağır yaralanma tehlikesi.
Cihaz gerilim beslemesi altında iken, elektrik çarpmasından veya yanıklardan sakınmak için, motor kontrol cihazının kıskaçlarıyla temas edilmemelidir. Motor kontrol cihazı KAPALI halde iken de çıkış kıskaçlarında gerilim mevcuttur.

DİKKAT

Yumuşak yol verici 3RW40, parazit bastırma derecesi A sınıfı cihaz olarak yapılmıştır. Bu ürünün oturulan mekanlarda kullanımı parazitlere yol açabilir.

Tek tek kurulumda montaj mesafeleri (Sıkı kurulum bkz. Yumuşak yol verici kullanım kılavuzu)



DİKKAT

Soğutma için yeterli derecede hava sirkulasyonun sağlanması amacıyla cihazı monte ederken belirtilen mesafelere riayet ediniz. Cihaz, aşağıdan yukarıya doğru havalandırılmaktadır.

ÖNEMLİ DİKKAT

Maddi hasar tehlikesi.
Yumuşak yol vericiye sıvı, toz veya herhangi bir cisim kaçmamasına dikkat ediniz.

Motor akımı ayar değerleri

CLASS ayarına bağlı olarak izin verilen motor akımı ayar değerleri 40° C ortam ısısında

	I_e [A]	I_{asg} [A]	I_{azm} [A] CLASS 10	I_{azm} [A] CLASS 15	I_{azm} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

13/14 ON/RUN çıkışının programlanması (Fabrika ayarı: ON) (Grafik bölümü, Resim 3)

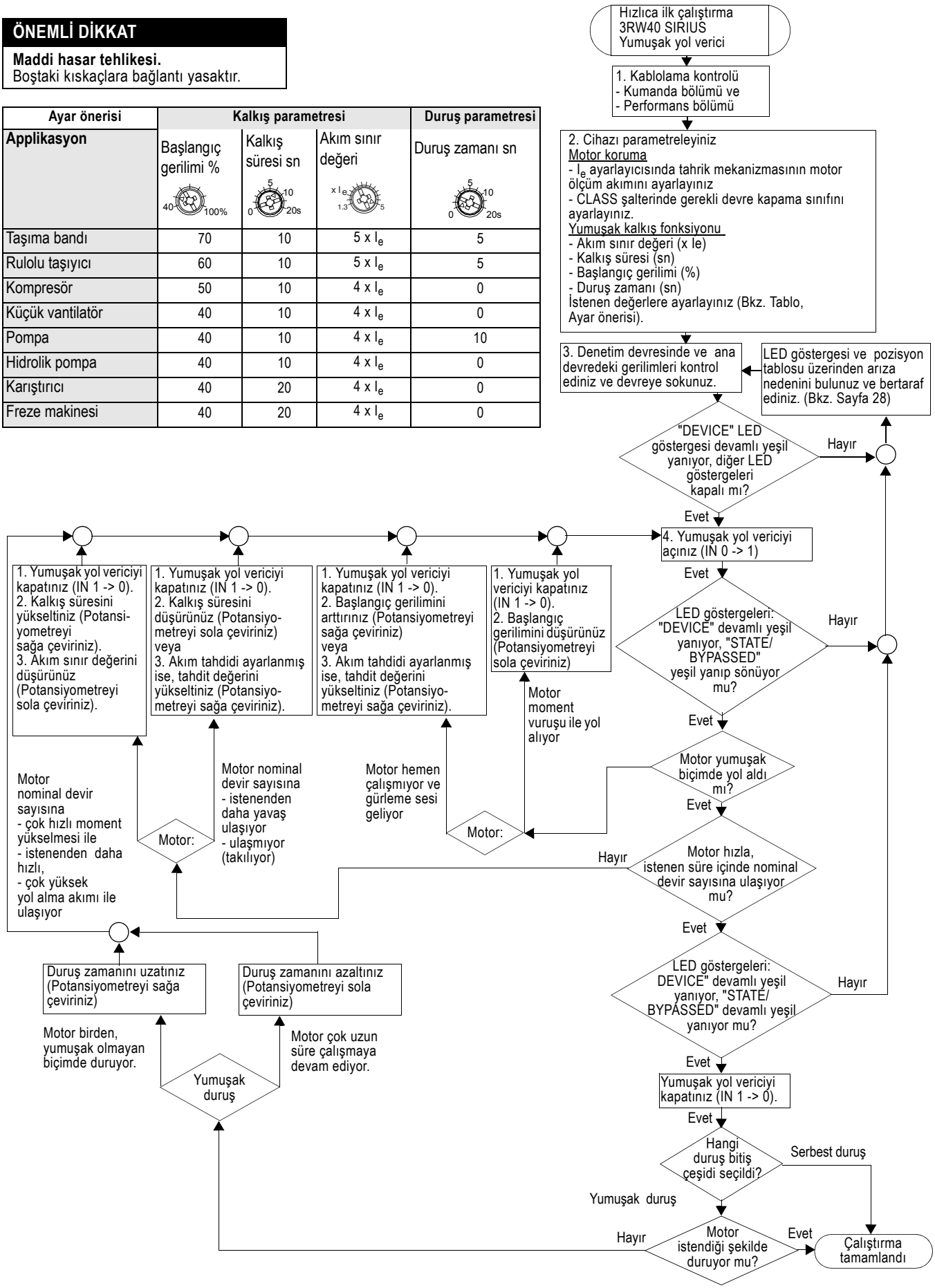
1. Programlamayı başlatınız: "RESET MODE" (2) tuşuna LED "DEVICE" (5) yeşil renkte titrek yanana kadar 2 saniyeden uzun süre basınız. "RESET MODE" (2) tuşunu basılı tutunuz ve aynı zamanda cihazdaki LED "DEVICE" (5) kırmızı yanana kadar "RESET/TEST" (1) tuşuna 1 saniyeden daha uzun süreyle basınız.
2. Modun gösterilmesi: LED "STATE/BYPASSED" (6) yeşil yanıp söner: ON Modu. LED "STATE/BYPASSED" (6) yeşil renkte titrek yanar: RUN Modu.
3. Modun değiştirilmesi: "RESET MODE" (2) tuşuna basınız.
4. Programlamanın bitirilmesi ve ayarların hafızaya alınması: "RESET/TEST" (1) tuşuna LED "DEVICE" (5) yeşil yanana kadar 1 saniyeden uzun süre basınız.

Hızlıca ilk çalıştırma talimatı

ÖNEMLİ DİKKAT

Maddi hasar tehlikesi.
Boştaki kıskaçlara bağlantı yasaktır.

Ayar önerisi	Kalkış parametresi			Duruş parametresi
Applikasyon	Başlangıç gerilimi %	Kalkış süresi sn	Akım sınır değeri	Duruş zamanı sn
	40 100%	0 5 10 20s	x I_e 1.3 5	0 5 10 20s
Taşıma bandı	70	10	5 x I_e	5
Rulolu taşıyıcı	60	10	5 x I_e	5
Kompresör	50	10	4 x I_e	0
Küçük vantilatör	40	10	4 x I_e	0
Pompa	40	10	4 x I_e	10
Hidrolik pompa	40	10	4 x I_e	0
Karıştırıcı	40	20	4 x I_e	0
Freze makinesi	40	20	4 x I_e	0



Gösterge tablosu

		LED göstergeleri 3RW40					Yardımcı kontaklar			
		Yumuşak yol verici			Motor koruma					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
İşletme durumu	IN_1									
Kapalı	0	☼ gn	●	●	●	●				
Yol verme	1	☼ gn	◑	●	●	●				
Bypassed	1	☼ gn	☼	●	●	●				
Durma	0	☼ gn	◑	●	●	●				
Uyarı										
I_e/Class ayarı kabul edilmiyor		☼ gn	●	●	◑	●				
Start bloke edildi, tristörler çok sıcak		◑ ylw	●	●	●	●				
Arıza										
Tedarik gerilimi Elektronik kabul edilmiyor (U < 0,75 x Us) veya (U > 1,15 x Us)		●	●	☼	●	●				
Kabul edilmeyen I_e/Class ayarı ve IN (0 -> 1)		☼ gn	●	☼	◑	●				
Motor koruma kapaması		☼ gn	●	●	☼	●				
Termik aşırı yüklenme Tristörler		☼ ylw	●	☼	●	●				
- Yük gerilimi yok - Faz kesilmesi, eksik yük		☼ gn	●	☼	●	●				
Cihaz hatası		☼ rd	●	☼	●	●				
Test fonksiyonu										
1) TEST t < 2 sn basınız		☼ gn	☼	☼	☼	●				
2) TEST 2 s < t < 5 sn basınız; I_e > 0		◑ rd	◑/☼	●	●	●				
2) TEST 2 s < t < 5 sn basınız; I_e = 0		⋈ rd	●	●	●	●				
3) TEST t > 5 sn basınız		☼ gn	●	●	☼	●				
RESET MODE (Değiştirmek için basılır)										
Manüel reset		●	●	●	●	●				
Uzaktan reset		●	●	●	●	☼ gn				

LED göstergeleri				gn	ylw	rd	1) LED testi 2) Akım tesbit testi 3) Test Motor koruma kapaması
●	☼	◑	⋈	=	=	=	
kapalı	açık	yanıp söner	titrer	yeşil	sarı	kırmızı	

