

Data sheet SM 222, Set (KS222-1BH00)

Technical data

| Power loss     3.5 W       Technical data digital outputs       Number of outputs     16       Cable length, shielded     1000 m       Cable length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration, 60°C     8 A       Total current per group, vertical configuration     8 A       Output delay of "0" to "1"     150 μs       Output delay of "0" to "1"     100 μs       Minimum load current     -       Lamp load     -       Parallel switching of outputs for redundant control of a load     not possible       Parallel switching frequency with resistive load     max. 1000 Hz       Switching frequency with inductive load     max. 0.5 Hz       Switching frequency on lamp load     max. 10 Hz       Internal limitation of inductive shut-off voltage     L+ (-52 V)       Shot-circuit protection of output     yes, electronic       Trigger level     1.5 A  | Order no.   | KS222-1BH00                                  |
|--|---|--|
| General Information     Note   -     Features   16 outputs<br>LED status display on conversion module UB48<br>Outputs unem 0.5 A     Current consumption/power loss   120 mA     Power loss   3.5 W     Technical data digital outputs   16     Number of outputs   16     Cable length, shielded   1000 m     Cable length, unshielded   600 m     Rated load voltage   DC 20.428.6 V     Current consumption from load voltage L+ (without load)   10 mA     Total current per group, horizontal configuration, 40°C   8 A     Total current per group, horizontal configuration, 60°C   8 A     Total current per group, vertical configuration, 60°C   8 A     Output deley of "0" to "1"   150 µs     Output deley of "0" to "1"   160 µs     Output deley of "0" to "1"   100 µs     Minimum load current   -     Lamp load   -     Parallel switching of outputs for increased power   not possible     Actuation of digital input   #     Switching frequency with inductive load   max. 100 Hz     Switching frequency with resistive load   max. 100 Hz     Switching r  | Туре  | SM 222, Set                                  |
| Note     -       Features     L6 outputs<br>L6 output ourrent 0.5 A       Current consumption/power loss     120 mA       Power loss     3.5 W       Technical data digital outputs     16       Cable length, shielded     0000 m       Called urent per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration, 60°C     8 A       Total current per group, vertical configuration, 60°C     8 A       Output delay of "0" to "1"     150 µs       Output delay of "0" to "1"     160 µs       Minimum load current     -       Lamp load     -       Parallel switching of outputs for indreased power     not possible       Parallel switching of outputs for indreased power     not possible       Switching frequency with inductive load     max. 100 Hz       Switching frequency with inductive load   | General information   |  |
| Features   16 outputs<br>LED status display on conversion module UB48     Current consumption from backplane bus   120 mA     Power loss   3.5 W     Technical data digital outputs   16     Cable length, shielded   1000 m     Cable length, shielded   600 m     Rated load voltage   DC 20.428.V     Current consumption from load voltage L+ (without load)   10 mA     Total current per group, horizontal configuration, 40°C   8 A     Total current per group, horizontal configuration, 60°C   8 A     Output delay of "0" 61"   150 µs     Output delay of "1" to 70"   100 µs     Minimum load current   -     Parallel switching of outputs for increased power   not possible     Parallel switching of outputs for increased power   not possible     Parallel switching of outputs for increased power   max 1000 Hz     Switching frequency with resistive load   max 1000 Hz     Switching fr  |   |  |
| LED situs display on conversion module UB48<br>Output current 0.5 A       Current consumption/power loss     120 mA       Current consumption from backplane bus     120 mA       Power loss     3.5 W       Technical data digital outputs     16       Calle length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, vortical configuration, 60°C     8 A       Total current per group, vortical configuration, 60°C     8 A       Output dignal °1° to °1°     160 µs       Output dignal °1° to °1°     160 µs       Output degnal °1° to °1°     100 µs       Minimum load current     -       Parallel switching of outputs for increased power     not possible       Actuation of digital input     Imax: 1000 Hz       Switching frequency with resistive load     max: 1000 Hz       Switching frequency with resistive load     max: 1000 Hz       Switching frequency on lamp load     reaction in creased power       Switching frequency with resistive load     max: 1000 Hz            |   | -  |
| Current consumption from backplane bus 120 mA   Power loss 3.5 W   Technical data digital outputs 16   Cable length, shielded 1000 m   Cable length, unshielded 600 m   Rated load voltage DC 20.428.8 V   Current consumption from load voltage L+ (without load) 10 mA   Total current per group, horizontal configuration, 40°C 8 A   Total current per group, horizontal configuration, 60°C 8 A   Total current per group, vertical configuration, 60°C 8 A   Output durent at signal *1*, rated value 0.5 A   Output durent at signal *1*, rated value 0.5 A   Output delay of *0° to *1* 150 µs   Output delay of *0° to *1* 100 µs   Minimum load current -   Lamp load -   Parallel switching of outputs for increased power not possible   Parallel switching of outputs for increased power not possible   Switching frequency with inductive load max. 1000 Hz   Switching frequency with inductive load max. 1000 Hz   Switching frequency on lamp load -   Internal limitation of inductive shut-off voltage L+ (-52 V)   Short-incut protection of output yes, electronic   Trigge level 1.5 A   Number of operatin   | reatures  | LED status display on conversion module UB48 |
