

## Data sheet

SM 222 (222-1BH00)

## Technical data

Type         SM 222           Central Information           Note         -           Features         18x DO DC 24 V DC DC 24 DC DC 24 V DC 24 V DC DC 24 V DC 2	Order no.	222-1BH00
Note         16x DD DC 24 V 0.5 A For conversion module UBAx with LED status display           Current consumption/power loss           Current consumption from backplane bus         120 mA           Power loss         3.5 W           Technical data digital outputs           Number of outputs         16           Cable length, unshielded         1000 m           Cable length, unshielded         600 m           Rated load voltage         DC 20.428.8 V           Permited range         -           Current consumption from power section supply (without load)         10 mA           Total current per group, horizontal configuration, 40°C         8 A           Total current per group, vertical configuration, 60°C         8 A           Total current per group, vertical configuration         8 A           Output delay of 10° to 11°         150 µs           Output delay of 10° to 11°         150 µs           Parallel switching of outputs for increased power         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 resistive load         max. 100 Hz           Switching frequ	Туре	SM 222
Features   16x DO DC 24 V DC 24 V DC 24 V With LED status display    Current consumption/power loss   120 mA    Power loss   3.5 W    Technical data digital outputs   16	General information	
Current consumption/power loss Current consumption from backplane bus 120 mA Power loss 3.5 W Technical data digital outputs Number of outputs 166 Cable length, shielded 1000 m Cable length, shielded 600 m Rated load voltage 600 m Rated load voltage 600 m Rated load voltage 600 m Current consumption from power section supply (without load) 10 mA Total current per group, horizontal configuration, 40°C 8 A Total current per group, horizontal configuration 60°C 8 A Cuput current at signal "1" rated value 6.5 A Signal logic output 70° 100 µs Minimum load current 70° 10° 100 µs Minimum load current 70° 10° 100 µs Minimum load current 70° 10° 100 µs Minimum load current 70° 100 µs Switching frequency with resistive load max. 1000 Hz Switching frequency with resistive load max. 0.5 Hz Switching frequency output so increased power 1.5 A Number of operating cycle of relay outputs 8.5 Verticals 1.5 A Number of operating cycle of relay outputs 8.5 Verticals 1.5 A Number of operating cycle of relay outputs 8.5 Verticals 1.5 A Number of operating cycle of relay outputs 8.5 Verticals 1.5 A Number of operating cycle of relay outputs 8.5 Verticals 2.5 Eyee Status information, alarms, diagnostics Status display 100 me.	Note	
Current consumption from backplane bus         120 mA           Power loss         3.5 W           Technical data digital outputs           Number of outputs         16           Cable length, unshielded         1000 m           Cable length, unshielded         600 m           Rated load voltage         DC 20.428.8 V           Permitted range         -           Current consumption from power section supply (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, horizontal configuration         8 A           Output current at signal "1", rated value         0.5 A           Signal logic output         Sourcing output           Output delay of "0" to "1"         150 µs           Output delay of "1" to "0"         100 µs           Minimum load current         -           Lamp load         5 W           Parallel switching of outputs for increased power         not possible           Parallel switching of equency with inductive load         max. 100 Hz           Switching frequency with inductive load         max. 100 Hz           Switching frequency on lamp load         max. 100 Hz	Features	DC 24 V 0.5 A For conversion module UB4x
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 Permitted range - Current consumption from power section supply (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 current at signal "1", rated value 0.5 A Signal logic output Signal 10° to "1" 150 µs Output delay of "0" to "1" 150 µs Output delay of ontacts	Current consumption/power loss	
Number of outputs  Number of outputs  16 Cable length, shielded  1000 m  Rated load voltage  Permitted range  Current consumption from power section supply (without load)  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  Total current per group, vertical configuration  8 A  Output current at signal "1", rated value  Sourcing output  Output delay of "0" to "1"  150 µs  Output delay of "1" to "0"  Minimum load current  Lamp load  S W  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 resistive load  Switching frequency with resistive load  Switching frequency on lamp load  max. 10 Hz  Suitching frequency on lamp load  max. 10 Hz  Short-cicuit protection of output  Trigger level  1.5 A  Switching capacity of ontacts  2 Byte  Status display  none  Interrupts  None  Interrupts  None  Interrupts  None  Interrupts  None  Interrupts  None  Interrupts  Interrupts  None  Interrupts  None  Interrupts  Interrupts  None  Interrupts  Interrupts  None  Interrupts  Interrupts  None  Interrupts  Int	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           Permitted range         -           Current consumption from power section supply (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 at signal "1", rated value         0.5 A           Signal logic output         Sourcing output           Output delay of "0" to "1"         150 μs           Output delay of "1" to "0"         100 μs           Minimum load current         -           Lamp load         5 W           Parallel switching of outputs for increased power         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. 