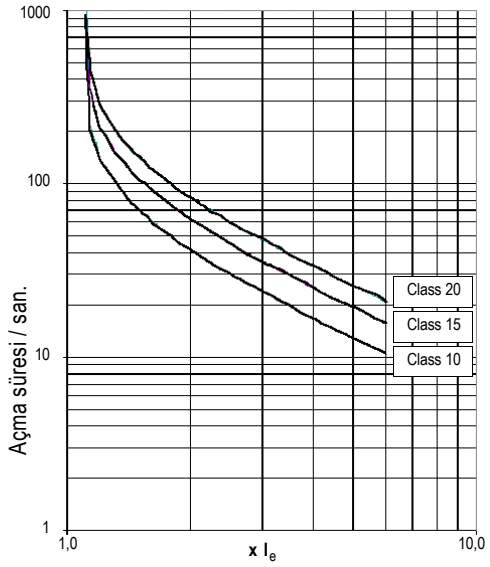
⚠ UYARI

Otomatik olarak yeniden çalışma.
Ölüme, ağır yaralanmalara veya maddi hasara yol açabilir.
Otomatik sıfırlama modu (RESET MODE), motorun yeniden işletime hazır duruma gelme süresinin bitiminden sonra beklenmedik biçimde yeniden start almasının, yaralanma ya da maddi hasara yol açabileceği durumlarda kullanılamaz.
Start komutu (örn. SPS ile) reset komutundan önce verilmelidir, çünkü reset komutundan sonra verilecek bir start komutunda otomatik olarak yeniden ve kendiliğinden bir start alma durumu ortaya çıkar. Bu özellikle de motor koruma tertibatının salıverilmesi için geçerlidir. Emniyet nedeniyle toplu hata çıkışının (95 ve 96 kıskaçları) kumandaya bağlanması tavsiye edilir.

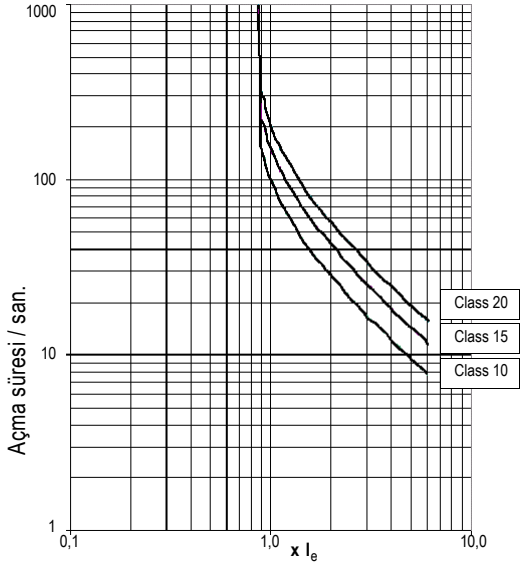
Türkçe

Devinim karakteristik eğrileri

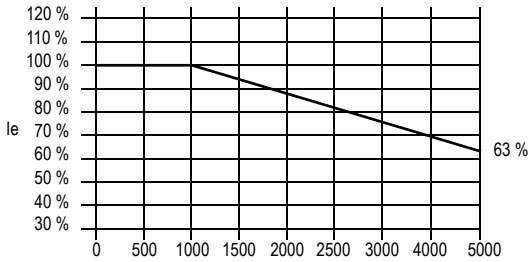
Simetride devinim karakteristik eğrileri



Asimetride devinim karakteristik eğrileri



Uygun kurulum yüksekliği



2000 m’nin üzerindeki kurulum yüksekliğinde maks. uygun işletim gerilimi 460 V’ye düşürülür:

Türkçe

Перед установкой, вводом в эксплуатацию или обслуживанием устройства необходимо прочесть и понять данное руководство.

⚠ ОПАСНО

Опасное напряжение.
Опасность для жизни или риск получения травм.
Перед началом работ отключить подачу питания к установке и к устройству.

ОСТОРОЖНО

Безопасность работы устройства гарантировано только при использовании сертифицированных компонентов.

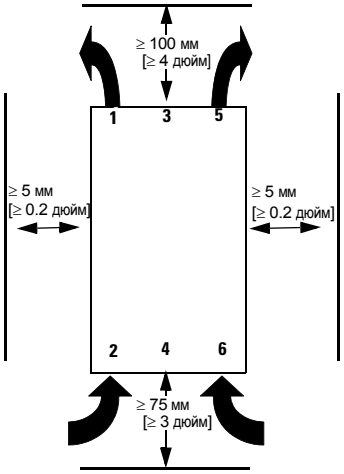
⚠ ОПАСНО

Опасное напряжение.
Опасность для жизни или риск получения травм.
Во избежание получения электрического удара или сильного ожога нельзя прикасаться к клеммам устройства управления двигателем, когда устройство находится под напряжением. На выходных клеммах имеется напряжение, даже если устройство управления двигателем находится в выключенном состоянии.

ВНИМАНИЕ

Устройство плавного пуска 3RW40 исполнен в качестве устройства класса A радиопомех. Использования данного изделия в жилых помещениях может привести к возникновению радиопомех.

Монтажное расстояние при сепаратном монтаже (расположение плотно друг к другу см. системное руководство для устройства плавного пуска)



ВНИМАНИЕ

Учитывайте при монтаже устройства указанные расстояния, для обеспечения возможности циркулирования достаточного количества воздуха, необходимого для охлаждения. Охлаждающий воздух в устройстве движется снизу вверх.

ОСТОРОЖНО

Опасность материального ущерба.
Следите, чтобы в устройство плавного пуска не попадали жидкость, пыль или проводящий предмет.

Установленные значения тока двигателя

Допустимые установленные значения тока двигателя в зависимости от настройки CLASS при температуре окружающей среды 40° C

	I_e [A]	$I_{мин}$ [A]	$I_{макс}$ [A] CLASS 10	$I_{макс}$ [A] CLASS 15	$I_{макс}$ [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

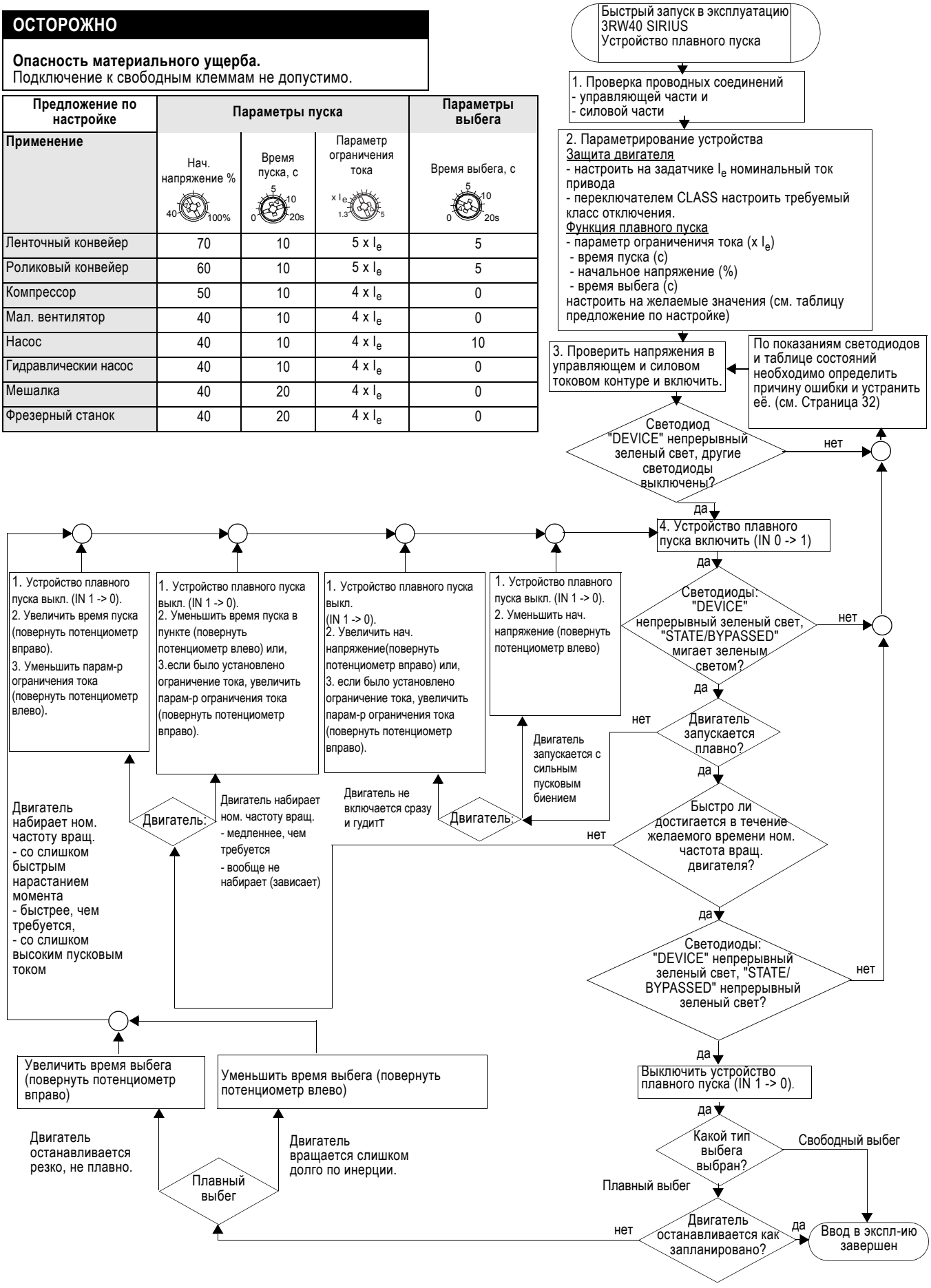
Программирование выхода ON/RUN, клеммы 13/14 (заводская настройка: ON) (графическая часть, рис. 3)