| Power loss     3.5 W       Technical data digital outputs     16       Cable length, shielded     1000 m       Cable length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration     8 A       Output delay of "0" to "1"     0.5 A       Output delay of "0" to "1"     150 μs       Output delay of "1" to "0"     100 μs       Minimum load current     -       Lamp load     -       Parallel switching of outputs for increased power     not possible       Actuation of digital input     Imax. 1000 Hz       Switching frequency with inductive load     max. 1000 Hz       Switching frequency on lamp load     max. 1000 Hz       Switching requency on lamp load     max. 1000 Hz       Switching requency on lamp load     max. 1000 Hz       Switching requency on lamp load     max. 100 Hz       Switching requency on lamp load     max. 100 Hz       Switching requency on lamp load     max. 100 Hz  | Current consumption/power loss                                |  |
| Technical data digital outputs     Number of outputs   16     Cable length, shielded   1000 m     Cable length, unshielded   600 m     Rated load voltage   DC 20.428.8 V     Current consumption from load voltage L+ (without load)   10 mA     Total current per group, horizontal configuration, 40°C   8 A     Total current per group, horizontal configuration, 60°C   8 A     Output current at signal "1", rated value   0.5 A     Output day of "0" to "1"   150 μs     Output day of "1" to "0"   00 μs     Mininum load current   -     Lamp load   -     Parallel switching of outputs for increased power   not possible     Actuation of digital input   ✓     Switching frequency with resistive load   max. 1000 Hz     Switching frequency on lamp load   max. 0.5 Hz     Switching frequency on lamp load   max. 0.5 Hz     Switching frequency on lamp load   max. 0.5 Hz     Switching requency on lamp load   max. 0.5 Hz     Swit   | Current consumption from backplane bus                        | 120 mA                                       |
| Number of outputs     16       Cable length, shielded     1000 m       Cable length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration     8 A       Output current at signal "1", rated value     0.5 A       Output delay of "0 "1"     150 µs       Output delay of "0 "1"     100 µs       Minimum load current     -       Lamp load     -       Parallel switching of outputs for increased power     not possible       Parallel switching of outputs for increased power     not possible       Actuation of digital input     ✓       Switching frequency with inductive load     max. 0.5 Hz       Switching frequency on amp load     max. 1000 Hz       Internal imitation of inductive shut-off voltage     L+ (-52 V)       Short-oricuit protection of output     yes, electronic       Trigger level     1.5 A       Number of operating cycle of relay outputs     -       Switching capacity of contacts   | Power loss  | 3.5 W  |
| Cable length, shielded     1000 m       Cable length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration, 60°C     8 A       Total current per group, vertical configuration     8 A       Output delay of "0° to "1"     55 JP       Output delay of "1° to "0"     100 µs       Minimum load current     -       Lamp load     -       Parallel switching of outputs for increased power     not possible       Actuation of digital input     ✓       Switching frequency with inductive load     max. 1000 Hz       Switching frequency on lamp load     max. 10.5 Hz       Switching requency on lamp load     max. 10.5 Hz       Switching capacity or contacts     -       Switching requency on lamp load     max. 10.5 Hz       Switching requency on lamp load     max. 10.5 Hz       Switching capacity or contacts     -       Switching capacity or contacts     -       Switching capacity or contacts     - </td <td>Technical data digital outputs</td> <td></td> | Technical data digital outputs                                |  |
| Cable length, unshielded     600 m       Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration, 60°C     8 A       Total current per group, vertical configuration, 60°C     8 A       Output current at signal "1", rated value     0.5 A       Output delay of "0" to "1"     150 μs       Output delay of "1" to "0"     100 μs       Minimun load current     -       Lamp load     -       Parallel switching of outputs for redundant control of a load     not possible       Actuation of digital input     ✓       Switching frequency with resistive load     max. 1000 Hz       Switching frequency with resistive load     max. 1000 Hz       Switching frequency on lamp load     max. 1000 Hz       Internal limitation of inductive shut-off voltage     L+ (-52 V)       Short-circuit protection of outputs     -       Switching capacity of contacts     -       Switching capacity of contacts     -       Switching capacity of contacts     -       <                                     | Number of outputs   | 16   |
| Rated load voltage     DC 20.428.8 V       Current consumption from load voltage L+ (without load)     10 mA       Total current per group, horizontal configuration, 40°C     8 A       Total current per group, horizontal configuration, 60°C     8 A       Total current per group, vertical configuration, 60°C     8 A       Output current at signal "1", rated value     0.5 A       Output delay of "0" 0" 1"     150 μs       Output delay of "1" to "0"     100 μs       Minimun load current     -       Lamp load     -       Parallel switching of outputs for redundant control of a load     not possible       Parallel switching of outputs for increased power     not possible       Actuation of digital input     Imax: 1000 Hz       Switching frequency with resistive load     max: 1000 Hz       Switching frequency on lamp load     max: 1000 Hz       Switching frequency on lamp load     max: 1000 Hz       Switching requency on lamp load     max: 1000 Hz       Switching capacity of contacts     -                              | Cable length, shielded  | 1000 m                                       |
