

## Data sheet

SM 022 (022-1BF00)

## Technical data

| Module ID 0106 AFC8  General Information Note  | Order no.   | 022-1BF00             |
|--|---|-----------------------|
| Module ID         0106 AFC8           General Information         -           Note         -           Features         8 DO DC 24 V 0.00 DC 24 DC  | Туре  | SM 022                |
| Note         -           Features         8x DO DC 24 V 0.5 A           Current consumption from backplane bus         80 mA           Power loss         0.7 W           Technical data digital outputs           Number of outputs         8           Cable length, shielded         1000 m           Cable length, shielded         600 m           Rated load voltage         DC 20 428.8 V           Current consumption from load voltage L+ (without load)         15 mA           Total current per group, horizontal configuration, 40°C         4 A           Total current per group, horizontal configuration, 60°C         4 A           Total current per group, vertical configuration         4 A           Output current at signal "1", rated value         0.5 A           Signal logic output         Sourcing output           Output delay of "1" to "0"         175 μs           Minimum load current         -           Lamp load         10 W           Parallel switching of outputs for increased power         not possible           Actuation of digital input         yes           Switching frequency with resistive load         max. 100 Hz           Switching frequency with resistive load         max. 100 Hz           Switching frequency with res  | Module ID   | 0106 AFC8             |
| Features 8x DO DC 24 V O.6.5 A  Current consumption/power loss  Current consumption from backplane bus 80 mA  Power loss 0,7 W  Tochnical data digital outputs  Number of outputs 8  Cable length, shelded 1000 m  Cable length, shelded 600 m  Rated load voltage DC 20.428.8 V  Current consumption from load voltage L+ (without load) 15 mA  Total current per group, horizontal configuration, 60°C 4 A  Total current per group, horizontal configuration 60°C 4 A  Total current per group, retrical configuration 60°C 4 A  Total current per group, retrical configuration 60°C 4 A  Signal logic output 0.5 A  Signal logic output 50°C 17°C 10°C 10°C 10°C 10°C 10°C 10°C 10°C 10   | General information   |                       |
| Current consumption/power loss Current consumption from backplane bus 80 mA Power loss 0.7 W  Technical data digital outputs  Number of outputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage DE (without load) 15 mA Total current per group, horizontal configuration, 40°C 4 A Total current per group, horizontal configuration, 60°C 4 A Total current per group, vertical configuration, 60°C 4 A Total current at signal "1", rated value 0.5 A Signal logic output Sourcing output Sourcing output Output delay of "0" to "1" 30 µs  Unput delay of "0" to "1" 30 µs  Minimum load current   | Note  |                       |
| Current consumption from backplane bus 0,7 W Technical data digital outputs  Number of outputs 8 Cable length, shielded 000 m Rated load voltage 000 m Cable length, unshielded 000 m Rated load voltage 000 m Rated 000 m Rated 000 m Rated load voltage 000 m Rated  | Features  | DC 24 V               |
| Power loss 0.7 W  Technical data digital outputs  Number of outputs 8 Cable length, shielded 1000 m Cable length, shielded 600 m Rated load voltage Rated load voltage Current consumption from load voltage L+ (without load) 15 mA Total current per group, horizontal configuration, 40°C 4 A Total current per group, horizontal configuration, 60°C 4 A Total current per group, vertical configuration 60°C 4 A Total current at signal "1", rated value 0.5 A Signal logic output Sourcing output Sourcing output Output delay of "0" to "1" 30 µs Output delay of "0" to "1" 0" 175 µs Minimum load current 1 Lamp load 10 W 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 yes Switching frequency with inductive load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-45 V) Short-circuit protection of output Parallel switching capacity of centacts Switching capacity of contacts Coutput data size 8 Bit  Status display green LED per channel Interrupts no  | Current consumption/power loss                                |                       |
| Number of outputs  Cable length, shielded  Cable length, unshielded  600 m  Rated load voltage  Current consumption from load voltage L+ (without load)  Total current per group, horizontal configuration, 60°C  4 A  Total current per group, horizontal configuration, 60°C  4 A  Total current per group, vertical configuration  4 A  Output current at signal *1", rated value  5 Suncing output  Output delay of *0" to *1"  30 µs  Output delay of *0" to *0"  Minimum load current  10 W  Parallel switching of outputs for increased power  Actuation of digital input  Switching frequency with inductive load  Switching frequency with inductive load  Switching frequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (-45 V)  Short-circuit protection of output  Status display  Green LED per channel  Interrupts  Rate Salarm  10 PC 2005-8 BB H  Status display  Green LED per channel  Interrupts  Interru | Current consumption from backplane bus                        | 80 mA                 |