1. Начать программирование: Держите кнопку "RESET MODE" ("СБРОС РЕЖИМА") (2) нажатой дольше 2 секунд до тех пор, пока светодиод "DEVICE" ("УСТРОЙСТВО") (5) не начнёт мерцать зеленым светом. Держите кнопку "RESET MODE" (2) нажатой и одновременно нажмите кнопку "RESET/TEST" ("СБРОС/ТЕСТ") (1) дольше 1 с, пока светодиод "DEVICE" (5) на устройстве не начнёт светится красным светом.
2. Показать режим: Светодиод "STATE/BYPASSED" ("СОСТОЯНИЕ/БАЙПАС") (6) мигает зеленым светом: Режим ON. Светодиод "STATE/BYPASSED" (6) мерцает зеленым светом: Режим RUN (РАБОТА).
3. Поменять режим: Нажать кнопку "RESET MODE" (2)
4. Завершить программирование и сохранить настройки: Держите кнопку "RESET/TEST" ("СБРОС/ТЕСТ") (1) дольше 1 с до тех пор, пока светодиод "DEVICE" (5) не начнёт светиться зеленым светом.

ОСТОРОЖНО

Опасность материального ущерба.
Подключение к свободным клеммам не допустимо.

Предложение по настройке	Параметры пуска			Параметры выбега
Применение	Нач. напряжение %	Время пуска, с	Параметр ограничения тока	Время выбега, с
Ленточный конвейер	70	10	5 x I_e	5
Роликовый конвейер	60	10	5 x I_e	5
Компрессор	50	10	4 x I_e	0
Мал. вентилятор	40	10	4 x I_e	0
Насос	40	10	4 x I_e	10
Гидравлический насос	40	10	4 x I_e	0
Мешалка	40	20	4 x I_e	0
Фрезерный станок	40	20	4 x I_e	0



Обзор индикации

		Светодиодная индикация 3RW40					Вспомогательные контакты			
		УПП			Защита двигателя					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	(ПЕРЕГРУЗКА)/ OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
Рабочее состояние	IN_1									
Выкл	0	☼ gn	●	●	●	●				
Пуск	1	☼ gn	◑	●	●	●				
Байпасный режим	1	☼ gn	☼	●	●	●				
Выбег	0	☼ gn	◑	●	●	●				
Предупреждение										
Настройка I_e/Class недопустима		☼ gn	●	●	◑	●				
Пуск заблокир., тиристоры слишком горячие		◑ ylw	●	●	●	●				
Ошибка										
Недопустимое напряжение питания электроники (U < 0,75 x Us) или (U > 1,15 x Us)		●	●	☼	●	●				
Недопустимая настройка I_e/Class и IN (0 -> 1)		☼ gn	●	☼	◑	●				
Отключение защиты двигателя		☼ gn	●	●	☼	●				
Термическая перегрузка тиристоров		☼ ylw	●	☼	●	●				
- отсутствие напряжения нагрузки - выпадение фазы, отсутствует нагрузка		☼ gn	●	☼	●	●				
Неисправность устройства		☼ rd	●	☼	●	●				
Тестовая функция										
1) TEST t < 2 с нажать		☼ gn	☼	☼	☼	●				
2) TEST 2 s < t < 5 с нажать; I_e > 0		◑ rd	◑/☼	●	●	●				
2) TEST 2 s < t < 5 с нажать; I_e = 0		⋈ rd	●	●	●	●				
3) TEST t > 5 с нажать		☼ gn	●	●	☼	●				
RESET MODE (нажать для смены режима)										
Ручной сброс		●	●	●	●	●				
Дистанционный сброс		●	●	●	●	☼ gn				

Показания светодиодов						
●	☼	◑	⋈	gn =	ylw =	rd =
выкл	вкл	мигающий	мерцающий	зеленый	желтый	красный

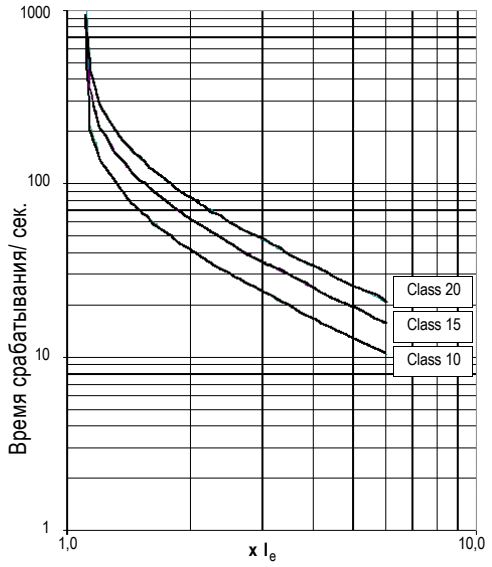
[1] Тест светодиодов
[2] Тест измерения тока
[3] Тест отключения защиты двигателя

⚠ ПРЕДУПРЕЖДЕНИЕ

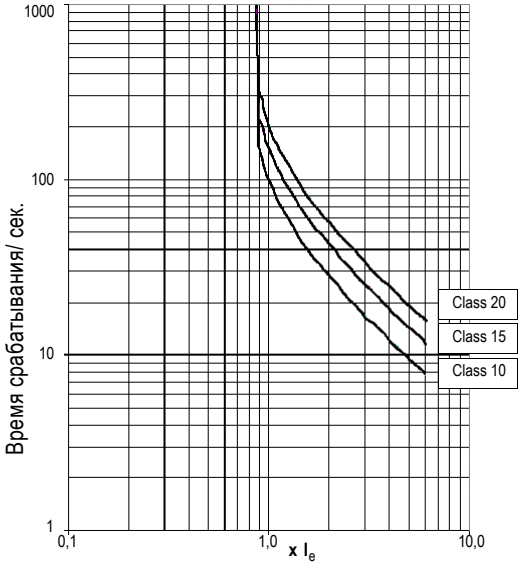
Автоматический повторный запуск.
Опасность летального исхода, тяжелых травм или повреждения имущества.
Не используйте режим автоматического сброса в тех ситуациях, когда неожиданный пуск двигателя по истечении времени восстановления готовности представляет опасность для персонала и имущества. Отмена команды пуска (например, с помощью контроллера) должна происходить до подачи команды на сброс, т.к. при неснятой команде пуска после выполнения команды на сброс происходит автоматический повторный пуск. Это особенно важно при срабатывании автомата защиты двигателя. Из соображений безопасности рекомендуется соединить выход "общей ошибки"(клеммы 95 и 96) с системой управления.

Характеристики срабатывания

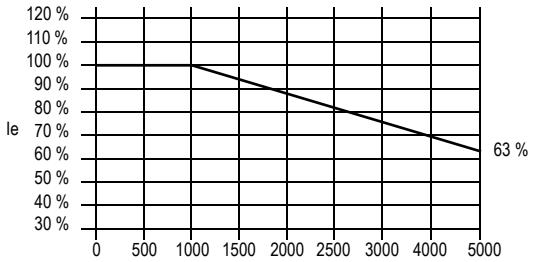
Характеристики срабатывания при симметрии



Характеристики срабатывания при несимметрии



Допустимая монтажная высота



При монтажной высоте свыше 2000 м максимальное допустимое номинальное напряжение составляет 460 В.

Русский

在安装，操作和维护此设备前，一定要先仔细阅读并理解本说明。

⚠ 危险

危险电压
致命或重伤危险。
操作设备时必须确保切断电源。

小心

只有使用经过认证的部件才能保证设备正常运转！

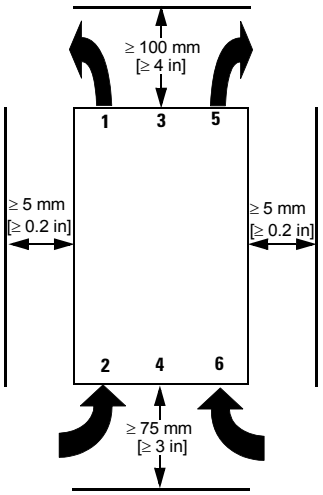
⚠ 危险

危险电压。致命或重伤危险。
为了避免受到电击或烧伤，当设备带电压时，不允许触摸电机控制设备的接线端。电机控制设备在关机状态时，输出接线端处也有电压。

注意

软启动器 3RW40 是按抗干扰度 - A 级的标准制造的设备 . 在居住区使用此设备可能会导致无线电干扰 .