| Current consumption from load voltage L+ (without load)   10 mA     Total current per group, horizontal configuration, 60°C   8 A     Total current per group, horizontal configuration, 60°C   8 A     Output current at signal "1", rated value   0.5 A     Output delay of "0" to "1"   150 μs     Output delay of "0" to "1"   100 μs     Minimum load current   -     Lamp load   -     Parallel switching of outputs for redundant control of a load   not possible     Actuation of digital input   ✔     Switching frequency with resistive load   max. 1000 Hz     Switching frequency with inductive load   max. 0.5 Hz     Switching frequency on lamp load   max. 0.5 Hz     Switching requency of outputs   -     Switching requency of contacts   -     Switching requency of any load   max. 0.5 Hz     Switching requency on lamp load   max. 100 Hz     Switching requency of or relay outputs   -     Switching capacity of contacts   -     Switching capacity of c  | Cable length, unshielded                                      | 600 m  |
| Total current per group, horizontal configuration, 40°C8 ATotal current per group, horizontal configuration, 60°C8 ATotal current per group, vertical configuration8 AOutput current at signal "1", rated value0.5 AOutput delay of "0" to "1"150 μsOutput delay of "1" to "0"100 μsMinimum load current-Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 0.5 HzSwitching frequency on lamp load1.5 ANumber of operating cycle of relay outputs-Trigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output dat asize2 ByteStatus information, alarms, diagnostics-Status displaynoneInterruptsnoProcess alarmno   | Rated load voltage  | DC 20.428.8 V                                |
| Total current per group, horizontal configuration, 60°C8 ATotal current per group, vertical configuration8 AOutput current at signal "1", rated value0.5 AOutput delay of "0" to "1"150 μsOutput delay of "1" to "0"100 μsMinimum load current-Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 0.5 HzSwitching of outputsSwitching cole of relay outputs-Switching cole of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Status displaynoneInterruptsnoneProcess alarmno   | Current consumption from load voltage L+ (without load)       | 10 mA  |
| Total current per group, vertical configuration   8 A     Output current at signal "1", rated value   0.5 A     Output delay of "0" to "1"   150 µs     Output delay of "1" to "0"   100 µs     Minimum load current   -     Lamp load   -     Parallel switching of outputs for redundant control of a load   not possible     Parallel switching of outputs for increased power   not possible     Actuation of digital input   ✓     Switching frequency with resistive load   max. 1000 Hz     Switching frequency with inductive load   max. 0.5 Hz     Switching frequency on lamp load   max. 0.5 Hz     Switching frequency on lamp load   max. 10 Hz     Internal limitation of inductive shut-off voltage   L+ (-52 V)     Short-circuit protection of output   yes, electronic     Trigger level   1.5 A     Number of operating cycle of relay outputs   -     Switching capacity of contacts   -     Output data size   2 Byte     Status display   none     Interrupts   no     Process alarm   no   | Total current per group, horizontal configuration, 40°C       | 8 A  |
| Output current at signal "1", rated value0.5 AOutput delay of "0" to "1"150 µsOutput delay of "1" to "0"100 µsMinimun load current-Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital input✓Switching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno   | Total current per group, horizontal configuration, 60°C       | 8 A  |
| Output delay of "0" to "1"150 µsOutput delay of "1" to "0"100 µsMinimum load current-Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital input✔Switching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno   | Total current per group, vertical configuration               | 8 A  |
| Output delay of "1" to "0"   100 µs     Minimum load current   -     Lamp load   -     Parallel switching of outputs for redundant control of a load   not possible     Parallel switching of outputs for increased power   not possible     Actuation of digital input   ✓     Switching frequency with resistive load   max. 1000 Hz     Switching frequency with inductive load   max. 0.5 Hz     Switching frequency on lamp load   max. 10 Hz     Internal limitation of inductive shut-off voltage   L+ (-52 V)     Short-circuit protection of output   yes, electronic     Trigger level   1.5 A     Number of operating cycle of relay outputs   -     Switching capacity of contacts   -     Output data size   2 Byte     Status display   none     Interrupts   no     Process alarm   no  | Output current at signal "1", rated value                     | 0.5 A  |
| Minimum load current-Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputImax. 100 psibleSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno  | Output delay of "0" to "1"                                    | 150 µs                                       |
| Lamp load-Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno   | Output delay of "1" to "0"                                    | 100 µs                                       |
| Parallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputImax. 1000 HzSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno  | Minimum load current  | -  |
| Parallel switching of outputs for increased powernot possibleActuation of digital inputImax. 1000 HzSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno   | Lamp load   | -  |