| Number of outputs Cable length, shielded Cable length, unshielded Carrent consumption from load voltage L+ (without load) Current consumption from load voltage L+ (without load) Total current per group, horizontal configuration, 40°C 4 A Total current per group, horizontal configuration Cutput current at signal "1", rated value Cutput current at signal "1", rated value Cutput delay of "0" to "1" Cutput delay of "0" to "1" Cutput delay of "1" to "0" Cutput delay of outputs for redundant control of a load Cutput delay of outputs for increased power Cutput delay of outputs Cutput delay output | Power loss  | 0.7 W                 |
| Cable length, unshielded 1000 m  Cable length, unshielded 600 m  Rated load voltage DC 20.428.8 V  Current consumption from load voltage L+ (without load) 15 mA  Total current per group, horizontal configuration, 40°C 4 A  Total current per group, horizontal configuration 60°C 4 A  Output current as signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 30 µs  Output delay of "0" to "1" 10" 175 µs  Minimum load current  Lamp load 10 W  Parallel switching of outputs for redundant control of a load not possible  Actuation of digital input yes  Switching frequency with resistive load max. 100 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+ (-45 V)  Short-circuit protection of outputs  Switching capacity of contacts PS  Switching capacity of contacts B Bit  Status display green LED per channel  Interrupts no DC 20.428.8 V  A A  A.  A.  D. C. 20.4  | 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) 15 mA Total current per group, horizontal configuration, 40°C 4 A Total current per group, vertical configuration, 60°C 4 A Total current per group, vertical configuration 4 A Output current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" 30 µs Output delay of "1" to "0" 175 µs Minimum load current - Lamp load 10 W 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 yes Switching frequency with resistive load max. 100 Hz Switching frequency with inductive load max. 100 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-45 V) Short-circuit protection of output  yes, electronic Trigger level 1 A Number of operating cycle of relay outputs  - Switching capacity of contacts - Cutput data size 8 Bit  Status display green LED per channel Interrupts no   | Number of outputs   | 8                     |
| Rated load voltage DC 20.428.8 V  Current consumption from load voltage L+ (without load) 15 mA  Total current per group, horizontal configuration, 40°C 4 A  Total current per group, horizontal configuration, 60°C 4 A  Total current per group, vertical configuration 4 A  Output current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 30 µs  Output delay of "1" to "0" 175 µs  Minimum load current -  Lamp load 10 W  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 yes  Switching frequency with resistive load max. 100 Hz  Switching frequency on lamp load max. 10 Hz  Internal limitation of inductive shut-off voltage L+ (-45 V)  Short-circuit protection of outputs  Switching capacity of contacts -  Switching capacity of contacts -  Switching capacity of contacts -  Output data size 8 Bit  Status display green LED per channel  Interrupts no current per group, horizontal configuration, 40°C 4 A  A  A  A  A  A  A  A  A  A  A  A  A  | Cable length, shielded  | 1000 m                |
| Current consumption from load voltage L+ (without load)  Total current per group, horizontal configuration, 40°C  4 A  Total current per group, horizontal configuration, 60°C  4 A  Total current per group, vertical configuration  4 A  Output current at signal "1", rated value  5 Sourcing output  Curput delay of "0" to "1"  30 µs  Output delay of "1" to "0"  175 µs  Minimum load current  - Lamp load  10 W  Parallel switching of outputs for redundant control of a load  Actuation of digital input  yes  Switching frequency with resistive load  Switching frequency with inductive load  Switching frequency with inductive load  Switching frequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (-45 V)  Short-circuit protection of output  Trigger level  1 A  Number of operating cycle of relay outputs  Switching capacity of contacts  - Cutput data size  8 Bit  Status display  green LED per channel  Interrupts  no  Process alarm   | Cable length, unshielded                                      | 600 m                 |
| Total current per group, horizontal configuration, 40°C 4 A Total current per group, horizontal configuration, 60°C 4 A Total current per group, vertical configuration 4 A Output current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" 30 μs Output delay of "1" to "0" 175 μs Minimum load current - Lamp load 10 W 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 yes 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+ (-45 V) Short-circuit protection of outputs Trigger level 1 A Number of operating cycle of relay outputs y Switching capacity of contacts - Output data size 8 Bit  Status display green LED per channel Interrupts no   | Rated load voltage  | DC 20.428.8 V         |
