



| Product designation Product type designation  |   |          | Power contactor<br>BFS25 |
|---|---|----------|--------------------------|
| Contact characteristics                       |   |          | B1 020                   |
| Number of poles                               |   | Nr.      | 3                        |
| Rated insulation voltage Ui IEC/EN            |   | V        | 690                      |
| Rated impulse withstand voltage Uimp          |   | kV       | 6                        |
| Operational frequency                         |   |          |                          |
|   | min                                       | Hz       | 25                       |
|   | max                                       | Hz       | 400                      |
| IEC Conventional free air thermal current Ith |   | Α        | 32                       |
| Operational current le                        |   |          |                          |
|   | AC-1 (≤40°C)                              | Α        | 32                       |
|   | AC-1 (≤40°C) with 16mm² wire and fork end | lugA     | 0                        |
|   | AC-1 (≤55°C)                              | Α        | 26                       |
|   | AC-1 (≤55°C) with 16mm² wire and fork end | lugA     | 0                        |
|   | AC-1 (≤70°C)                              | Α        | 23                       |
|   | AC-1 (≤70°C) with 16mm² wire and fork end | -        | 0                        |
|   | AC-3 (≤440V ≤55°C)                        | Α        | 25                       |
| D. ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (      | AC-4 (400V)                               | Α        | 10                       |
| Rated operational power AC-3 (T≤55°C)         | 2001/                                     |          | _                        |
|   | 230V                                      | kW       | 7                        |
|   | 400V                                      | kW       | 12.5                     |
|   | 415V                                      | kW       | 13.4                     |
|   | 440V<br>500V                              | kW<br>kW | 13.4<br>15               |
|   | 690V                                      | kW       | 11                       |
| Rated operational power AC-1 (T≤40°C)         | 0907                                      | KVV      |                          |
| Nated operational power AC-1 (1240 C)         | 230V                                      | kW       | 12                       |
|   | 400V                                      | kW       | 21                       |
|   | 500V                                      | kW       | 26                       |
|   | 690V                                      | kW       | 36                       |
| IEC max current le in DC1 with L/R ≤ 1ms with |   |          |                          |
|   | `<br>≤24V                                 | Α        | 20                       |
|   | 48V                                       | Α        | 18                       |
|   | 75V                                       | Α        | 18                       |
|   | 110V                                      | Α        | 6                        |
|   | 220V                                      | Α        | _                        |
| IEC max current le in DC1 with L/R ≤ 1ms with | n 2 poles in series                       |          |                          |
|   | ≤24V                                      | Α        | 23                       |
|   | 48V                                       | Α        | 23                       |
|   | 75V                                       | Α        | 23                       |
|   | 110V                                      | Α        | 16                       |
|   | 220V                                      | Α        | 1                        |
| IEC max current le in DC1 with L/R ≤ 1ms with | n 3 poles in series<br>≤24V               | Α        | 23                       |