单个启动器的安装间距 （多个启动器安装布局参见软启动器系统手册）



注意

在安装此机器时，一定要注意规定的间距，以确保为冷却而有足够的空气流通。此设备是自下而上通风的。

小心

设备损坏危险。
注意一定不要有液体、灰尘或导电物体进入软启动器内部。

电机电流设置值

在环境温度为摄氏 40° 时，依照 CLASS− 设置而确定的电机电流允许设置值

	I_e [A]	I_{min} [A]	I_{max} [A] CLASS 10	I_{max} [A] CLASS 15	I_{max} [A] CLASS 20
3RW40 55-...	134	59	134	134	124
3RW40 56-...	162	87	162	152	142
3RW40 73-...	230	80	230	210	200
3RW40 74-...	280	130	280	250	230
3RW40 75-...	356	131	356	341	311
3RW40 76-...	432	207	432	402	372

ON/RUN 输出端 13/14 的编程 （出厂设置：ON）（图表部分，图 3）

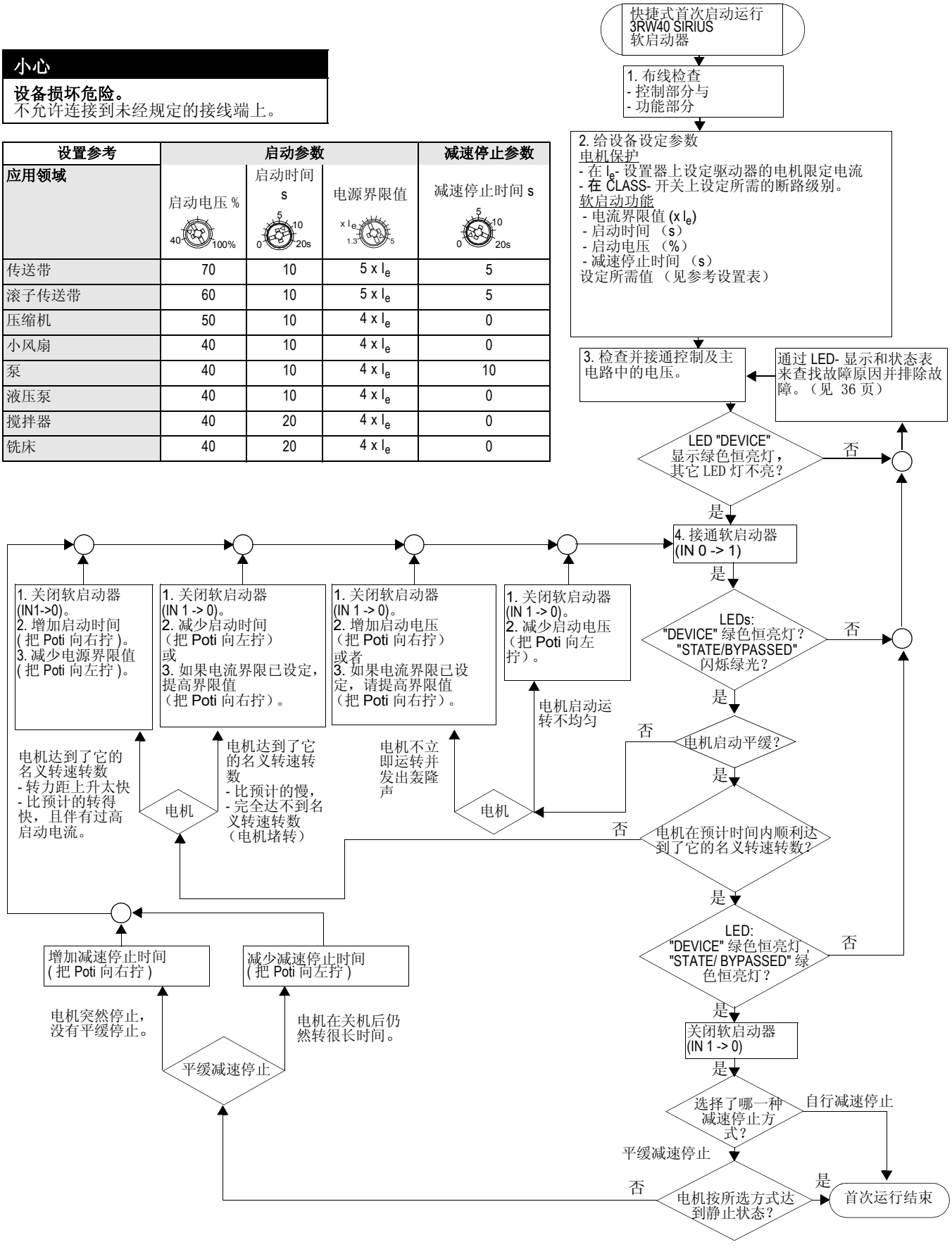
1. 启动编程： 按住按键 "RESET MODE"(2) 2 秒钟以上，直到 LED 显示灯 "DEVICE" (5) 发出快速颤动的绿光。 按住按键 "RESET MODE" (2) 的同时也按住按键 "RESET/TEST" (1) 1 秒钟以上，直到设备上的 LED "DEVICE" (5) 发红光。
2. 显示模式： LED "STATE/BYPASSED" (6) 闪烁绿光： ON 模式。 LED "STATE/BYPASSED" (6) 发出快速颤动的绿光：RUN 模式
3. 切换模式： 按按键 "RESET MODE" (2)。
4. 结束编程，保存设置： 按住按键 "RESET/TEST"(1) 1 秒钟以上，直到 LED "DEVICE" (5) 闪烁绿光。

快捷式首次启动运行指南

小心

设备损坏危险。
不允许连接到未经规定的接线端上。

设置参考	启动参数			减速停止参数
应用领域	启动电压 %	启动时间 s	电源界限值	减速停止时间 s
传送带	70	10	5 x I_e	5
滚子传送带	60	10	5 x I_e	5
压缩机	50	10	4 x I_e	0
小风扇	40	10	4 x I_e	0
泵	40	10	4 x I_e	10
液压泵	40	10	4 x I_e	0
搅拌器	40	20	4 x I_e	0
铣床	40	20	4 x I_e	0



中文

显示器显示概览

		LED– 显示 3RW40					辅助触点			
		软启动器			电机保护					
3RW40		DEVICE (rd/gn)	STATE / BYPASSED (gn)	FAILURE (rd)	OVERLOAD (rd)	RESET MODE (ylw/gn)	13 14 (ON)	13 14 (RUN)	24 23 (BYPASSED)	96 95 98 FAILURE / OVERLOAD
U_s = 0		●	●	●	●	●				
运行状态	IN_1									
关	0	☼ gn	●	●	●	●				
启动	1	☼ gn	◑	●	●	●				
旁通	1	☼ gn	☼	●	●	●				
减速停止	0	☼ gn	◑	●	●	●				
警告										
不允许的 I_e/Class– 设置		☼ gn	●	●	◑	●				
晶闸管过热，禁止启动		◑ ylw	●	●	●	●				
故障										
电子设备不许可的馈电电压 (U < 0,75 x Us) 或 (U > 1,15 x Us)		●	●	☼	●	●				
不允许的 I_e/Class– 设置和 IN (0 -> 1)		☼ gn	●	☼	◑	●				
电机保护断路		☼ gn	●	●	☼	●				
晶闸管热过载		☼ ylw	●	☼	●	●				
– 无负载电压 – 电相缺失，无负载		☼ gn	●	☼	●	●				
设备故障		☼ rd	●	☼	●	●				
测试键 TEST 的功能										
1）按测试健 TEST 少于 2 秒		☼ gn	☼	☼	☼	●				
2）按 TEST 键 2 s < t < 5 s ; I_e > 0		◑ rd	◑/☼	●	●	●				
2）按 TEST 键 2 s < t < 5 s ; I_e = 0		⋈ rd	●	●	●	●				
3）按 TEST 键 5 秒以上		☼ gn	●	●	☼	●				
RESET MODE 键 （按此键切换）										
Manual Reset 手动复位		●	●	●	●	●				
Remote Reset 远程复位		●	●	●	●	☼ gn				

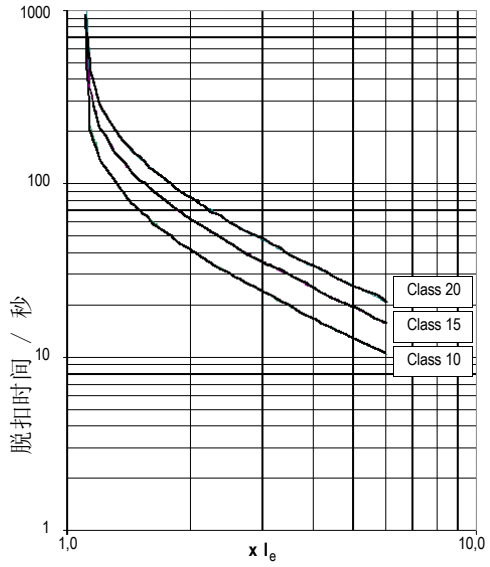
LED 灯显示							
●	☼	◑	⋈	gn =	ylw =	rd =	1) LED– 测试 2) 测试电流记录 3) 测试电机保护断路
不亮	亮	闪烁	快速颤动	绿	黄	红	

