

SIRIUS soft starter 200-690 V 25 A, 24 V AC/DC Screw terminals



|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product brand name                 | SIRIUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Product category                   | Hybrid switching devices                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Product designation                | Soft starter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Manufacturer's article number      | <div><ul style="list-style-type: none"><li>• of HMI-Modul high-feature usable</li><li>• of communication module PROFINET standard usable</li><li>• of communication module PROFIBUS usable</li><li>• of communication module Modbus TCP usable</li><li>• of the gG fuse usable up to 690 V</li><li>• of the gG fuse usable at inside-delta circuit up to 500 V</li><li>• of full range R fuse link for semiconductor protection usable up to 690 V</li><li>• of back-up R fuse link for semiconductor protection usable up to 690 V</li></ul></div> |
| General technical data             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Starting voltage [%]               | 20 ... 100 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Start-up ramp time of soft starter | 0 ... 360 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                                  |                                                                                                   |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Stopping time of soft starter                    | 0 ... 360 s                                                                                       |
| Start torque [%]                                 | 10 ... 100 %                                                                                      |
| Stopping torque [%]                              | 10 ... 100 %                                                                                      |
| Torque limit [%]                                 | 20 ... 200 %                                                                                      |
| Current limiting value [%] adjustable            | 125 ... 1 000 %                                                                                   |
| Breakaway voltage [%] adjustable                 | 40 ... 100 %                                                                                      |
| Breakaway time adjustable                        | 0 ... 2 s                                                                                         |
| Number of parameter sets                         | 3                                                                                                 |
| Accuracy class acc. to IEC 61557-12              | 5 %                                                                                               |
| Product component                                |                                                                                                   |
| • HMI-High Feature                               | Yes                                                                                               |
| • is supported HMI-High Feature                  | Yes                                                                                               |
| Product feature integrated bypass contact system | Yes                                                                                               |
| Number of controlled phases                      | 3                                                                                                 |
| Trip class                                       | CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2                                      |
| Current unbalance limiting value [%]             | 10 ... 60 %                                                                                       |
| • Recovery time after overload trip adjustable   | 60 ... 1 800 s                                                                                    |
| Idle time adjustable                             | 0 ... 255 s                                                                                       |
| Insulation voltage                               |                                                                                                   |
| • rated value                                    | 690 V                                                                                             |
| Degree of pollution                              | 3                                                                                                 |
| Impulse voltage rated value                      | 8 kV                                                                                              |
| Blocking voltage of the thyristor maximum        | 1 800 V                                                                                           |
| Service factor                                   | 1.15                                                                                              |
| Protection class IP                              | IP00                                                                                              |
| Reference code acc. to DIN EN 81346-2            | Q                                                                                                 |
| Product function                                 |                                                                                                   |
| • ramp-up (soft starting)                        | Yes                                                                                               |
| • ramp-down (soft stop)                          | Yes                                                                                               |
| • breakaway pulse                                | Yes                                                                                               |
| • torque control                                 | Yes                                                                                               |
| • Adjustable current limitation                  | Yes                                                                                               |
| • creep speed in both directions of rotation     | Yes                                                                                               |
| • pump ramp down                                 | Yes                                                                                               |
| • DC braking                                     | Yes                                                                                               |
| • motor heating                                  | Yes                                                                                               |
| • slave pointer function                         | Yes                                                                                               |
| • trace function                                 | Yes                                                                                               |
| • voltage ramp                                   | Yes                                                                                               |
| • Intrinsic device protection                    | Yes                                                                                               |
| • motor overload protection                      | Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) |
| • Evaluation of thermistor motor protection      | Yes; Type A PTC or Klaxon / Thermoclick                                                           |

|                                              |                                                                                               |
|----------------------------------------------|-----------------------------------------------------------------------------------------------|
| • inside-delta circuit                       | No                                                                                            |
| • Auto-reset                                 | Yes                                                                                           |
| • Manual RESET                               | Yes                                                                                           |
| • remote reset                               | Yes                                                                                           |
| • communication function                     | Yes                                                                                           |
| • operating measured value display           | Yes                                                                                           |
| • event list                                 | Yes                                                                                           |
| • error logbook                              | Yes                                                                                           |
| • via software parameterizable               | Yes                                                                                           |
| • via software configurable                  | Yes                                                                                           |
| • PROFINET                                   | Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules |
| • firmware update                            | Yes                                                                                           |
| • removable terminal for control circuit     | Yes                                                                                           |
| • combined braking                           | Yes                                                                                           |
| • analog output                              | Yes; 4 ... 20 mA (default) / 0 ... 10 V                                                       |
| • programmable control input-/outputs        | Yes                                                                                           |
| • condition monitoring                       | Yes                                                                                           |
| • automatic parameterisation                 | Yes                                                                                           |
| • application wizards                        | Yes                                                                                           |
| • alternative run-down                       | Yes                                                                                           |
| • emergency operation mode                   | Yes                                                                                           |
| • reversing operation                        | Yes                                                                                           |
| • soft starting at heavy starting conditions | Yes                                                                                           |