| ABV   A   23   75V   A   23   110V   A   18   120V   A   18   120V   A   18   110V   A   13   110V   A   13   110V   A   13   110V   A   2   13   110V   A   18   140V   A   18   140V   A   16   110V   A   10   120V   A   2   120V   A   2   120V   A   10   120V   A   10   120V   A   10   120V   A   10   120V   A   18   110V   A   15   120V   A   15    |  |            |      |     |
|--|--|------------|------|-----|
| 75V  |  | 48V        | Α    | 23  |
| 110V   |  |            |      |     |
| EC max current le in DC1 with L/R ≤ 1ms with 4 poles in series   \$24V   |  |            |      |     |
| SEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series   S24V   A   −   −   −   −   −   −   −   −   −   |  |            |      |     |
| \$24V  | IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series      |            |      |     |
| 48   | 120 max canonic to 111 20 1 max 211 - mile max 1 person 111 contes   | <24V       | Α    | _   |
| T5V  |  |            |      | _   |
| 110V   |  |            |      | _   |
| EC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series   \$24V  |  |            |      | _   |
| SEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series   \$24V   |  |            |      | _   |
| \$24V  | IFC may current le in DC3-DC5 with L/R < 15ms with 1 notes in series | 220 V      |      |     |
| 48V  | TEC max current le in DOS-DOS with E/K = 15ms with 1 poles in series | <24\/      | ۸    | 15  |
| 75   |  |            |      |     |
| 110V   |  |            |      |     |
| EEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series   \$\frac{\$\text{\$\cupe\$24V}}{48V} \text{ A} & 18 \\ 48V \text{ A} & 18 \\ 75V \text{ A} & 16 \\ 110V \text{ A} & 10 \\ 220V \text{ A} & 2 \\ 220V \text{ A} & 22 \\ 275V \text{ A} & 18 \\ 110V \text{ A} & 15 \\ 220V \text{ A} & 22 \\ 75V \text{ A} & 18 \\ 110V \text{ A} & 15 \\ 220V \text{ A} & 8 \\ 220V \text{ A} & 8 \\ 220V \text{ A} & 8 \\ 220V \text{ A} & - \\ 48V \text{ A} & - \\ 110V \text{ A} & - \\ 110V \text{ A} & - \\ 110V \text{ A} & - \\ 220V \text{ A} & - \\ 110V \text{ A} & - \\ 220V \text{ A} & 2 \\ 220V \ |  |            |      |     |
| Section   Se     |  |            |      |     |
| \$24V  |  | 2200       | A    | _   |
| 48V  | IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |            |      |     |
| 75V   A   16   110V   A   10   220V   A   2   2   2   2   2   2   2   2   2  |  |            |      |     |
| 110V   A   10   220V   A   2   2   2   2   2   2   2   2   2   |  |            |      |     |
| EC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series   ≤24V   |  |            |      |     |
| Section   Se     |  |            |      |     |
| \$24V  |  | 220V       | Α    | 2   |
| 48V  | IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |            |      |     |
| 75V  |  | ≤24V       | Α    | 22  |
| 110V   A   15   220V   A   8   8   8   8   8   8   8   8   8   |  | 48V        | Α    | 22  |
| EC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series   ≤24V   |  | 75V        | Α    | 18  |
| Section   Sec    |  | 110V       | Α    | 15  |
| \$\frac{\frac{24V}{48V}}{A} = -\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |  | 220V       | Α    | 8   |
| \$\frac{\frac{24V}{48V}}{A} = -\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   | IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |            |      |     |
| ABV   A   -  |  | ≤24V       | Α    | _   |
| 75V  |  |            |      | _   |
| 110V   |  |            |      | _   |
| 220V A   |  |            |      | _   |
| Short-time allowable current for 10s (IEC/EN60947-1)   |  |            | _    | _   |
| Protection fuse  \[ \begin{array}{c ccccccccccccccccccccccccccccccccccc  | Short-time allowable current for 10s (IEC/EN60947-1)                 |            |      |     |
| GG (IEC)   | , ,  |            |      | 200 |
| A   25   | 1 101001101111111100   | ac (IEC)   | ٨    | 50  |
| Making capacity (RMS value)       A       250         Breaking capacity at voltage       440 V       A       200         440 V       A       200       500 V       A       184         690 V       A       102   |  | • , ,      |      |     |
| Breaking capacity at voltage   | Making capacity (PMS value)  | aivi (ILO) |      |     |
| 440V   A   200   500V   A   184   690V   A   102   |  |            | ^    | 250 |
| Soov   A   184   690V   A   102  | breaking Capacity at voltage   | 44017      | ۸    | 200 |
| Resistance per pole (average value)   mΩ   2.5   |  |            |      |     |
| Resistance per pole (average value)   mΩ   2.5   |  |            |      |     |
| Power dissipation per pole (average value)  Ith W 2.6 AC-3 W 1.6  Tightening torque for terminals  min Nm 1.5 max Nm 1.8 min Ibin 1.1 max Ibin 1.5   |  | 690V       |      |     |
| Ith   W   2.6   AC-3   W   1.6   |  |            | mΩ   | 2.5 |
| AC-3 W 1.6 Tightening torque for terminals  min Nm 1.5  max Nm 1.8  min Ibin 1.1  max Ibin 1.5   | Power dissipation per pole (average value)                           |            |      |     |
| Tightening torque for terminals  min Nm 1.5  max Nm 1.8  min Ibin 1.1  max Ibin 1.5  |  |            |      |     |
| min Nm 1.5<br>max Nm 1.8<br>min Ibin 1.1<br>max Ibin 1.5   |  | AC-3       | W    | 1.6 |
| max Nm 1.8<br>min Ibin 1.1<br>max Ibin 1.5   | Tightening torque for terminals                                      |            |      |     |
| min Ibin 1.1<br>max Ibin 1.5   |  | min        | Nm   | 1.5 |
| max Ibin 1.5   |  | max        | Nm   | 1.8 |
|  |  | min        | lbin | 1.1 |
|  |  | max        | lbin | 1.5 |
| Tightening torque for coil terminal  | Tightening torque for coil terminal                                  |            |      |     |

