

Data sheet SM 222 (222-2BL10)

## Technical data

Type SM 222  General information  Note	Order no.	222-2BL10
Reatures 32 outputs Output current 1 A  Current consumption/power loss Current consumption from backplane bus 180 mA Power loss 6.5 W  Technical data digital outputs Number of outputs 32 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) 15 mA Total current per group, horizontal configuration, 40°C 10 A Total current per group, horizontal configuration, 40°C 10 A Total current per group, vertical configuration 10 A Output current at signal "1", rated value 1 A Output delay of "0" to "1" 150 µs  Output delay of "0" to "1" 150 µs  Parallel switching of outputs for increased power not possible Parallel switching of outputs for increased power not possible Actuation of digital input 5 Switching frequency with resistive load max. 100 Hz Switching frequency with inductive load max. 100 Hz Switching frequency on lamp load max. 100 Hz Infligent lamitation of inductive shut-off voltage L+ (-62 V) Shont-circuit protection of output sor. Trigger level 1.5 A Number of operating cycle of relay outputs 5 Switching reapency cycle of relay outputs 5 Switching capacity of contacts - Cutput data size 4 Byte  Status display green LED per channel Interrupts no	Туре	SM 222
Note		
Features         32 outputs           Current consumption / power loss           Current consumption from backplane bus         180 mA           Power loss         6.5 W           Technical data digital outputs           Number of outputs         32           Cable length, shielded         1000 m           Cable length, unshielded         600 m           Rated load voltage         DC 20428.8 V           Current consumption from load voltage L+ (without load)         15 mA           Total current per group, horizontal configuration, 40°C         10 A           Total current per group, horizontal configuration, 60°C         10 A           Total current at signal **I**, rated value         1 A           Output dealy of **I** to **I**         150 μs           Output dealy of **I** to **I**         100 μs           Minimum load current         -           Lamp load         5 W           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 shut-off vottage         L+ (-52 V)           Short-directly protection of output         yes, electro		
Current consumption/power loss  Current consumption from backplane bus 180 mA Power loss 6.5 W  Technical data digital outputs  Number of outputs 32 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) 15 mA  Total current per group, horizontal configuration, 40°C 10 A Total current per group, horizontal configuration 60°C 10 A  Output current per group, vertical configuration 10 A  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  Actuation of digital input		
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Power loss 6.5 W  Technical data digital outputs  Number of outputs 32  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) 15 mA  Total current per group, horizontal configuration, 40°C 10 A  Total current per group, horizontal configuration 60°C 10 A  Total current per group, vertical configuration 10 A  Output current at signal "1", rated value 1 A  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  Actuation of digital input   Switching frequency with resistive 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 Trigger level 1.5 A  Number of operating cycle of relay outputs  Switching capacity of contacts - Current  Status display green LED per channel  Internal limited  Internal limited to max. 10 diagnostics  Status display green LED per channel  Interrupts no	Current consumption/power loss	
Number of outputs 32  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) 15 mA  Total current per group, horizontal configuration, 40°C 10 A  Total current per group, horizontal configuration, 60°C 10 A  Output current per group, vertical configuration 10 A  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  Actuation of digital input  Switching frequency with resistive load max. 10 Hz  Switching frequency on lamp load max. 10 Hz  Switching frequency on lamp load max. 10 Hz  Switching capacity of contacts -  Switching agencity of contacts -  Switching agencity of contacts -  Status display green LED per channel  Interrupts no	Current consumption from backplane bus	180 mA
Number of outputs     32       Cable length, shielded     1000 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     10 A       Total current per group, horizontal configuration 60°C     10 A       Output current at signal *1", rated value     1 A       Output delay of *0° to *1*     150 μs       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       Actuation of digital input     ✓       Switching frequency with resistive load     max. 1000 Hz       switching frequency with inductive load     max. 1000 Hz       switching frequency on lamp load     max. 100 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     4 Byte       Status information, alarms, diagnostics       Status information, alarms, diagnostics	Power loss	6.5 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)     15 mA       Total current per group, horizontal configuration, 40°C     10 A       Total current per group, horizontal configuration on 10 A     10 A       Output current at signal "1", rated value     1 A       Output delay of "0" to "1"     150 μs       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     ✓       Switching frequency with resistive load     max. 1000 Hz       Switching frequency with inductive load     max. 0.5 Hz       Switching frequency on lamp load     max. 0.1 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     4 Byte       Status information, alarms, diagnostics       Status display     gr	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       10 A         Total current per group, vertical configuration       10 A         Output current at signal "1", rated value       1 A         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         Actuation of digital input       ✓         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       -         Switching capacity of contacts       -	Number of outputs	32
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     10 A       Total current per group, vertical configuration     10 A       Output current at signal "1", rated value     1 A       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       Actuation of digital input     ✓       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     -       Switching capacity of contacts     -       Status information, alarms, diagnostics       Status display     green LED per channel       Interrupts     no	Cable length, shielded	1000 m