## Power Electronics

|                                                                                     |               |
|-------------------------------------------------------------------------------------|---------------|
| <b>Operating current</b>                                                            |               |
| • at 40 °C rated value                                                              | 25 A          |
| • at 50 °C rated value                                                              | 22.3 A        |
| • at 60 °C rated value                                                              | 19.6 A        |
| <b>Operating current at inside-delta circuit</b>                                    |               |
| • at 40 °C rated value                                                              | 43.3 A        |
| • at 50 °C rated value                                                              | 39 A          |
| • at 60 °C rated value                                                              | 33.9 A        |
| <b>Operating voltage</b>                                                            |               |
| • rated value                                                                       | 200 ... 690 V |
| • at inside-delta circuit rated value                                               | 200 ... 600 V |
| <b>Relative negative tolerance of the operating voltage</b>                         | -15 %         |
| <b>Relative positive tolerance of the operating voltage</b>                         | 10 %          |
| <b>Relative negative tolerance of the operating voltage at inside-delta circuit</b> | -15 %         |
| <b>Relative positive tolerance of the operating voltage at inside-delta circuit</b> | 10 %          |

|                                                               |                                      |
|---------------------------------------------------------------|--------------------------------------|
| <b>Operating power for three-phase motors</b>                 |                                      |
| • at 230 V at 40 °C rated value                               | 5.5 kW                               |
| • at 230 V at inside-delta circuit at 40 °C rated value       | 11 kW                                |
| • at 400 V at 40 °C rated value                               | 11 kW                                |
| • at 400 V at inside-delta circuit at 40 °C rated value       | 18.5 kW                              |
| • at 500 V at 40 °C rated value                               | 15 kW                                |
| • at 500 V at inside-delta circuit at 40 °C rated value       | 22 kW                                |
| <b>Operating frequency 1 rated value</b>                      | 50 Hz                                |
| <b>Operating frequency 2 rated value</b>                      | 60 Hz                                |
| <b>Relative negative tolerance of the operating frequency</b> | -10 %                                |
| <b>Relative positive tolerance of the operating frequency</b> | 10 %                                 |
| <b>Adjustable motor current</b>                               |                                      |
| • minimum                                                     | 5 A                                  |
| • at inside-delta circuit minimum                             | 8.7 A                                |
| <b>Minimum load [%]</b>                                       | 10 %; Relative to set I <sub>e</sub> |
| <b>Power loss [W] for rated value of the current at AC</b>    |                                      |
| • at 40 °C to power-up                                        | 8 W                                  |
| • at 50 °C to power-up                                        | 7 W                                  |
| • at 60 °C to power-up                                        | 6 W                                  |

| Control circuit/ Control                                                        |              |
|---------------------------------------------------------------------------------|--------------|
| <b>Type of voltage of the control supply voltage</b>                            | AC/DC        |
| <b>Control supply voltage at AC</b>                                             |              |
| • at 50 Hz rated value                                                          | 24 V         |
| • at 60 Hz rated value                                                          | 24 V         |
| <b>Relative negative tolerance of the control supply voltage at AC at 50 Hz</b> | -20 %        |
| <b>Relative positive tolerance of the control supply voltage at AC at 50 Hz</b> | 20 %         |
| <b>Relative negative tolerance of the control supply voltage at AC at 60 Hz</b> | -20 %        |
| <b>Relative positive tolerance of the control supply voltage at AC at 60 Hz</b> | 20 %         |
| <b>Control supply voltage frequency</b>                                         | 50 ... 60 Hz |
| <b>Relative negative tolerance of the control supply voltage frequency</b>      | -10 %        |
| <b>Relative positive tolerance of the control supply voltage frequency</b>      | 10 %         |
| <b>Control supply voltage</b>                                                   |              |
| • at DC rated value                                                             | 24 V         |

|                                                                      |                                                                                                                                                                                |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relative negative tolerance of the control supply voltage at DC      | -20 %                                                                                                                                                                          |
| Relative positive tolerance of the control supply voltage at DC      | 20 %                                                                                                                                                                           |
| Inrush current peak at connect of control supply voltage maximum     | 7.5 A                                                                                                                                                                          |
| Duration of inrush current peak at connect of control supply voltage | 20 ms                                                                                                                                                                          |
| Design of the overvoltage protection                                 | Varistor                                                                                                                                                                       |
| Design of short-circuit protection for control circuit               | 4 A gG fuse (Icu=1 kA), 6 A quick-acting fuse (Icu=1 kA), C1 miniature circuit breaker (Icu= 600 A), C6 miniature circuit breaker (Icu= 300 A); Is not part of scope of supply |