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|                           | min   | Nm      | 0.8                   |
|---------------------------|---|---------|-----------------------|
|                           | max   | Nm      | 1                     |
|                           | min   | Ibin    | 0.8                   |
|                           | max   | Ibin    | 0.74                  |
|                           | simultaneously connectable                          | Nr.     | 2                     |
| Conductor section         |   |         |                       |
|                           | AWG/Kcmil   |         |                       |
|                           | max   |         | 10                    |
|                           | Flexible w/o lug conductor section                  | _       |                       |
|                           | min   | mm²     | 1                     |
|                           | max   | mm²     | 6                     |
|                           | Flexible c/w lug conductor section                  | _       |                       |
|                           | min   | mm²     | 1                     |
|                           | max   | mm²     | 4                     |
|                           | Flexible with insulated spade lug conductor section | •       |                       |
|                           | min   | mm²     | 1                     |
|                           | max   | mm²     | 4                     |
| Power terminal prote      | ction according to IEC/EN 60529                     |         | IP20 when             |
| Cable atrianing lange     |   |         | properly wired        |
| Cable stripping lengh     |   |         | 0                     |
|                           | main circuit  | mm      | 0                     |
|                           | command circuit                                     | mm      | 0                     |
| Mechanical features       | auxiliary circuit                                   | mm      | 0                     |
|                           |   |         |                       |
| Operating position        | normal  |         | Vertical plan         |
|                           | normal<br>allowable                                 |         | Vertical plan<br>±30° |
| Fixing                    | allowable   |         | Screw / DIN rail      |
|                           |   |         | 35mm                  |
| Weight                    |   | g       | 500                   |
| Auxiliary contact char    | acteristics   |         | 4.0                   |
| Thermal current Ith       |   | Α       | 10                    |
| IEC/EN 60947-5-1 de       | •   |         | A600 - Q600           |
| Operating current AC      |   |         | •                     |
|                           | 230V  | A       | 3                     |
|                           | 400V  | A       | 1.9                   |
| On another a summer to DC | 500V  | Α       | 1.4                   |
| Operating current DC      |   | ۸       | 0                     |
|                           | 24V   | A       | 0                     |
|                           | 48V   | A       | 0                     |
|                           | 60V<br>125V   | A<br>A  | 0                     |
|                           | 220V  | A       | 0                     |
|                           | 600V  | A       | 0                     |
| Operating current DC      |   | ^       | U                     |
| operating current DC      | 110V  | Α       | 1.25                  |
|                           | 110V<br>125V  | A       | 0.55                  |
|                           | 600V  | A       | 0.1                   |
| Operations                | 000 V   |         | U. 1                  |
| Mechanical life           |   | cycles  | 20000000              |
| Electrical life           |   | cycles  | 1200000               |
| Safety related data       |   | Oy OlC3 | 120000                |
|                           | 10d according to EN/ISO 13489-1                     |         |                       |
| . Shomanoo level B        | rated load  | cycles  | 1200000               |
|                           | Taled load  |         | 120000                |