10 Hz           Switching frequency on lamp load         max. 10 Hz           Internal limitation of inductive shut-off voltage         L+ (-52 V)           Short-circuit protection of outp	Power loss	3.5 W
Cable length, shielded         1000 m           Cable length, unshielded         600 m           Rated load voltage         DC 20.428.8 V           Permitted range         -           Current consumption from power section supply (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           Signal logic output         Sourcing output           Output delay of "0" to "1"         150 μs           Output delay of "1" to "0"         100 μs           Minimum load current         -           Lamp load         5 W           Parallel switching of outputs for increased power         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. 100 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           T	Technical data digital outputs	
Cable length, unshielded       600 m         Rated load voltage       DC 20.428.8 V         Permitted range       -         Current consumption from power section supply (without load)       10 mA         Total current per group, horizontal configuration, 40°C       8 A         Total current per group, vertical configuration, 60°C       8 A         Total current per group, vertical configuration       8 A         Output current at signal "1", rated value       0.5 A         Signal logic output       Sourcing output         Output delay of "0" to "1"       100 μs         Minimum load current       -         Lamp load       5 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 with inductive load       max. 0.5 Hz         Short-circuit protection of output       yes, electronic         Trigger level       1.5 A         Number of operating cycle of relay outputs       -         Switching capacity of contacts       -	Number of outputs	16
Rated load voltage DC 20.428.8 V  Permitted range - Current consumption from power section supply (without load) 10 mA  Total current per group, horizontal configuration, 40°C 8 A  Total current per group, vertical configuration, 60°C 8 A  Total current per group, vertical configuration 8 A  Output current at signal "1", rated value 0.5 A  Suppose the signal logic output 0.50 A  Suppose the signal logic output 0.00 µs  Minimum load current 0.00 µs  Parallel switching of outputs for redundant control of a load 0.00 µs  Switching fequency with resistive load 0.00 µs  Switching frequency with resistive load 0.00 µs  Switching frequency with inductive load 0.00 µs  Switching frequency on lamp load 0.00 µs  Short-circuit protection of output 0.00 µs  Short-circuit protection of output 0.00 µs  Switching capacity of contacts 0.00 µs  Status display 0.00 none  Interrupts 0.00 µs  In one	Cable length, shielded	1000 m
Permitted range - Current consumption from power section supply (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 current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 150 µs  Output delay of "1" to "0" 100 µs  Minimum load current 5 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. 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 - 2 Byte  Status display none  Interrupts none max. 100 Ha  Status display none	Cable length, unshielded	600 m
Current consumption from power section supply (without load) 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 current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" 150 µs Output delay of "0" to "1" to "0" 100 µs Minimum load current	Rated load voltage	DC 20.428.8 V
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 current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 100 μs  Minimum load current -  Lamp load 5 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+ (-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 not possible a  A current at signal "1", rated value on 15 A  Number of operating at a current of the signal at a cur	Permitted range	-
Total current per group, horizontal configuration, 60°C 8 A Total current per group, vertical configuration 8 A Output current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" 150 µs Output delay of "1" to "0" 100 µs Minimum load current	Current consumption from power section supply (without load)	10 mA
Total current per group, vertical configuration 8 A  Output current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" 150 µs  Output delay of "1" to "0" 100 µs  Minimum load current  Lamp load 5 W  Parallel switching of outputs for redundant control of a load not possible  Parallel switching of outputs for increased power not possible  Parallel switching of outputs for increased power 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+ (-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 - 2 Byte  Status information, alarms, diagnostics  Status display none	Total current per group, horizontal configuration, 40°C	8 A