| Inputs/ Outputs                                 |                                                           |
|-------------------------------------------------|-----------------------------------------------------------|
| Number of digital inputs                        | 4                                                         |
| • with fail-safe                                | 0                                                         |
| • parameterizable                               | 4                                                         |
| Number of digital outputs                       | 4                                                         |
| • with fail-safe                                | 0                                                         |
| • parameterizable                               | 3                                                         |
| • not parameterizable                           | 1                                                         |
| Digital output version                          | 3 normally-open contacts (NO) / 1 changeover contact (CO) |
| Number of inputs for thermistor connection      | 1; Type A PTC or Klaxon / Thermoclick                     |
| Number of analog outputs                        | 1                                                         |
| Switching capacity current of the relay outputs |                                                           |
| • at AC-15 at 250 V rated value                 | 3 A                                                       |
| • at DC-13 at 24 V rated value                  | 1 A                                                       |

| Installation/ mounting/ dimensions                      |                                                                            |
|---------------------------------------------------------|----------------------------------------------------------------------------|
| Mounting position                                       | Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°) |
| Mounting type                                           | screw fixing                                                               |
| Height                                                  | 306 mm                                                                     |
| Width                                                   | 185 mm                                                                     |
| Depth                                                   | 203 mm                                                                     |
| Required spacing with side-by-side mounting             |                                                                            |
| • forwards                                              | 10 mm                                                                      |
| • Backwards                                             | 0 mm                                                                       |
| • upwards                                               | 100 mm                                                                     |
| • downwards                                             | 75 mm                                                                      |
| • at the side                                           | 5 mm                                                                       |
| Installation altitude at height above sea level maximum | 2 000 m; Derating as of 1000 m, see catalog                                |
| Weight without packaging                                | 5.5 kg                                                                     |

## Connections/Terminals

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type of electrical connection</b> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for control circuit</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | box terminals<br>screw-type terminals                                                                                                                                                                                                                                                                                                                                                               |
| <b>Type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for main contacts for box terminal using the front clamping point solid</li> <li>• for main contacts for box terminal using the front clamping point finely stranded with core end processing</li> <li>• for main contacts for box terminal using the front clamping point stranded</li> <li>• at AWG conductors for main contacts for box terminal using the front clamping point</li> <li>• for main contacts for box terminal using the back clamping point solid</li> <li>• at AWG conductors for main contacts for box terminal using the back clamping point</li> <li>• for main contacts for box terminal using both clamping points solid</li> <li>• for main contacts for box terminal using both clamping points finely stranded with core end processing</li> <li>• for main contacts for box terminal using both clamping points stranded</li> <li>• for main contacts for box terminal using the back clamping point finely stranded with core end processing</li> <li>• for main contacts for box terminal using the back clamping point stranded</li> </ul> | 1x (2.5 ... 16 mm <sup>2</sup> )<br>1x (2.5 ... 50 mm <sup>2</sup> )<br>1x (10 ... 70 mm <sup>2</sup> )<br>1x (10 ... 2/0)<br>1x (2.5 ... 16 mm <sup>2</sup> )<br>1x (10 ... 2/0)<br>2x (2.5 ... 16 mm <sup>2</sup> )<br>2x (2.5 ... 35 mm <sup>2</sup> )<br>2x (6 ... 16 mm <sup>2</sup> ), 2x (10 ... 50 mm <sup>2</sup> )<br>1x (2.5 ... 50 mm <sup>2</sup> )<br>1x (10 ... 70 mm <sup>2</sup> ) |
| <b>Type of connectable conductor cross-sections at AWG conductors for control circuit</b> <ul style="list-style-type: none"> <li>• solid</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1x (20 ... 12), 2x (20 ... 14)                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Wire length</b> <ul style="list-style-type: none"> <li>• between soft starter and motor maximum</li> <li>• at the digital inputs at DC maximum</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 800 m<br>1 000 m                                                                                                                                                                                                                                                                                                                                                                                    |

## Ambient conditions

|                                                                                                                                                                  |                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage and transport</li> </ul>                          | -25 ... +60 °C<br>-25 ... +80 °C                                                                                                                                                                                                   |
| <b>Environmental category</b> <ul style="list-style-type: none"> <li>• during operation acc. to IEC 60721</li> <li>• during storage acc. to IEC 60721</li> </ul> | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6<br>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4 |

- during transport acc. to IEC 60721

2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)

## Communication/ Protocol

### Communication module is supported

- PROFINET standard
- Modbus TCP
- PROFIBUS

Yes

Yes

Yes

## UL/CSA ratings

### Manufacturer's article number

- of the fuse usable up to 575/600 V according to UL
- of the fuse usable at inside-delta circuit up to 575/600 V according to UL