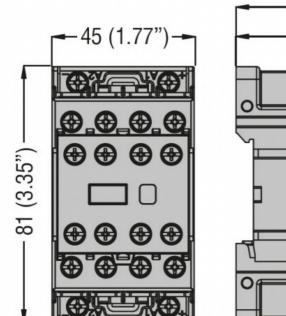
|                           |                          |  | mechanical load   | cycles                           | 20000000   |
|---------------------------|--------------------------|--|---|----------------------------------|--|
|                           | ng to IEC/EN 609474-4-   | 1  |   |                                  | Yes  |
| EMC compatibility         |                          |  |   |                                  | yes  |
| Electrical characteristic |                          |  |   |                                  |  |
| Operating current DC1     | 3                        |  | 2501/   | ۸                                | 0.27   |
|                           |                          |  | 250V<br>440V  | A<br>A                           | 0.27<br>0.15   |
|                           |                          |  | 500V  | A                                | 0.13   |
| AC coil operating         |                          |  | 300 V   |                                  | 0.13   |
| AC operating voltage      |                          |  |   |                                  |  |
| 7.0 operating vertage     | of 50/60Hz coil powere   | ed at 50Hz   |   |                                  |  |
|                           | 0. 00/001 12 0011 powers | drop-out   |   |                                  |  |
|                           |                          | 5. 5p 5 5.   | max   | %Us                              | 0  |
| DC coil operating         |                          |  |   |                                  |  |
| DC rated control voltage  | је                       |  |   | V                                | 24   |
| DC operating voltage      |                          |  |   |                                  |  |
|                           | pick-up                  |  |   |                                  |  |
|                           |                          |  | min   | %Us                              | 70   |
|                           |                          |  | max   | %Us                              | 125  |
|                           | drop-out                 |  |   |                                  | _  |
|                           |                          |  | min   | %Us                              | 10   |
|                           |                          |  | max   | %Us                              | 40   |
| Average coil consump      | tion ≤20°C               |  |   |                                  |  |
|                           |                          |  | in-rush   | W                                | 5.4  |
|                           |                          |  | holding   | W                                | 5.4  |
| Max cycles frequency      |                          |  |   |                                  |  |
| Mechanical operation      |                          |  |   | cycles/h                         | 3600   |
| ()narating times          |                          |  |   |                                  |  |
| Operating times           | untural.                 |  |   |                                  |  |
| Average time for Us co    |                          |  |   |                                  |  |
|                           | ontrol<br>in AC          | Closing NO   |   |                                  |  |
|                           |                          | Closing NO   | min   | mc.                              | 0  |
|                           |                          | Closing NO   | min<br>may  | ms<br>ms                         | 8  |
|                           |                          |  | min<br>max  | ms<br>ms                         | 8<br>24  |
|                           |                          | Closing NO Opening NO  | max   | ms                               | 24   |
|                           |                          |  | max<br>min  | ms<br>ms                         | 10   |
