SIRIUS 3RV2 motor starter protectors and 3RU2 overload relays

Use at ambient temperatures > 60 °C *)

Ambient temperature in °C	Maximum continuous current in %	Necessary correction
-20 to 60	100	None
Up to 65	***)	1.1 x Ie motor **)
Up to 70	***)	1.1 x Ie motor **)

*) The service life and/or T1 value/duration of use may be reduced in operation at ambient temperatures > 60 °C.
**) Correction only permissible up to highest setting value
***) See corresponding table 6-.. – Ambient temperature/s for reduction

Necessary correction

Necessary correction of the rated motor current to which the motor starter protector/overload relay is to be set on the setting scale.

Maximum continuous current

Data on the derating of the rated current I_n of a 3RV2 motor starter protector or 3RU2 overload relay ➔ permissible current load

The permissible ambient temperatures, maximum switching capacity, tripping currents, and other limiting conditions relevant to application are listed in the technical specifications.
You can find technical information/documentation in the Siemens Industry Online Support (SIOS) internet portal.

3RV2 motor starter protectors are temperature-compensating according to IEC 60947-4-1 / VDE 0660 Part 102 in the temperature range from -20 °C to +60 °C. At higher temperatures, the upper setting value of the setting range has to be reduced by a specific factor in accordance with the tables below.

Table 6-13 Ambient temperatures for 3RV2 motor starter protectors (size S00/S0)

Ambient temperature in °C	Reduction factor for the upper setting value applies to ...	
	Rated current 0.16 ... 20 A	Rated current 22 ... 32 A
+60	1.00	1.00
+65	0.94	0.97
+70	0.87	0.94

In accordance with the table, the reduction factor is 13% at 70 °C. This factor is so low that due to the overlapping of the current setting ranges there are no gaps before the next setting range. This means that the available current range spans from 0.11 A to 30.1 A at 70 °C.

Note
Ambient temperatures for size S0 motor starter protectors (36 A and 40 A)
The 36 A and 40 A versions in size S0 are compatible for use in ambient temperatures up to a maximum of 40° C.

Table 6-14 Ambient temperatures for 3RV2 motor starter protectors (size S2)

Ambient temperature in °C	Reduction factor for the upper setting value applies to ...
	Rated current 14 ... 80 A
+60	1.00
+65	0.93
+70	0.87

In accordance with the table, the reduction factor is 13% at 70 °C. This factor is so low that due to the overlapping of the current setting ranges there are no gaps before the next setting range. This means that the available current range spans from 9.5 A to 69.6 A at 70 °C.

Table 6-15 Ambient temperatures for 3RV2 motor starter protectors (size S3)

Ambient temperature in °C	Reduction factor for the upper setting value applies to ...
	Rated current 40 ... 100 A
+60	1.00
+65	0.93
+70	0.87

In accordance with the table, the reduction factor is 13% at 70 °C. This factor is so low that due to the overlapping of the current setting ranges there are no gaps before the next setting range. This means that the available current range spans from 28 A to 87 A at 70 °C.

Note
Tables 6-13 to 6-15 with the reduction factors can be found in the Equipment Manual – SIRIUS 3RV Motor Starter Protectors under entry ID: 60279172.

3RU21 thermal overload relays compensate temperature in the temperature range from -40 °C to +60 °C according to IEC/EN 60947-4-1. At temperatures between +60 °C and +70 °C, the maximum permissible operating current related to the rated operating current must be reduced by a specific factor f in accordance with the tables below (Imax = Ie x f).

Table 6-7 Ambient temperatures for 3RU21 overload relays (size S00/S0)

Ambient temperature in °C	Reduction factor applies for rated current ...	
	0.16 ... 20 A	22 ... 32 A
+60	1.00	1.00
+65	0.94	0.97
+70	0.87	0.94

Table 6-8 Ambient temperatures for 3RU2136 overload relays (size S2)

Ambient temperature in °C	Reduction factor applies for rated current ...	
	8 ... 45 A	50 ... 80 A
+60	1.00	1.00
+65	0.94	0.97
+70	0.87	0.94

Table 6-9 Ambient temperatures for 3RU2146 overload relays (size S3)

Ambient temperature in °C	Reduction factor applies for rated current ...		
	25 ... 32 A	40 ... 63 A	75 ... 100 A
+60	1.00	1.00	1.00
+65	0.94	0.95	0.97
+70	0.88	0.90	0.94

Note
Tables 6-7 to 6-9 with the reduction factors can be found in the Equipment Manual – SIRIUS 3RU Thermal Overload Relays/SIRIUS 3RB Electronic Overload Relays under entry ID: 60298164.

Example: Motor starter protector
Setting range 7.0 - 10 A, ambient temperature 70 °C, rated motor current 8.5 A

The motor starter protector can be loaded up to 8.7 A (87% of 10 A) and must be set to 9.4 A (1.1 x 8.5 A).