

Data sheet SM 222, ECO (222-1BH30)

## Technical data

Fype SM 222, ECO  General Information  Note - Features 16 outputs Output current 0.5 A  Current consumption/power loss Current consumption/power loss Current consumption from backplane bus 120 mA  Power loss 3.5 W  Technical data digital outputs  Number of outputs 16 000 m  Cable length, shielded 500 m  Rated 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 "1" o" max. 100 µs  Output delay of "1" o" max. 30 µs  Minimum load current Lamp load  Parallel switching of outputs for redundant control of a load on pot possible  Parallel switching of outputs for increased power not possible  Actuation of digital input  Switching frequency with resistive load max. 100 µs  Switching frequency with resistive load max. 100 µs  Switching frequency with resistive load max. 100 µt  Switching frequency with not of with office and the first of the fir	Order no.	222-1BH30
Note - Features 15 outputs Current 0.5 A  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, shielded 1000 m Cable length, unshielded 600 m Rateol 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, vertical configuration 8 A  Total current per group, vertical configuration 8 A  Output current at signal *1", rated value 0.5 A  Output delay of *1" to *0" max. 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. 100 Hz  Switching frequency with resistive load max. 104 Hz  Let-(52 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 2 Byte  Status information, alarms, diagnostics  Status sideplay green LED per channel Interrupts no	Туре	SM 222, ECO
Note - Features 15 outputs Current 0.5 A  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, shielded 1000 m Cable length, unshielded 600 m Rateol 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, vertical configuration 8 A  Total current per group, vertical configuration 8 A  Output current at signal *1", rated value 0.5 A  Output delay of *1" to *0" max. 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. 100 Hz  Switching frequency with resistive load max. 104 Hz  Let-(52 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 2 Byte  Status information, alarms, diagnostics  Status sideplay green LED per channel Interrupts no		
Features 16.6 outputs Current consumption/power loss Current consumption from backplane bus 12.0 mA Power loss 3.5 W  Technical data digital outputs Number of outputs 16.6 outputs 16.0 ou		
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, 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, prorizon configuration 60°C 8 A  Output current per group, prorizon configuration 80°C 8 A  Output delay of "0" to "1" max. 100 μs  Minimum load current  - Uamp 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 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 A  Number of operating cycle of relay outputs 5 -  Switching capacity of contacts 2 Byte  Status display green LED per channel  Interrupts no  Process alarm no   Process alarm no   Popper support of the process of the process alarm no   Process alarm no   Popper support of the process alarm no   Popper support of the process alarm no   ### Course		
Current consumption from backplane bus 3.5 W  Technical data digital outputs  Number of outputs 16 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Rated 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 Cutput current at signal "1", rated value 0.5 A Output delay of "1" max. 350 µs Minimum load current Lamp load 9 M Parallel switching of outputs for redundant control of a load not possible Actuation of digital input  Switching frequency with inductive load max. 100 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-circlit protection of outputs Status display green LED per channel Interrupts no Process alarm no	Features	
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, portical configuration 60°C 8 A  Output current at signal "1", rated value 0.5 A  Output delay of "0" to "1" max. 100 µs  Whinimum load current	Current consumption/power loss	
Number of outputs 16  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 per group, vertical configuration 8 A  Output delay of "0" to "1" max. 100 μs  Output delay of "1" to "0" max. 350 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 inductive load max. 10 Hz  Switching frequency with inductive load max. 10 Hz  Switching frequency on lamp load max. 20 Hz  Switching frequency on lamp load max. 10 Hz  Switching frequency on lamp load max. 20 Hz  Switching frequency on lamp load max. 10 Hz  Switching frequency on lamp load max. 20 Hz  Switching	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°C 8 A Cutput delay of "0" to "1" max. 100 µs Cutput delay of "0" to "1" max. 350 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. 100 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 outputs Switching capacity of contacts 2 Byte  Status display green LED per channel Interrupts no Capacity on page 1000 per channel Interrupts no Capacity on page 1000 per channel Interrupts no Capacity on Capacity on page 1000 per channel Interrupts no Capacity on Capacity of Capacity on Capacity on Capacity of Capacit	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 8 A Cutput delay of 10° to 11° max. 100 µs Output delay of 10° to 11° max. 350 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. 