⚠ 警告

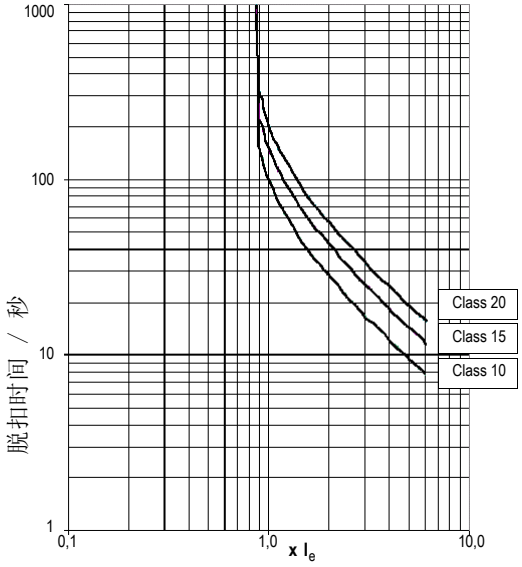
自动重新启动
会导致人员死亡、重伤或设备损坏。
如果电机在重启待机时间过后有可能因无法预料的自行重新启动而导致人员伤亡或设备损坏时，则不允许使用自动复位 (RESET MODE) 模式。
必须在发出复位命令之前撤回启动命令 （如通过 SPS），因为如果存在启动命令，设备会在接到复位命令之后自行重新启动。尤其在发生电机保护脱钩时会出现这种情况。出于安全考虑，建议把总故障输出端 （接线端 95 和 96）连接到控制上去。

脱扣特性曲线

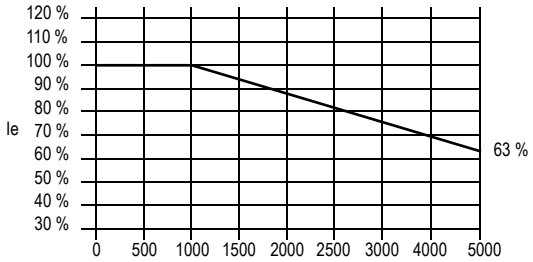
对称时的脱扣特性曲线



不对称时的脱扣特性曲线



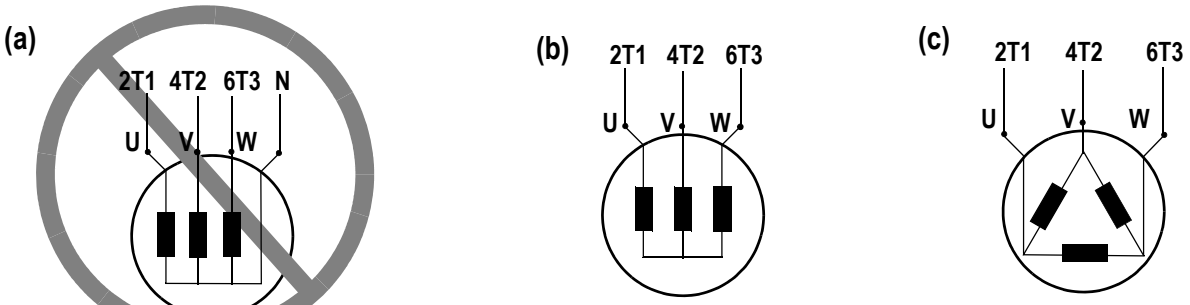
允许安装高度



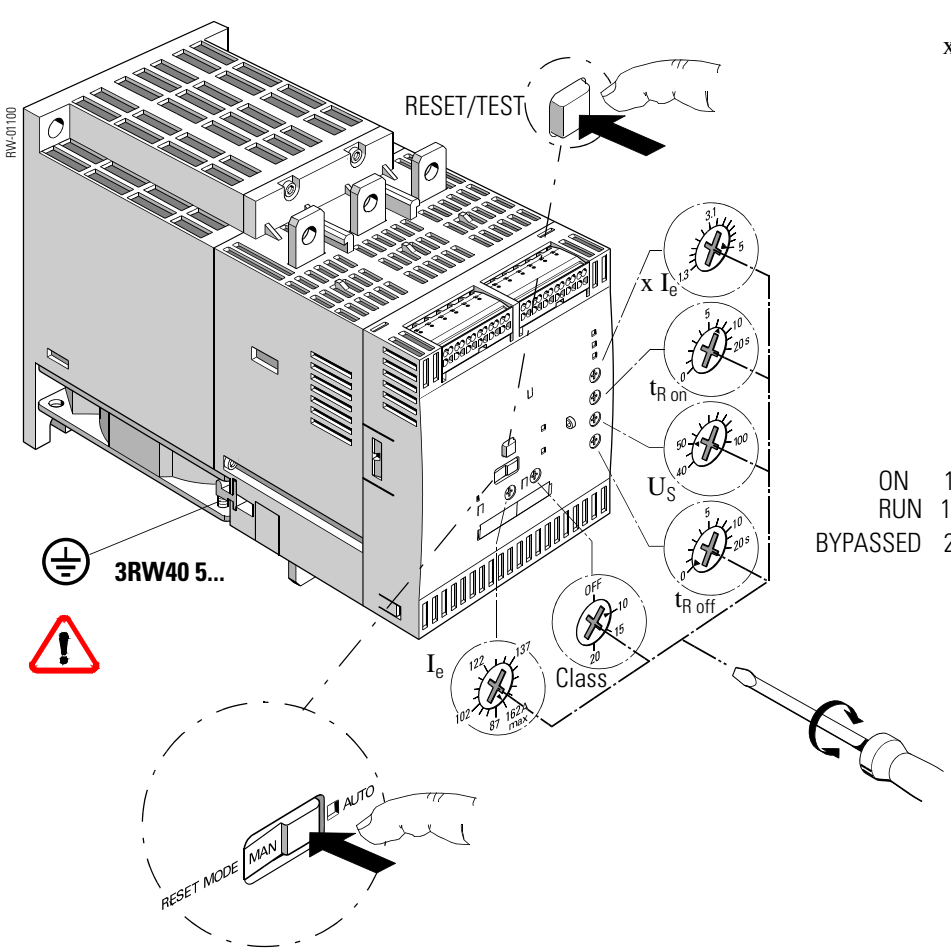
当安装的海拔高度在 2000 米以上时，最大的允许工作电压降至 460 V .

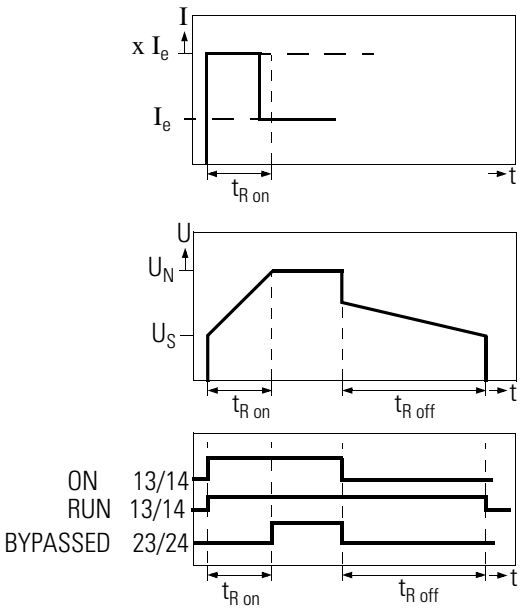
中文

1.

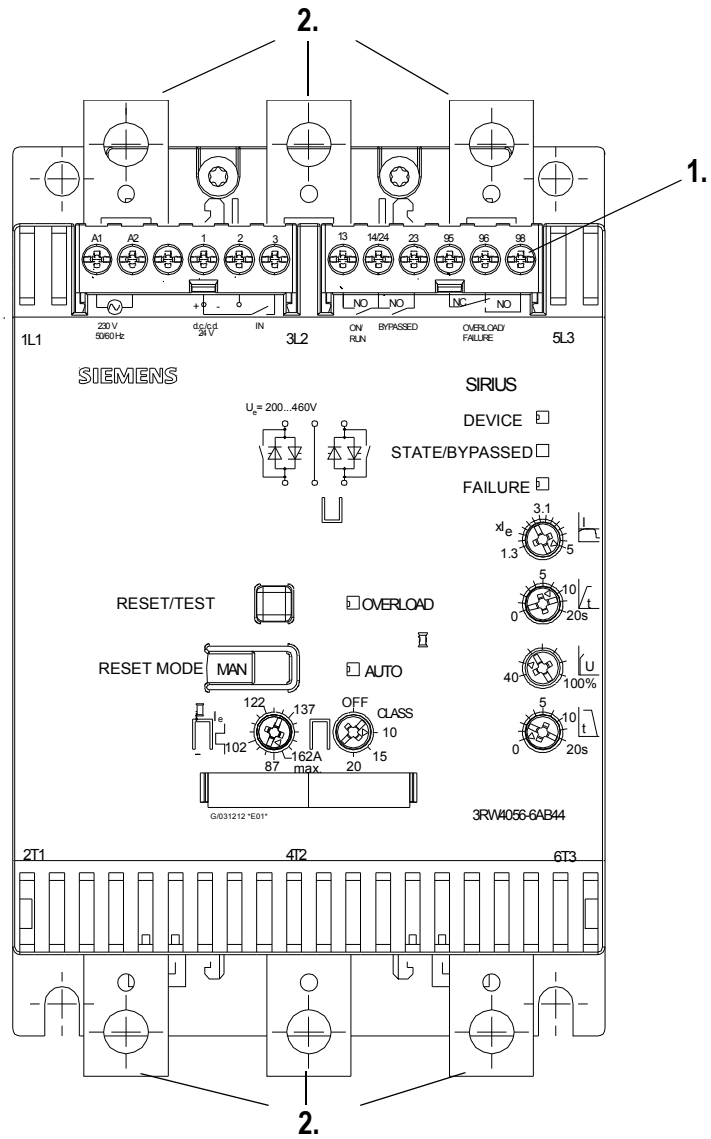

(a)
2T1 4T2 6T3 N
U V W
(b)
2T1 4T2 6T3
U V W
(c)
2T1 4T2 6T3
U V W

2.


