

## Data sheet

SM 022 (022-1BB90)

## Technical data

Type SM 022  Module ID 0901 4880  General information  Note - Features 2 00	Order no.	022-1BB90
General information  Note - Features 2x DO DC 24 V PWM till 40 kHz  Current consumption/power loss  Current consumption from backplane bus 105 mA Power loss 0.95 W  Technical data digital outputs  Number of outputs 2 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, 40°C 1 A Total current per group, horizontal configuration, 60°C 1 A Total current per group, horizontal configuration, 60°C 1 A  Cutput current at signal '11', rated value 0.5 A  Signal logic output Sourcing output Sourcing output  Cutput delay of '0' to '1' max, 100 ns  Output delay of '1' to '0' max, 100 ns  Minimum load current — Lamp load 10 W Parallel switching of outputs for redundant control of a load not possible Parallel switching of outputs for redundant control of a load max. 40 kHz Switching frequency with resistive load max. 40 kHz Switching frequency with inductive shut-off voltage L+ (-52 V) Short-circuit protection of output size Parallel switching of cuptut shutch shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic, and only highside Trigger level 2.5 A Number of operating cycle of relay outputs  Switching requency on lamp load max. 40 kHz Switching requency of contacts - Cutput data size 12 Byte  Status information, alarms, diagnostics  Status information, alarms, diagnostics	Туре	SM 022
Note   -   Carrent consumption/power loss   2x DO   DC 24 V   0.5 A   PWM till 40 kHz	Module ID	0901 4880
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Features 2x DO DC 24 V OD, 5 A PWM till 40 kHz  Current consumption/power loss  Current consumption from backplane bus 105 mA  Power loss 0.95 W  Technical data digital outputs  Number of outputs 2 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 1 A  Total current per group, horizontal configuration, 60°C 1 A  Total current per group, vertical configuration 1 A  Output current at signal *1*, rated value 0.5 A  Signal logic output  Cutput delay of *0° to *1* max. 100 ns  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. 40 kHz  Switching frequency with inductive load max. 40 kHz  Internal limitation of inductive shut-off voltage L+ (52 V)  Short-circuit protection of output  Ves, electronic, and only highside 12 Byte  Status display green LED per channel	General information	
Current consumption/power loss  Current consumption from backplane bus  Description  Description  Description  Current consumption from backplane bus  Description  Descriptio	Note	-
Current consumption from backplane bus  105 mA  Power loss  0.95 W  Technical data digital outputs  Number of outputs  2 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)  Total current per group, horizontal configuration, 40°C  1 A  Total current per group, horizontal configuration, 40°C  1 A  Total current per group, vertical configuration  1 A  Output current at signal *1*, rated value  0.5 A  Signal logic output  Sourcing output  Output delay of *0* to *1*  max. 100 ns  Minimum load current  -  Lamp load  Parallel switching of outputs for redundant control of a load  not possible  Actuation of digital input  yes  Switching frequency with inductive load  max. 40 kHz  Switching frequency with inductive load  max. 40 kHz  Switching frequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (*52 V)  Switching capacity of contacts  -  Output data size  12 Byte  Status display  Green LED per channel	Features	DC 24 V 0.5 A
Power loss 0.95 W  Technical data digital outputs  Number of outputs 2  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 1 A  Total current per group, horizontal configuration, 60°C 1 A  Total current per group, vertical configuration 1 A  Output current as signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" max. 100 ns  Minimum load current  Lamp load 10 W  Parallel switching of outputs for increased power not possible  Actuation of digital input yes  Switching frequency with inductive load max. 40 kHz  Switching frequency with inductive load max. 40 kHz  Switching frequency on lamp load max. 40 kHz  Switching frequency on la	Current consumption/power loss	
Number of outputs 2 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 1 A Total current per group, horizontal configuration, 60°C 1 A Total current per group, vertical configuration 1 A Output current at signal "1", rated value 0.5 A Signal logic output Sourcing output Output delay of "0" to "1" max. 100 ns 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 Parallel switching frequency with inductive load max. 40 kHz Switching frequency with inductive load max. 40 kHz Switching frequency on lamp load max. 40 kHz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of outputs - Switching capacity of contacts - Switching capacity of contacts - Switching capacity of contacts - Output data size 12 Byte Status display green LED per channel	Current consumption from backplane bus	105 mA
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Total current per group, horizontal configuration, 60°C 1 A  Total current per group, vertical configuration 1 A  Output current at signal "1", rated value 0.5 A  Signal logic output Sourcing output  Output delay of "0" to "1" max. 100 ns  Output delay of "1" to "0" max. 100 ns  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. 40 kHz  Switching frequency with inductive load max. 40 kHz  Switching frequency on lamp load max. 40 kHz  Internal limitation of inductive shut-off voltage L+ (-52 V)  Short-circuit protection of output yes, electronic, and only highside  Trigger level 2.5 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Current consumption from load voltage L+ (without load)	15 mA