|                           |                          | Opening NO   | max   | ms                               | 24   |
|                           |                          |  | max<br>min  | ms<br>ms                         | 10   |
|                           |                          | Opening NO   | max<br>min<br>max   | ms<br>ms<br>ms                   | <ul><li>24</li><li>10</li><li>20</li></ul>                                 |
|                           |                          | Opening NO   | max<br>min<br>max<br>min  | ms<br>ms<br>ms                   | <ul><li>24</li><li>10</li><li>20</li><li>14</li></ul>                      |
|                           |                          | Opening NO Closing NC  | max<br>min<br>max<br>min  | ms<br>ms<br>ms                   | <ul><li>24</li><li>10</li><li>20</li><li>14</li></ul>                      |
|                           | in AC                    | Opening NO Closing NC  | max<br>min<br>max<br>min<br>max   | ms<br>ms<br>ms<br>ms             | 24<br>10<br>20<br>14<br>28   |
|                           |                          | Opening NO  Closing NC  Opening NC   | max min max min max min   | ms<br>ms<br>ms<br>ms             | <ul><li>24</li><li>10</li><li>20</li><li>14</li><li>28</li><li>7</li></ul> |
|                           | in AC                    | Opening NO Closing NC  | max<br>min<br>max<br>min<br>max<br>min<br>max                           | ms<br>ms<br>ms<br>ms<br>ms       | 24<br>10<br>20<br>14<br>28<br>7<br>18                                      |
|                           | in AC                    | Opening NO  Closing NC  Opening NC   | max min max min max min max min max                                     | ms<br>ms<br>ms<br>ms<br>ms<br>ms | 24<br>10<br>20<br>14<br>28<br>7<br>18                                      |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO                                  | max<br>min<br>max<br>min<br>max<br>min<br>max                           | ms<br>ms<br>ms<br>ms<br>ms       | 24<br>10<br>20<br>14<br>28<br>7<br>18                                      |
|                           | in AC                    | Opening NO  Closing NC  Opening NC   | max min max min max min max min max                                     | ms ms ms ms ms ms ms ms ms       | 24<br>10<br>20<br>14<br>28<br>7<br>18                                      |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO                                  | max min max min max min max min max min max min max                     | ms    | 24<br>10<br>20<br>14<br>28<br>7<br>18<br>54<br>66<br>14                    |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO Opening NO                       | max min max min max min max min max                                     | ms ms ms ms ms ms ms ms ms       | 24<br>10<br>20<br>14<br>28<br>7<br>18                                      |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO                                  | max min max min max min max min max  min max                            | ms    | 24<br>10<br>20<br>14<br>28<br>7<br>18<br>54<br>66<br>14<br>17              |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO Opening NO                       | max min max min max min max min max  min max  min max  min max  min max | ms | 24<br>10<br>20<br>14<br>28<br>7<br>18<br>54<br>66<br>14<br>17<br>24        |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO Opening NO Closing NO Closing NC | max min max min max min max min max  min max                            | ms    | 24<br>10<br>20<br>14<br>28<br>7<br>18<br>54<br>66<br>14<br>17              |
|                           | in AC                    | Opening NO Closing NC Opening NC Closing NO Opening NO                       | max min max min max min max min max  min max  min max  min max  min max | ms | 24<br>10<br>20<br>14<br>28<br>7<br>18<br>54<br>66<br>14<br>17<br>24        |