RW-01100
RESET/TEST
3RW40 5...
x Ie
tR on
US
tR off
Ie
Class
RESET MODE
MAN
AUTO

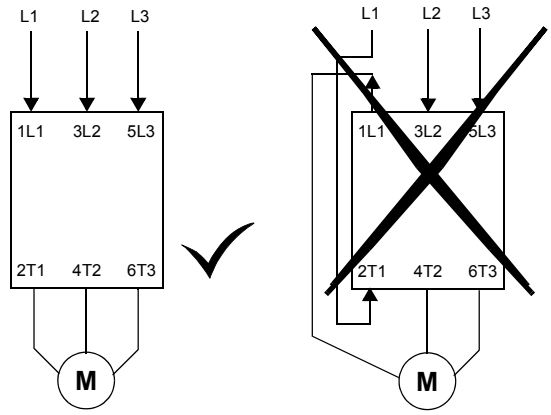

I
x Ie
Ie
t
tR on
U
UN
US
tR on
tR off
ON 13/14
RUN 13/14
BYPASSED 23/24
tR on
tR off

3.



1.	A1, A2, 1/+, 2/-, 3/IN, 13, 14/24, 23, 95, 96, 98: Steuer-/Hilfsstromkreis Control circuit/auxiliary circuit Circuit de commande/circuit aux. Circuito de mando/auxiliar Circuito di comando/circuito ausiliario Circuito de comando/circuito auxiliar Kontrol/Yardımcı elektrik devresi Управляющая/вспомогательная электр. цепь 控制电路 / 辅助电路
2.	L1 / L2 / L3, T1 / T2 / T3: Hauptstromkreis Power circuit Circuit principal Circuito principal Circuito principale Circuito principal Ana elektrik devresi Главная электрическая цепь 主电路

4.



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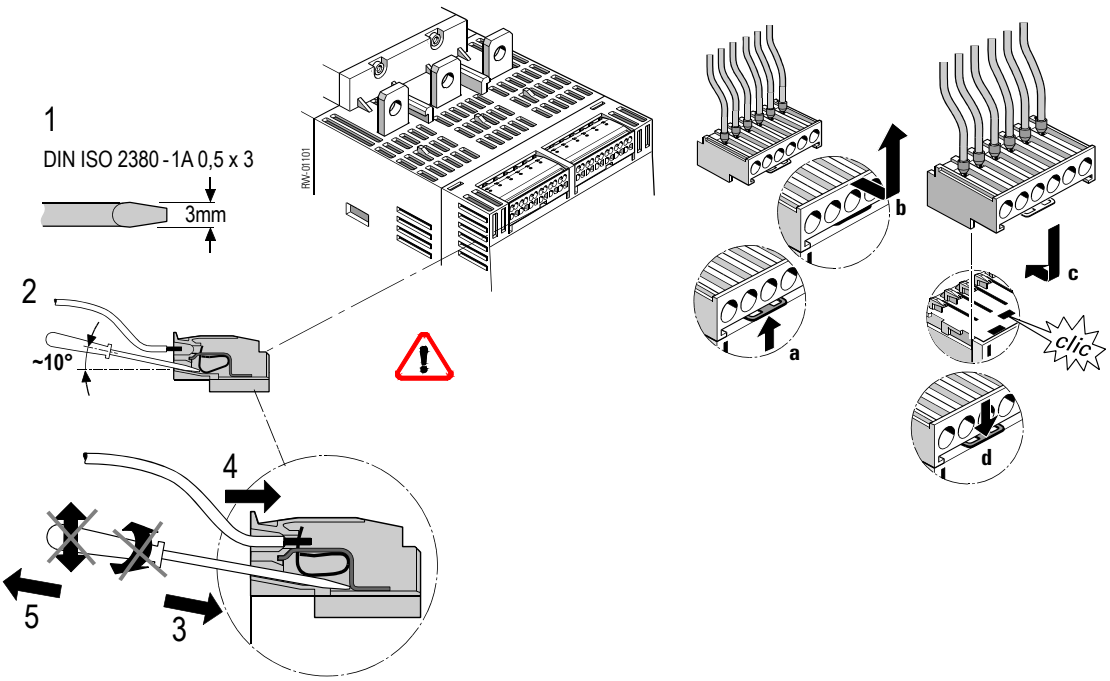
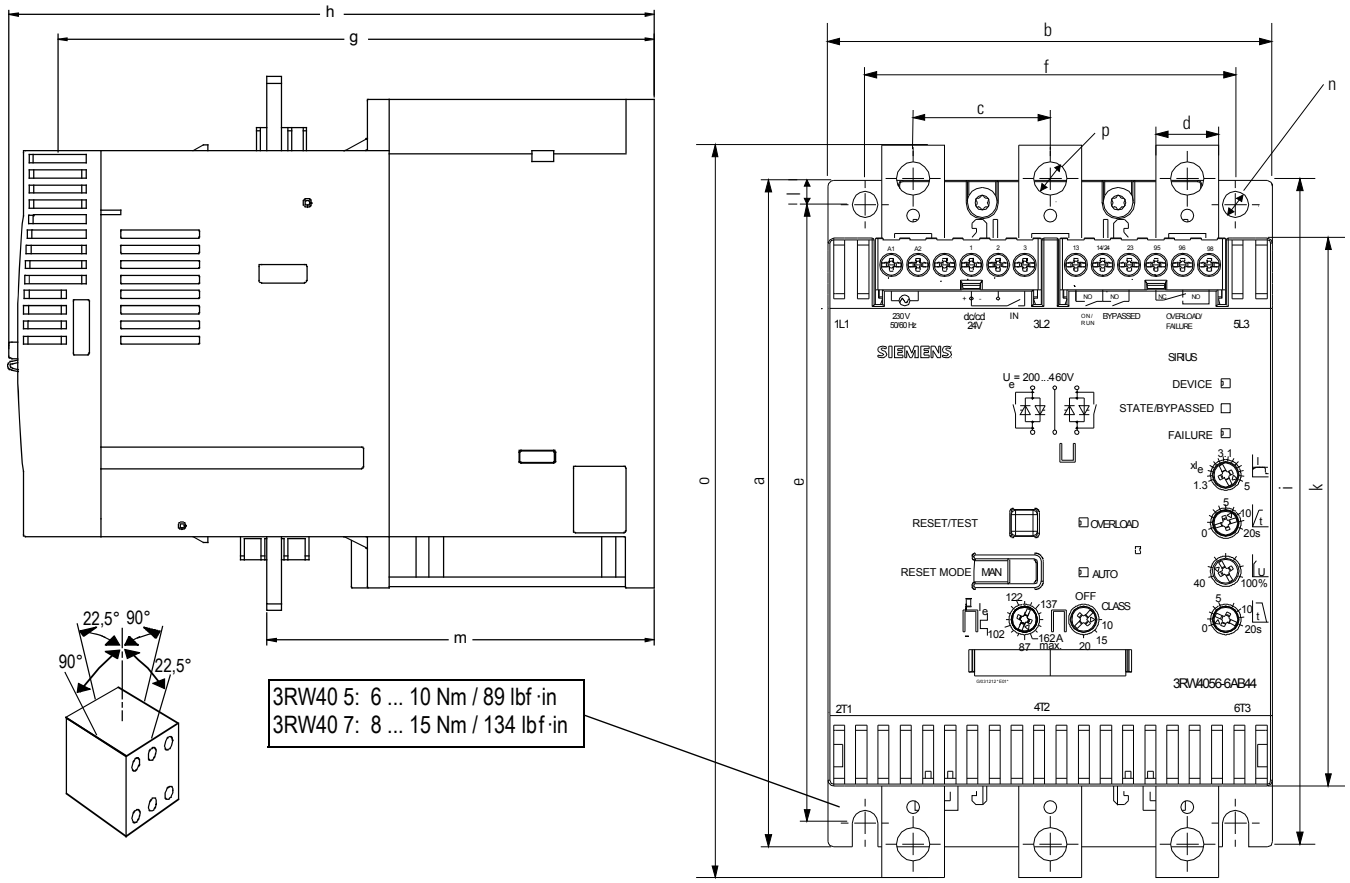
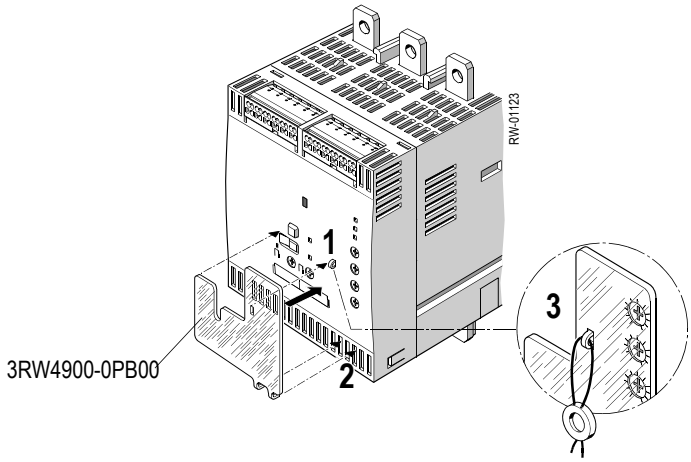


6.