Total current per group, vertical configuration  Output current at signal "1", rated value  Signal logic output  Sourcing output  Output delay of "0" to "1"  max. 100 ns  Output delay of "1" to "0"  max. 100 ns  Minimum load current  Lamp load  10 W  Parallel switching of outputs for redundant control of a load  Parallel switching of outputs for increased power  Actuation of digital input  wes  Switching frequency with resistive load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  yes, electronic, and only highside  Trigger level  2.5 A  Number of operating cycle of relay outputs  Switching capacity of contacts  -  Output data size  12 Byte  Status information, alarms, diagnostics  Status display  green LED per channel	Total current per group, horizontal configuration, 40°C	1 A
Output current at signal "1", rated value  Signal logic output  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  Actuation of digital input  Switching frequency with resistive load  max. 40 kHz  Switching frequency on lamp load  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  Switching capacity of contacts  Output data size  Status display  Green LED per channel	Total current per group, horizontal configuration, 60°C	1 A
Signal logic output  Output delay of "0" to "1"  Output delay of "1" to "0"  max. 100 ns  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. 40 kHz  Switching frequency with inductive load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  yes, electronic, and only highside  Trigger level  2.5 A  Number of operating cycle of relay outputs  Switching capacity of contacts  -  Output data size  Status display  green LED per channel	Total current per group, vertical configuration	1 A
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Output delay of "1" to "0" max. 100 ns  Minimum load current	Signal logic output	Sourcing output
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  Actuation of digital input  yes  Switching frequency with resistive load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  yes, electronic, and only highside  Trigger level  2.5 A  Number of operating cycle of relay outputs  -  Switching capacity of contacts  Output data size  12 Byte  Status information, alarms, diagnostics  Status display  green LED per channel	Output delay of "0" to "1"	max. 100 ns
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Actuation of digital input  Switching frequency with resistive load  max. 40 kHz  Switching frequency with inductive load  max. 40 kHz  Switching frequency on lamp load  max. 40 kHz  Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  yes, electronic, and only highside  Trigger level  2.5 A  Number of operating cycle of relay outputs  Switching capacity of contacts  -  Output data size  12 Byte  Status information, alarms, diagnostics  Status display  green LED per channel	Parallel switching of outputs for redundant control of a load	not possible
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Switching frequency with inductive load max. 40 kHz  Switching frequency on lamp load max. 40 kHz  Internal limitation of inductive shut-off voltage L+ (-52 V)  Short-circuit protection of output yes, electronic, and only highside  Trigger level 2.5 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Actuation of digital input	yes
Switching frequency on lamp load max. 40 kHz  Internal limitation of inductive shut-off voltage L+ (-52 V)  Short-circuit protection of output yes, electronic, and only highside  Trigger level 2.5 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Switching frequency with resistive load	max. 40 kHz
Internal limitation of inductive shut-off voltage  L+ (-52 V)  Short-circuit protection of output  yes, electronic, and only highside  Trigger level  2.5 A  Number of operating cycle of relay outputs  - Switching capacity of contacts  Output data size  12 Byte  Status information, alarms, diagnostics  Status display  green LED per channel	Switching frequency with inductive load	max. 40 kHz
Short-circuit protection of output yes, electronic, and only highside  Trigger level 2.5 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Switching frequency on lamp load	max. 40 kHz
Trigger level 2.5 A  Number of operating cycle of relay outputs -  Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Internal limitation of inductive shut-off voltage	L+ (-52 V)
Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 12 Byte  Status information, alarms, diagnostics Status display green LED per channel	Short-circuit protection of output	yes, electronic, and only highside
Switching capacity of contacts -  Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Trigger level	2.5 A
Output data size 12 Byte  Status information, alarms, diagnostics  Status display green LED per channel	Number of operating cycle of relay outputs	-
Status information, alarms, diagnostics Status display green LED per channel	Switching capacity of contacts	-
Status display green LED per channel	Output data size	12 Byte
	Status information, alarms, diagnostics	
	Status display	green LED per channel
	Interrupts	no
Process alarm no	Process alarm	no

## YASKAWA VIPA CONTROLS

Diagnostic interrupt	no
Diagnostic functions	no
Diagnostics information read-out	possible
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
DIAME I. C.	
PWM data	
PWM channels	2
PWM time basis	20.83ns
Period length	12008388607 * time base
Minimum pulse width	1 µs
Type of output	Push pull / highside
Safety	
Safety protocol	-
Safety requirements	-
Secure user address	-
Watchdog	-
Two channels	-
Test pulse length	-
Circuit monitoring	-
Datasizes	
Input bytes	4
Output bytes	12
Parameter bytes	12
Diagnostic bytes	20
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	61 g
Weight including accessories	61 g
Gross weight	75 g
Environmental conditions	<u> </u>
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
	20 0.0.0
Certifications	
UL certification	yes