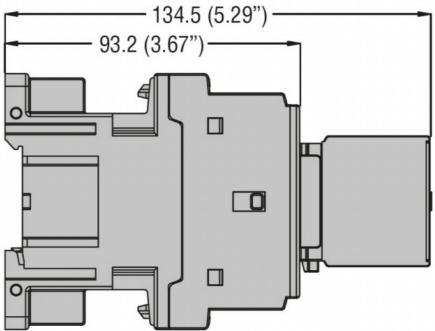


| Rated operational voltage AC (UL)  Full-load current (FLA) for three-phase AC motor  at 480V A 21 at 600V A 17  Yielded mechanical performance for single-phase AC motor  110/120V HP 2   |  |
|---|--|
| Full-load current (FLA) for three-phase AC motor  at 480V A 21 at 600V A 17  Yielded mechanical performance for single-phase AC motor  110/120V HP 2  |  |
| at 480V A 21 at 600V A 17  Yielded mechanical performance for single-phase AC motor  110/120V HP 2  |  |
| Yielded mechanical performance for single-phase AC motor  110/120V HP 2   |  |
| Yielded mechanical performance for single-phase AC motor  110/120V HP 2   |  |
| for single-phase AC motor 110/120V HP 2   |  |
| 110/120V HP 2   |  |
|   |  |
|   |  |
| 230V HP 3   |  |
| for three-phase AC motor  |  |
| 200/208V HP 7.5   |  |
| 220/230V HP 7.5   |  |
| 460/480V HP 15  |  |
| 575/600V HP 15  |  |
| General USE   |  |
| Contactor   |  |
| AC current A 32   |  |
| Auxiliary contacts  |  |
| AC voltage V 600  |  |
| AC current A 10<br>DC voltage V 250   |  |
| DC voltage V 250<br>DC current A 1  |  |
| Short-circuit protection fuse, 600V   |  |
| ·   |  |
| High fault<br>Short circuit current kA 100  |  |
| Fuse rating A 60  |  |
| Fuse class J  |  |
| Standard fault  |  |
| Short circuit current kA 5  |  |
| Fuse rating A 100   |  |
| Contact rating of auxiliary contacts according to UL A600 - Q600  |  |
| Ambient conditions  |  |
| Temperature   |  |
|   |  |
| Operating temperature   |  |
| Operating temperature min °C -50  |  |
|   |  |
| min °C -50  |  |
| min °C -50<br>max °C 70   |  |
| min °C -50<br>max °C 70<br>Storage temperature  |  |
| min °C -50 max °C 70  Storage temperature min °C -60  |  |
| min °C -50 max °C 70  |  |
| min max         °C 70           Storage temperature         min °C -60 max           min or C -60 max         °C 80           Max altitude         m 3000           Resistance & Protection         0   |  |
| min max         °C 70           Storage temperature         min °C -60 max °C 80           Max altitude         m 3000           Resistance & Protection         m 3000           Impact resistance         0           Vibration resistance         0  |  |
| min max         °C 70           Storage temperature         min °C -60 max           min or C -60 max         °C 80           Max altitude         m 3000           Resistance & Protection         0   |  |
| min max         °C 70           Storage temperature           min °C -60 max         °C 80           Max altitude         m 3000           Resistance & Protection           Impact resistance         0           Vibration resistance         0   |  |
| min max         °C 70           Storage temperature           min c C 70           min c C 60           max c C 80           Max altitude         m 3000           Resistance & Protection           Impact resistance         0           Vibration resistance         0           Special thermic treatments         0  |  |
| min max         °C 70           Storage temperature         min or c 70         -60 60           max         °C 80           Max altitude         m 3000           Resistance & Protection         0           Impact resistance         0           Vibration resistance         0           Special thermic treatments         0           Pollution degree         3 |  |

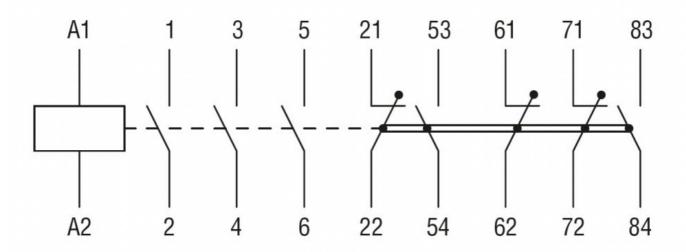
**ENERGY AND AUTOMATION** 

THREE-POLE SAFETY CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 25A, DC COIL, 24VDC, 2NO+3NC AUXILIARY CONTACT





# Wiring diagrams



### Certifications and compliance

Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN/BS 60947-1

IEC/EN/BS 60947-4-1

IEC/EN/BS 60947-5-1

UL 60947-1

UL 60947-4-1

Certificates

cULus

UL listed for USA and Canada

### ETIM classification



# BFS2523D024

THREE-POLE SAFETY CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 25A, DC COIL, 24VDC, 2NO+3NC AUXILIARY CONTACT

ETIM 8.0

EC000066 -Power contactor, AC switching