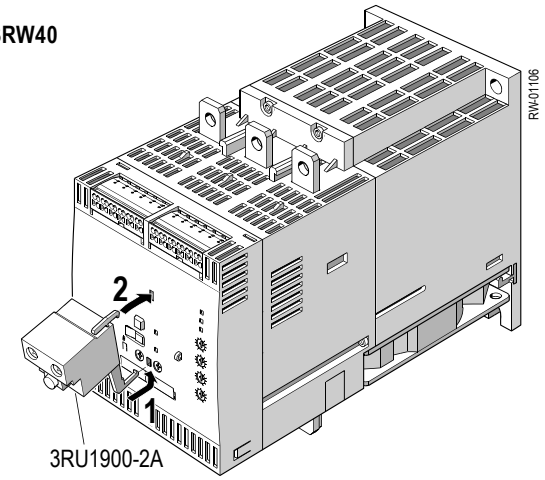
mm (inch)	a	b	c	d	e	f	g	h	i	k	l	m	n	o	p
3RW40 5	180 (7.09)	120 (4.72)	37 (1.46)	17 (0.67)	167 (6.57)	100 (3.94)	223 (8.7)	250 (9.84)	180 (7.09)	148 (5.82)	6,5 (0.25)	153 (6.02)	7 (0.28)	198 (7.80)	9 (0.35)
3RW40 7	210 (8.27)	160 (6.30)	48 (1.89)	25 (0.98)	190 (7.48)	140 (5.51)	240 (9.36)	278 (10.94)	205 (8.07)	166 (6.54)	10 (0.39)	166 (6.54)	9 (0.35)	230 (9.06)	11 (0.43)

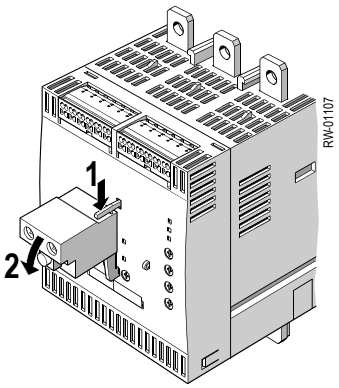
7.



8.

3RW40





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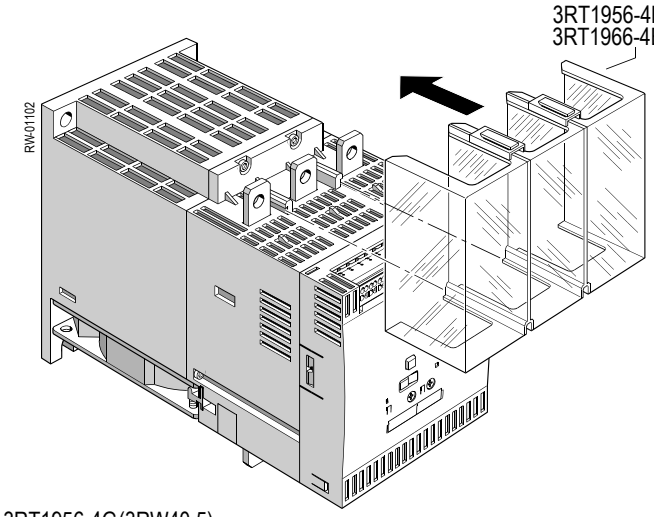
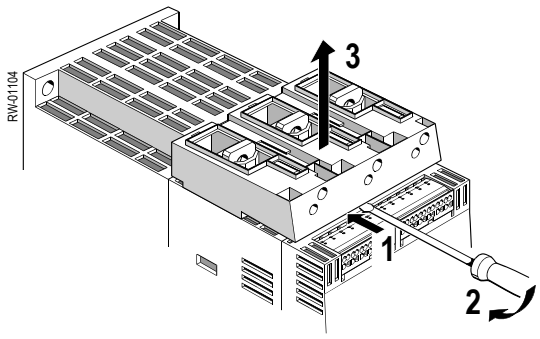
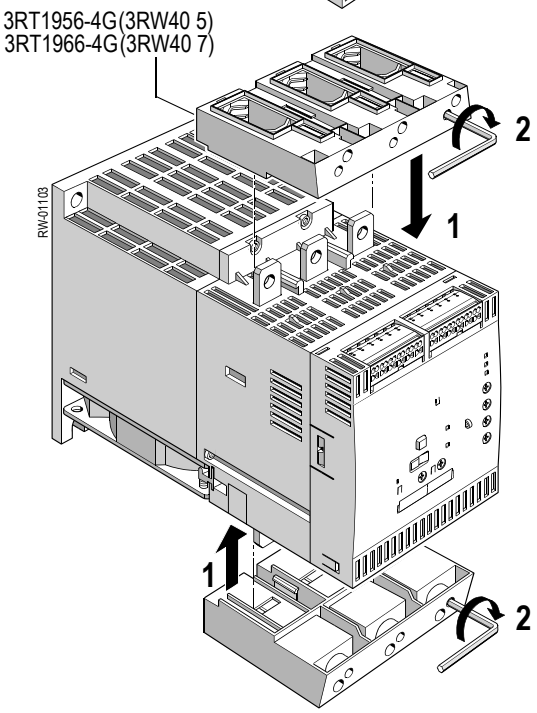
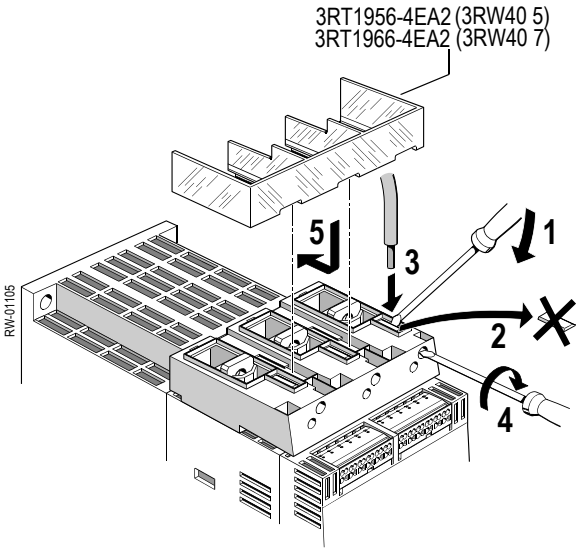
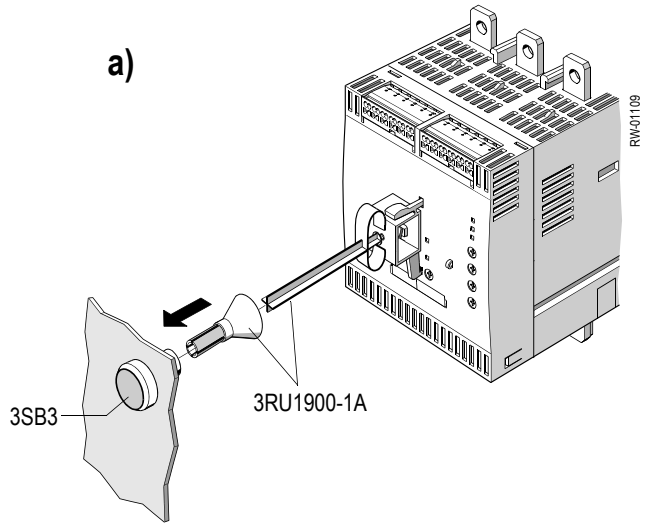