| Total current per group, horizontal configuration, 60°C 4 A Total current per group, vertical configuration 4 A Output current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" 0" 175 µs Minimum load current - Lamp load 10 W 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 yes 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+ (-45 V) Short-circuit protection of output yes, electronic Trigger level 1 A Number of operating cycle of relay outputs Switching capacity of contacts - Output data size 8 Bit  Status display green LED per channel Interrupts no source and source an | Current consumption from load voltage L+ (without load)       | 15 mA                 |
| Total current per group, vertical configuration 4 A  Output current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 30 µs  Output delay of "1" to "0" 175 µs  Minimum load current   | Total current per group, horizontal configuration, 40°C       | 4 A                   |
| Output current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 30 µs  Output delay of "1" to "0" 175 µs  Minimum load current -  Lamp load 10 W  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 yes  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+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit   Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  | Total current per group, horizontal configuration, 60°C       | 4 A                   |
| Signal logic output Output delay of "0" to "1" Output delay of "1" to "0" 175 µs Minimum load current  | Total current per group, vertical configuration               | 4 A                   |
| Output delay of "0" to "1" Output delay of "1" to "0"  Minimum load current  | Output current at signal "1", rated value                     | 0.5 A                 |
| Output delay of "1" to "0"  Minimum load current   | Signal logic output   | Sourcing output       |
| Minimum load current  Lamp load  Parallel switching of outputs for redundant control of a load  Parallel switching of outputs for increased power  Actuation of digital input  Switching frequency with resistive load  Switching frequency with inductive load  Switching frequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (-45 V)  Short-circuit protection of output  Yes, electronic  Trigger level  1 A  Number of operating cycle of relay outputs  Switching capacity of contacts  Output data size  Status information, alarms, diagnostics  Status display  Frequency on lamp load  green LED per channel  Interrupts  no  Process alarm   | Output delay of "0" to "1"                                    | 30 µs                 |
| Lamp load10 WParallel switching of outputs for redundant control of a loadnot possibleParallel switching of outputs for increased powernot possibleActuation of digital inputyesSwitching 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+ (-45 V)Short-circuit protection of outputyes, electronicTrigger level1 ANumber of operating cycle of relay outputs-Switching capacity of contacts-Output data size8 BitStatus information, alarms, diagnosticsStatus displaygreen LED per channelInterruptsnoProcess alarmno  | Output delay of "1" to "0"                                    | 175 µs                |
| 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 yes  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+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  | Minimum load current  | -                     |
| Parallel switching of outputs for increased power not possible  Actuation of digital input yes  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+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  | Lamp load   | 10 W                  |
| 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+ (-45 V)  Short-circuit protection of output  yes, electronic  Trigger level  1 A  Number of operating cycle of relay outputs  - Switching capacity of contacts  Output data size  8 Bit  Status information, alarms, diagnostics  Status display  Interrupts  no  Process alarm  max. 1000 Hz  max. 10 Hz  L+ (-45 V)  short-circuit protection of output  yes, electronic  1 A  8 Bit  Status information, alarms, diagnostics  green LED per channel  no  | Parallel switching of outputs for redundant control of a load | not possible          |
| 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+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  | Parallel switching of outputs for increased power             | not possible          |
| 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+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  | Actuation of digital input                                    | yes                   |
| Switching frequency on lamp load max. 10 Hz  Internal limitation of inductive shut-off voltage L+ (-45 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm no   | Switching frequency with resistive load                       | max. 1000 Hz          |
| Internal limitation of inductive shut-off voltage  L+ (-45 V)  Short-circuit protection of output  yes, electronic  Trigger level  1 A  Number of operating cycle of relay outputs  - Switching capacity of contacts  - Output data size  8 Bit  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm  no   | Switching frequency with inductive load                       | max. 0.5 Hz           |