Output current at signal "1", rated value  Signal logic output  Output delay of "0" to "1"  Output delay of "1" to "0"  100 µs  Minimum load current  - Lamp load  Parallel switching of outputs for redundant control of a load  Actuation of digital input  Switching frequency with resistive load  Switching frequency with inductive load  Michard prequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of outputs  Switching capacity of contacts  Output data size  Status information, alarms, diagnostics  Status display  no  150 µs  Sourcing output  5 Upus  150 µs  5 W  100 µs  100 µ	Total current per group, horizontal configuration, 60°C	8 A
Signal logic output  Output delay of "0" to "1"  150 µs  Output delay of "1" to "0"  Minimum load current  Lamp load  Parallel switching of outputs for redundant control of a load  Actuation of digital input  Switching frequency with resistive load  Switching frequency with inductive load  Minimum load current  Actuation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  Trigger level  1.5 A  Number of operating cycle of relay outputs  Status information, alarms, diagnostics  Status display  noe	Total current per group, vertical configuration	8 A
Output delay of "0" to "1" 100 µs  Minimum load current - Lamp load 5 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. 1000 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 not possible not possible not possible max. 1000 Hz  100 µs  100 µ	Output current at signal "1", rated value	0.5 A
Output delay of "1" to "0"  Minimum load current  Lamp load  Farallel switching of outputs for redundant control of a load  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+ (-52 V)  Short-circuit protection of output  Trigger level  Number of operating cycle of relay outputs  Switching capacity of contacts  Output data size  Status display  Interrupts  Interr	Signal logic output	Sourcing output
Minimum load current  Lamp load  5 W  Parallel switching of outputs for redundant control of a load  not possible  Parallel switching of outputs for increased power  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  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 information, alarms, diagnostics  Status display  none  Interrupts	Output delay of "0" to "1"	150 µs
Lamp load 5 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+ (-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 information, alarms, diagnostics  Status display none	Output delay of "1" to "0"	100 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+ (-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 information, alarms, diagnostics  Status display none	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+ (-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 information, alarms, diagnostics  Status display none  Interrupts not possible not possible max. 10 Hz  Internal limitation of digital input yes  max. 1000 Hz  max.	Lamp load	5 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+ (-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  Status information, alarms, diagnostics  Status display  none  Interrupts  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+ (-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 information, alarms, diagnostics  Status display none  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+ (-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 information, alarms, diagnostics  Status display none  Interrupts no	Actuation of digital input	yes
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 information, alarms, diagnostics  Status display none  Interrupts no	Switching frequency with resistive load	max. 1000 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 information, alarms, diagnostics  Status display  none  Interrupts  no	Switching frequency with inductive load	max. 0.5 Hz
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 information, alarms, diagnostics Status display none Interrupts no	Switching frequency on lamp load	max. 10 Hz
Trigger level 1.5 A  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	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	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	Trigger level	1.5 A
Output data size 2 Byte  Status information, alarms, diagnostics Status display none Interrupts no	Number of operating cycle of relay outputs	-
Status information, alarms, diagnostics       Status display     none       Interrupts     no	Switching capacity of contacts	-
Status display none Interrupts no	Output data size	2 Byte
Interrupts no	Status information, alarms, diagnostics	
	Status display	none
Process alarm no	Interrupts	no
	Process alarm	no



Diagnostic interrupt	no
Diagnostic functions	no
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	yes
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 mm
Net weight	80 g
Weight including accessories	-
Gross weight	-
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL certification	yes
KC certification	-