Type: Class RK5 / K5, max. 100 A; Standard fault, I<sub>q</sub> = 5 kA

Type: Class RK5 / K5, max. 100 A

### Operating power [hp] for three-phase motors

- at 200/208 V at 50 °C rated value
- at 220/230 V at 50 °C rated value
- at 460/480 V at 50 °C rated value
- at 575/600 V at 50 °C rated value
- at 200/208 V at inside-delta circuit at 50 °C rated value
- at 220/230 V at inside-delta circuit at 50 °C rated value
- at 460/480 V at inside-delta circuit at 50 °C rated value
- at 575/600 V at inside-delta circuit at 50 °C rated value

5 hp

7.5 hp

15 hp

20 hp

10 hp

10 hp

25 hp

30 hp

### Contact rating of auxiliary contacts according to UL

R300-B300

## Further information

### Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

### Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RW5521-1HA06>

### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5521-1HA06>

### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5521-1HA06>

### Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

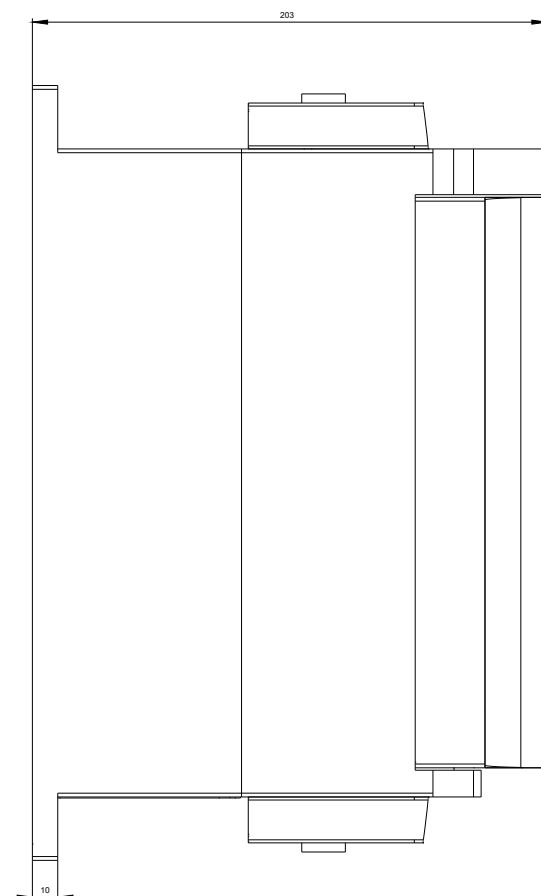
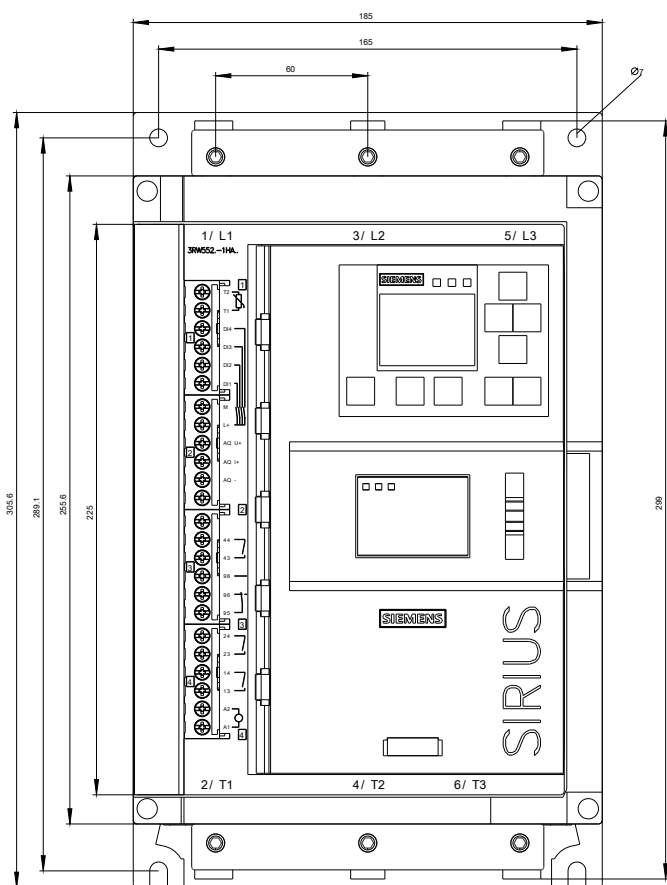
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5521-1HA06&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5521-1HA06&lang=en)

### Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5521-1HA06/char>

### Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5521-1HA06&objecttype=14&gridview=view1>



last modified:

07/04/2018