| Actuation of digital inputImage: Actuation of digital inputSwitching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL + (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus displaynoneInterruptsnoProcess alarmno   | Parallel switching of outputs for redundant control of a load | not possible                                 |
| Switching frequency with resistive loadmax. 1000 HzSwitching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnosticsStatus displaynoneInterruptsnoProcess alarmno  | Parallel switching of outputs for increased power             | not possible                                 |
| Switching frequency with inductive loadmax. 0.5 HzSwitching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnosticsStatus displaynoneInterruptsnoProcess alarmno   | Actuation of digital input                                    | ✓  |
| Switching frequency on lamp loadmax. 10 HzInternal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnosticsStatus displaynoneInterruptsnoProcess alarmno   | Switching frequency with resistive load                       | max. 1000 Hz                                 |
| Internal limitation of inductive shut-off voltageL+ (-52 V)Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnostics-Status displaynoneInterruptsnoProcess alarmno  | Switching frequency with inductive load                       | max. 0.5 Hz                                  |
| Short-circuit protection of outputyes, electronicTrigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnosticsStatus displaynoneInterruptsnoProcess alarmno  | Switching frequency on lamp load                              | max. 10 Hz                                   |
| Trigger level1.5 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size2 ByteStatus information, alarms, diagnosticsStatus displaynoneInterruptsnoProcess alarmno   | Internal limitation of inductive shut-off voltage             | L+ (-52 V)                                   |
| Number of operating cycle of relay outputs   -     Switching capacity of contacts   -     Output data size   2 Byte     Status information, alarms, diagnostics   -     Status display   none     Interrupts   no     Process alarm   no   | Short-circuit protection of output                            | yes, electronic                              |
| Switching capacity of contacts -   Output data size 2 Byte   Status information, alarms, diagnostics -   Status display none   Interrupts no   Process alarm no  | Trigger level   | 1.5 A  |
| Output data size 2 Byte   Status information, alarms, diagnostics   Status display none   Interrupts no   Process alarm no   | Number of operating cycle of relay outputs                    | -  |
| Status information, alarms, diagnostics   Status display none   Interrupts no   Process alarm no   | Switching capacity of contacts                                | -  |
| Status display none   Interrupts no   Process alarm no   | Output data size  | 2 Byte                                       |
| Interrupts no<br>Process alarm no  | Status information, alarms, diagnostics                       |  |
| Process alarm no   | Status display  | none   |
|  | Interrupts  | no   |
| Diagnostic interrupt no  | Process alarm   | no   |
|  | Diagnostic interrupt  | no   |



| Diagnostic functions               | no                     | A YASKAWA COMPANY       |  |
|------------------------------------|------------------------|-------------------------|--|
| Diagnostics information read-out   | none                   |                         |  |
| Supply voltage display             | none                   |                         |  |
| Group error display                | none                   |                         |  |
| Channel error display              | none                   |                         |  |
| Isolation                          |                        |                         |  |
| Between channels                   | -                      |                         |  |
| Between channels of groups to      | 16                     |                         |  |
| Between channels and backplane bus | s.                     |                         |  |
| Insulation tested with             | DC 500 V               |                         |  |
| Datasizes                          |                        |                         |  |
| Input bytes                        | 0                      |                         |  |
| Output bytes                       | 2                      |                         |  |
| Parameter bytes                    | 0                      |                         |  |
| Diagnostic bytes                   | 0                      |                         |  |
| Housing                            |                        |                         |  |
| Material                           | PPE / PA 6.6           |                         |  |
| Mounting                           | Profile rail 35 mm     |                         |  |
| Mechanical data                    |                        |                         |  |
| Dimensions (WxHxD)                 | 25.4 mm x 76 mm x 88 r | 25.4 mm x 76 mm x 88 mm |  |
| Weight                             | 80 g                   | 80 g                    |  |
| Environmental conditions           |                        |                         |  |
| Operating temperature              | 0 °C to 60 °C          |                         |  |
| Storage temperature                | -25 °C to 70 °C        |                         |  |
| Certifications                     |                        |                         |  |
| UL508 certification                | yes                    |                         |  |
|                                    |                        |                         |  |