0.5 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 0.5 Hz Shirt-circuit protection of output Trigger level 1 A Number of operating cycle of relay outputs Status display green LED per channel Interrupts	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, vertical configuration 8 A  Output current at signal "1", rated value 0.5 A  Output delay of "0" to "1" max. 100 µs  Output delay of "1" to "0" max. 350 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 with inductive load max. 10 Hz  Internal limitation of inductive shut-off voltage L+ (-52 V)  Short-circuit protection of output  Trigger level 1 A  Number of operating cycle of relay outputs  Switching capacity of contacts -  Switching capacity of contacts -  Output data size 2 Byte  Status display green LED per channel  Interrupts no service and service should service shared in no  Process alarm no	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 8 A  Output current at signal "1", rated value 0.5 A  Output delay of "0" to "1" max. 100 µs  Output delay of "1" to "0" max. 350 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. 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Switching capacity of contacts -  Switching capacity of contacts -  Sutaus display green LED per channel  Interrupts no	Cable length, shielded	1000 m
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 current at signal *1*, rated value 0.5 A  Output delay of *0* to *1* max. 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 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 outputs  Trigger level 1 A  Number of operating cycle of relay outputs  Status display green LED per channel  Interrupts no	Cable length, unshielded	600 m
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  Output delay of *0" to *1" max. 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. 0.5 Hz  Switching frequency with inductive load max. 0.5 Hz  Switching frequency with inductive shut-off voltage L+ (-52 V)  Short-circuit protection of output yes, electronic  Trigger level 1 A  Number of operating cycle of relay outputs  Status display green LED per channel  Interrupts no	Rated load voltage	DC 20.428.8 V
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  Output delay of "0" to "1" max. 100 μs  Output delay of "1" to "0" max. 350 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte   Status display green LED per channel  Interrupts no	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" max. 100 µs  Output delay of "1" to "0" max. 350 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte   Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no	Total current per group, horizontal configuration, 40°C	8 A
Output current at signal "1", rated value  Output delay of "0" to "1"  Output delay of "1" to "0"  Minimum load current  - Lamp load  Parallel switching of outputs for redundant control of a load  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  Internal limitation of inductive shut-off voltage  L+ (-52 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  2 Byte  Status display  green LED per channel  Interrupts  no  Process alarm  max. 100 µs  max. 100 µs  max. 10 Hz  L+ (-52 V)  Seen LED per channel  Interrupts  no	Total current per group, horizontal configuration, 60°C	8 A
Output delay of "0" to "1" max. 100 µs  Output delay of "1" to "0" max. 350 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 A  Number of operating cycle of relay outputs  Switching capacity of contacts  -  Output data size 2 Byte   Status display green LED per channel  Interrupts no	Total current per group, vertical configuration	8 A
Output delay of "1" to "0" max. 350 µs  Minimum load current	Output current at signal "1", rated value	0.5 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  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 A  Number of operating cycle of relay outputs  -  Switching capacity of contacts  -  Output data size  2 Byte  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm	Output delay of "0" to "1"	max. 100 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no	Output delay of "1" to "0"	max. 350 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm 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 A  Number of operating cycle of relay outputs  -  Switching capacity of contacts  -  Output data size  2 Byte  Status information, alarms, diagnostics  Status display  green LED per channel  Interrupts  no  Process alarm  no	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 A  Number of operating cycle of relay outputs  - Switching capacity of contacts  - Output data size  2 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 Byte  Status information, alarms, diagnostics  Status display green LED per channel  Interrupts no  Process alarm no	Actuation of digital input	✓
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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 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  Trigger level  1 A  Number of operating cycle of relay outputs  Switching capacity of contacts  -  Output data size  2 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 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 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 2 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 2 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  2 Byte  Status information, alarms, diagnostics  Status display  green LED per channel Interrupts  no  Process alarm  no	Trigger level	1 A
Output data size 2 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	2 Byte
Interrupts 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	2		
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)	25.4 mm x 76 mm x 88 n	25.4 mm x 76 mm x 88 mm	
Weight	90 g		
Environmental conditions			
Operating temperature	0 °C to 60 °C		
Storage temperature	-25 °C to 70 °C		
Certifications			
UL508 certification	yes		