3RT1956-4EA1 (3RW40 5)
3RT1966-4EA1 (3RW40 7)
RW-01102

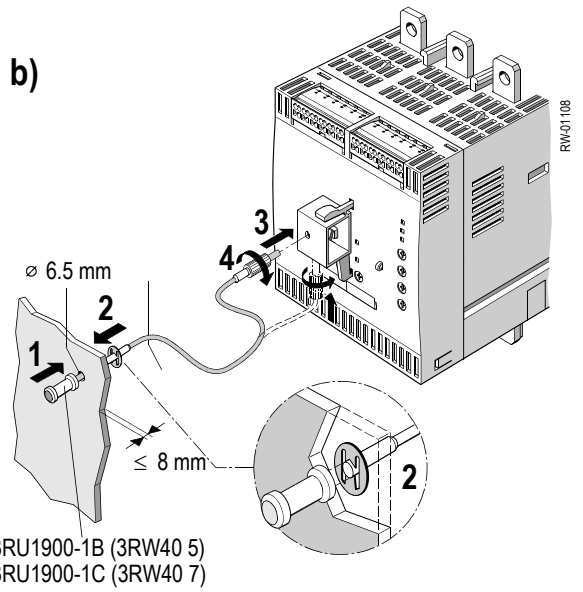

RW-01104
3
1
2


3RT1956-4G (3RW40 5)
3RT1966-4G (3RW40 7)
RW-01103
2
1
1
2

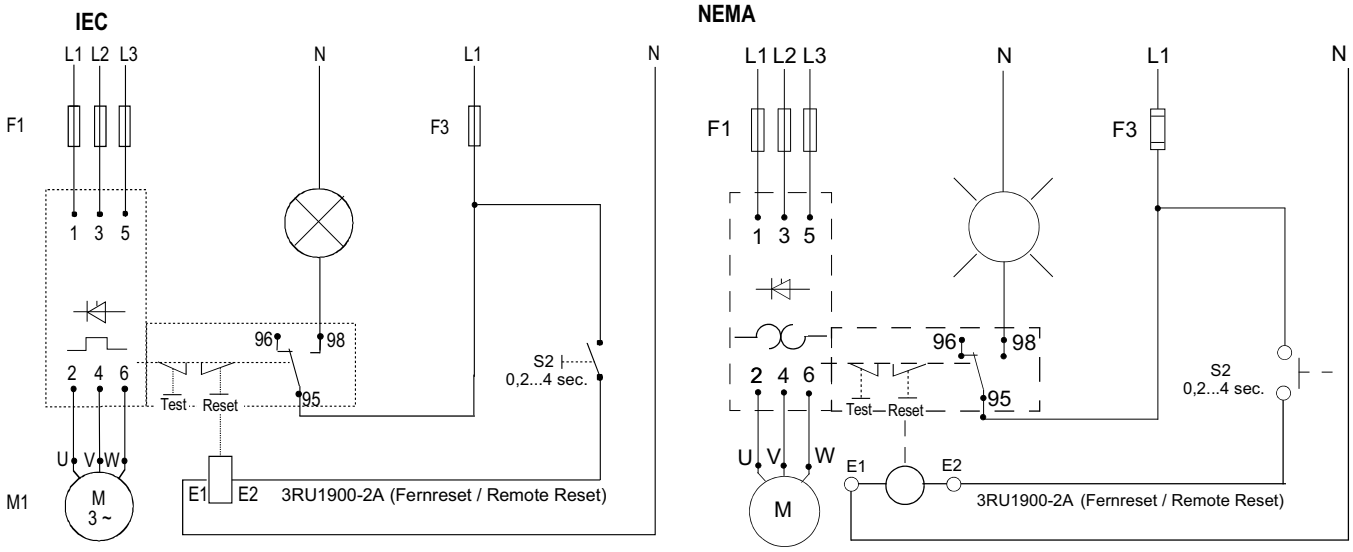

3RT1956-4EA2 (3RW40 5)
3RT1966-4EA2 (3RW40 7)
RW-01105
5
3
1
2
4

10.

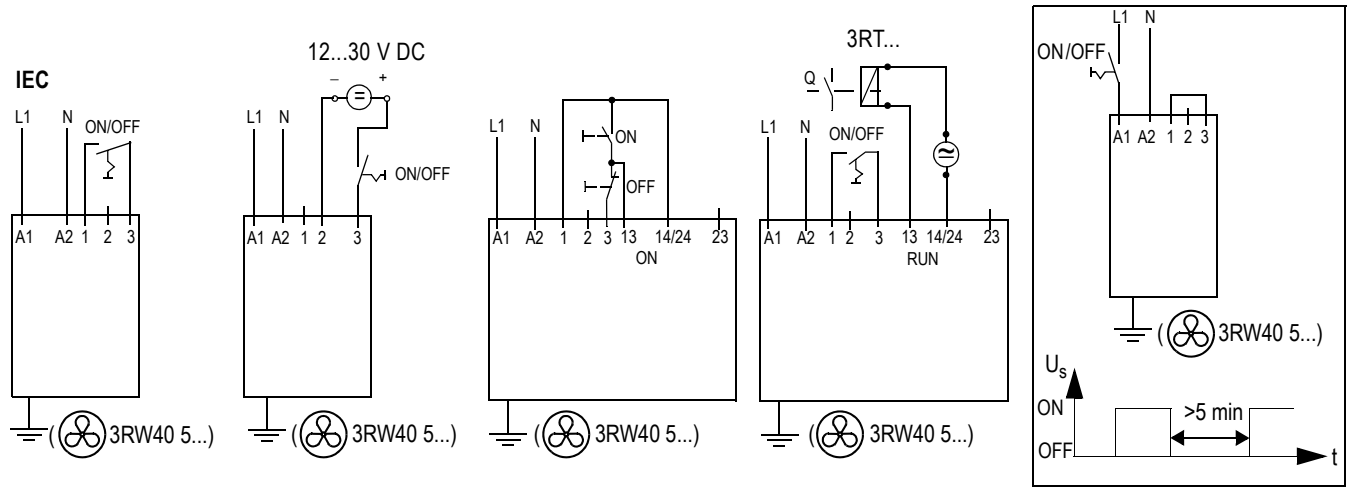

a)
RW-01109
3SB3
3RU1900-1A


b)
RW-01108
3
4
⌀ 6.5 mm
2
1
≤ 8 mm
2
3RU1900-1B (3RW40 5)
3RU1900-1C (3RW40 7)

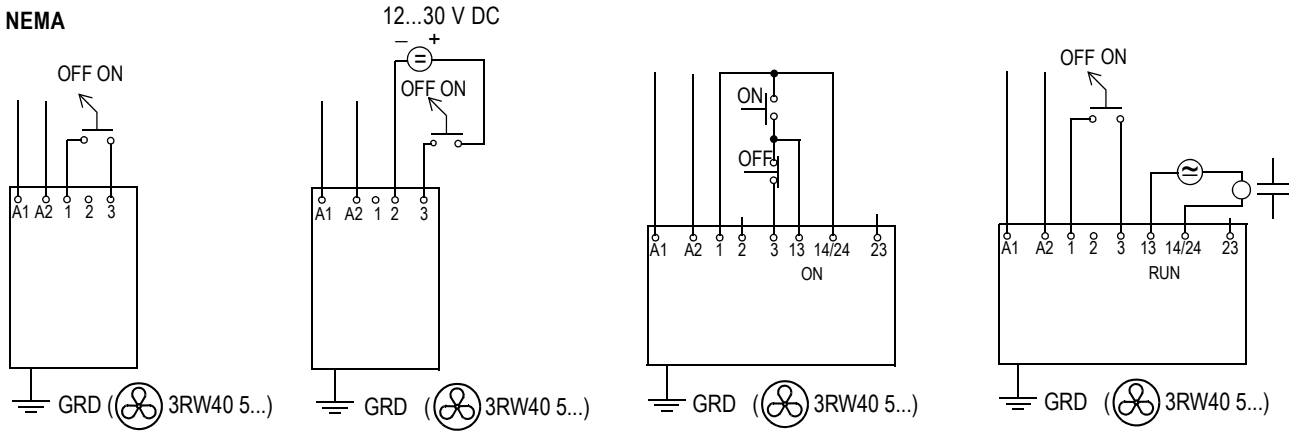
11.

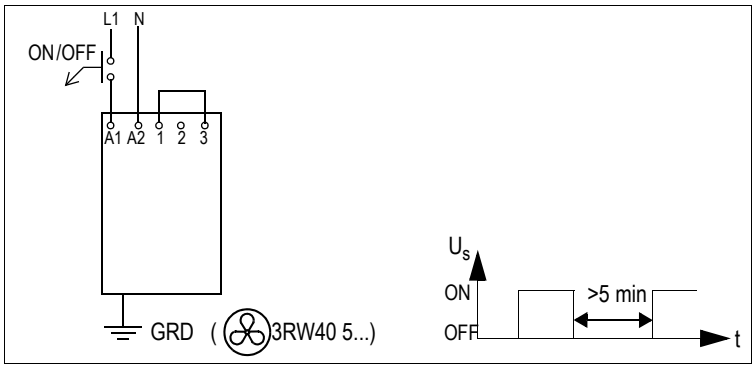

IEC
L1 L2 L3
N
L1
N
F1
F3
1 3 5
2 4 6
96
98
95
Test
Reset
S2
0,2...4 sec.
U V W
M1
M
3 ~
E1
E2
3RU1900-2A (Fernreset / Remote Reset)
NEMA
L1 L2 L3
N
L1
N
F1
F3
1 3 5
2 4 6
96
98
95
Test
Reset
S2
0,2...4 sec.
U V W
E1
E2
M
3RU1900-2A (Fernreset / Remote Reset)

12.


IEC
L1 N
ON/OFF
A1 A2 1 2 3
3RW40 5...)
12...30 V DC
L1 N
ON/OFF
A1 A2 1 2 3
3RW40 5...)
L1 N
ON
OFF
A1 A2 1 2 3 13 14/24 23
ON
3RW40 5...)
3RT...
Q
L1 N
ON/OFF
A1 A2 1 2 3 13 14/24 23
RUN
3RW40 5...)
L1 N
ON/OFF
A1 A2 1 2 3
3RW40 5...)
Us
ON
OFF
>5 min
t

13.





Bestell-Nr. / Order No.: 3ZX1012-0RW40-1AA1
Printed in the Federal Republic of Germany