Current consumption from load voltage L+ (without load)  Total current per group, horizontal configuration, 40°C  Total current per group, horizontal configuration, 60°C  Total current per group, vertical configuration  10 A  Total current per group, vertical configuration  10 A  Output current at signal "1", rated value  1 A  Output delay of "0" to "1"  150 μs  Output delay of "1" to "0"  100 μs  Minimum load current  Lamp load  S W  Parallel switching of outputs for redundant control of a load  Actuation of digital input  Switching frequency with resistive load  max. 1000 Hz  Switching frequency with inductive load  max. 0.5 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  -  Suttus display  green LED per channel  Interrupts  no  Process alarm  no	Cable length, unshielded	600 m
Total current per group, horizontal configuration, 40°C 10 A  Total current per group, horizontal configuration 60°C 10 A  Total current per group, vertical configuration 10 A  Output current at signal "1", rated value 1 A  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  Actuation of digital input   Switching frequency with resistive load max. 1000 Hz  Switching frequency with inductive load max. 0.5 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 -  Output data size 4 Byte  Status display green LED per channel  Interrupts no	Rated load voltage	DC 20.428.8 V
Total current per group, horizontal configuration, 60°C 10 A  Total current per group, vertical configuration 10 A  Output current at signal "1", rated value 1 A  Output delay of "0" to "1" 150 μs  Output delay of "0" to "1" 10 "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  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 4 Byte  Status display green LED per channel  Interrupts no	Current consumption from load voltage L+ (without load)	15 mA
Total current per group, vertical configuration  Output current at signal "1", rated value  1 A  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  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  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  4 Byte  Status display  green LED per channel  Interrupts  no  Process alarm	Total current per group, horizontal configuration, 40°C	10 A
Output current at signal "1", rated value 150 µs  Output delay of "0" to "1" 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   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 4 Byte  Status display green LED per channel  Interrupts no	Total current per group, horizontal configuration, 60°C	10 A
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       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     4 Byte       Status information, alarms, diagnostics       Status display     green LED per channel       Interrupts     no       Process alarm     no	Total current per group, vertical configuration	10 A
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         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       4 Byte         Status information, alarms, diagnostics         Status display       green LED per channel         Interrupts       no         Process alarm       no	Output current at signal "1", rated value	1 A
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       ✓         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       4 Byte         Status information, alarms, diagnostics         Status display       green LED per channel         Interrupts       no         Process alarm       no	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 ✓   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 4 Byte   Status information, alarms, diagnostics   Status display green LED per channel   Interrupts no   Process alarm no	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  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 4 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no	Minimum load current	-
Parallel switching of outputs for increased power  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  4 Byte  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm  not possible  max. 10 pcs  max. 1000 Hz  max. 10 Hz  max. 10 Hz  axi. 10 Hz  max. 10 Hz  axi. 10 Hz  max. 100 Hz  max. 10 Hz	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  4 Byte  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm  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 4 Byte  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+ (-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 4 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm no	Actuation of digital input	<b>√</b>
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 4 Byte  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+ (-52 V)  Short-circuit protection of output  yes, electronic  1.5 A  Number of operating cycle of relay outputs  Switching capacity of contacts  Output data size  4 Byte  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 1.5 A  Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 4 Byte  Status information, alarms, diagnostics  Status display green LED per channel Interrupts no Process alarm 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 4 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm 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 4 Byte  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  4 Byte  Status information, alarms, diagnostics  Status display  green LED per channel Interrupts  no  Process alarm  no	Trigger level	1.5 A
Output data size 4 Byte  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	4 Byte
Interrupts no no Process alarm no	Status information, alarms, diagnostics	
Process alarm no	Status display	green LED per channel
	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	green LED per group		
Group error display	red SF LED		
Channel error display	none		
Isolation			
Between channels	-		
Between channels of groups to	16		
Between channels and backplane bus	✓		
Insulation tested with	DC 500 V		
Datasizes			
Input bytes	0		
Output bytes	4		
Parameter bytes	0		
Diagnostic bytes	0		
Housing			
Material	PPE / PA 6.6		
Mounting	Profile rail 35 mm	Profile rail 35 mm	
Mechanical data			
Dimensions (WxHxD)	50.8 mm x 76 mm x 88 mm	1	
Weight	150 g		
Environmental conditions			
Operating temperature	0 °C to 60 °C		
Storage temperature	-25 °C to 70 °C		
Certifications			
UL508 certification	yes		