| Short-circuit protection of output  Trigger level  1 A  Number of operating cycle of relay outputs  - Switching capacity of contacts  - Output data size  Status information, alarms, diagnostics  Status display  frigger level  1 A  - Sumble of operating cycle of relay outputs  - Sumble of operating cycle of operating cycl | Switching frequency on lamp load                              | max. 10 Hz            |
| Trigger level 1 A  Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 8 Bit  Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no   | Internal limitation of inductive shut-off voltage             | L+ (-45 V)            |
| Number of operating cycle of relay outputs  Switching capacity of contacts  Output data size  8 Bit  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm  no   | Short-circuit protection of output                            | yes, electronic       |
| Switching capacity of contacts - Output data size 8 Bit  Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no   | Trigger level   | 1 A                   |
| Output data size 8 Bit  Status information, alarms, diagnostics  Status display green LED per channel Interrupts no Process alarm no   | Number of operating cycle of relay outputs                    | -                     |
| Status information, alarms, diagnostics       Status display     green LED per channel       Interrupts     no       Process alarm     no  | Switching capacity of contacts                                | -                     |
| Status display green LED per channel Interrupts no Process alarm no  | Output data size  | 8 Bit                 |
| Interrupts no  | Status information, alarms, diagnostics                       |                       |
| Process alarm no   | Status display  | green LED per channel |
|  | Interrupts  | no                    |
|  | Process alarm   | no                    |
| Diagnostic interrupt no  | Diagnostic interrupt  | no                    |



| Diagnostic functions               | no                         |
|------------------------------------|----------------------------|
| Diagnostics information read-out   | none                       |
| Supply voltage display             | green LED                  |
| Group error display                | red LED                    |
| Channel error display              | none                       |
| Isolation                          |                            |
| Between channels                   | -                          |
| Between channels of groups to      | -                          |
| Between channels and backplane bus | yes                        |
| Insulation tested with             | DC 500 V                   |
| PWM data                           |                            |
| PWM channels                       | -                          |
| PWM time basis                     | -                          |
| Period length                      | -                          |
| Minimum pulse width                | -                          |
| Type of output                     | -                          |
| Safety                             |                            |
| Safety protocol                    |                            |
| Safety requirements                |                            |
| Secure user address                | -                          |
| Watchdog                           | -                          |
| Two channels                       | -                          |
| Test pulse length                  | -                          |
| Circuit monitoring                 | -                          |
| Datasizes                          |                            |
| Input bytes                        | 0                          |
| Output bytes                       | 1                          |
| Parameter bytes                    | 0                          |
| Diagnostic bytes                   | 0                          |
| Housing                            |                            |
| Material                           | PPE / PPE GF10             |
| Mounting                           | Profile rail 35 mm         |
| Mechanical data                    |                            |
| Dimensions (WxHxD)                 | 12.9 mm x 109 mm x 76.5 mm |
| Net weight                         | 58 g                       |
| Weight including accessories       | 58 g                       |
| Gross weight                       | 73 g                       |
| Environmental conditions           |                            |
| Operating temperature              | 0 °C to 60 °C              |
| Storage temperature                | -25 °C to 70 °C            |
| Certifications                     |                            |
| UL certification                   | yes                        |
| KC certification                   | yes                        |
| TO CONTINUED I                     | ,                          |