

Data sheet

SM 022 (022-1BD70)

Technical data

Type SM 022 Module ID 0F43.57E2 General information Note	Order no.	022-1BD70
Seneral information	Туре	SM 022
Note - 4 cutputs Time stamp	Module ID	0F43 57E2
Note - 4 cutputs Time stamp		
Features 4 outputs Time stamp Output current 0.5 A Current consumption/power loss Current consumption from backplane bus 90 mA Power loss 0.95 W Technical data digital outputs Number of outputs 4 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) 25 mA Total current per group, horizontal configuration, 60°C 2 A Total current per group, horizontal configuration 60°C 2 A Total current per group, retrical configuration 60°C 2 A Output delay of "0" to 11" max. 100 ns Output delay of "1" to "0" max. 100 ns 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 Switching frequency with resistive 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 15 current per gover per channel Number of operating cycle of relay outputs Switching capacity of contacts - Output data size 60 Byte Status display green LED per channel Interrupts	General information	
Time stamp Output current 0.5 A Current consumption/power loss Current consumption from backplane bus 90 mA Power loss 0.95 W Technical data digital outputs Number of outputs 4 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) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output delay of "0" to "1" max. 100 ns Output delay of "0" to "1" max. 100 ns Minimum load current 1 - Lamp load 10 W Parallel switching of outputs for redundant control of a load not possible Actuation of digital input Switching frequency with resistive load max. 40 kHz Switching frequency with resistive load max. 40 kHz Switching frequency with inductive load max. 40 kHz Switching frequency with inductive load max. 40 kHz Switching frequency on lamp load green LED per channel Interrupts Status information, alarms, diagnostics Status linformation, alarms, diagnostics	Note	-
Current consumption from backplane bus 90 mA Power loss 0.95 W Technical data digital outputs Number of outputs 4 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) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Cutput current per group, vertical configuration, 60°C 2 A Cutput delay of "0" to "1" max. 100 ns Output delay of "1" to "0" max. 100 ns Minimum load current	Features	Time stamp
Power loss Description Power loss Pow	Current consumption/power loss	
Number of outputs 4 Cable length, shielded 1000 m Rated load voltage DC 20.428.8 V Current consumption from load voltage L+ (without load) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal *1", rated value 0.5 A 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 **Switching frequency with inductive load max. 40 kHz Switching frequency on lamp 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 **Trigger level 2.5 A Number of operating cycle of relay outputs **Switching capacity of contacts - Output data size 60 Byte Status display green LED per channel Interrupts	Current consumption from backplane bus	90 mA
Number of outputs 4 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) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current at signal "1", rated value 0.5 A Output current at signal "1", rated value 0.5 A 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 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 60 Byte Status display green LED per channel Interrupts	Power loss	0.95 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) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, retical configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal *1*, rated value 0.5 A Output delay of *0* to *1* max. 100 ns Output delay of *0* 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 Switching frequency with resistive load max. 40 kHz Switching frequency with inductive load max. 40 kHz Switching frequency on lamp load max. 40 kHz Switching frequency on l	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) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, retical configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal "1", rated value 0.5 A 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 Switching frequency with resistive load max. 40 kHz Switching frequency with inductive 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 60 Byte Status display green LED per channel Interrupts not possible groups and possible green LED per channel Interrupts no	Number of outputs	4
Rated load voltage DC 20.428.8 V Current consumption from load voltage L+ (without load) 25 mA Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 ns Output delay of "0" to "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 Switching frequency with resistive load max. 40 kHz Switching frequency with inductive load max. 40 kHz Switching frequency on lamp load max. 40 kHz Cuty that a size 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts	Cable length, shielded	1000 m
Current consumption from load voltage L+ (without load) Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal "1", rated value 0.5 A 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 Switching frequency with resistive 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) Short-circuit protection of output Trigger level 2.5 A Number of operating cycle of relay outputs - Cutput data size 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts	Cable length, unshielded	600 m
Total current per group, horizontal configuration, 40°C 2 A Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal "1", rated value 0.5 A 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 Switching frequency with resistive load max. 40 kHz Switching frequency with inductive 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no spirit inductive production of output green LED per channel Interrupts	Rated load voltage	DC 20.428.8 V
Total current per group, horizontal configuration, 60°C 2 A Total current per group, vertical configuration 2 A Output current at signal *1*, rated value 0.5 A 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 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 60 Byte Status display green LED per channel Interrupts no	Current consumption from load voltage L+ (without load)	25 mA
Total current per group, vertical configuration 2 A Output current at signal "1", rated value 0.5 A 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 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 60 Byte Status display green LED per channel Interrupts no	Total current per group, horizontal configuration, 40°C	2 A
Output current at signal "1", rated value 0.5 A 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 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 60 Byte Status display green LED per channel Interrupts no	Total current per group, horizontal configuration, 60°C	2 A
Output delay of "0" to "1" max. 100 ns 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 60 Byte Status display green LED per channel Interrupts	Total current per group, vertical configuration	2 A
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 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 60 Byte Status display green LED per channel Interrupts no	Output current at signal "1", rated value	0.5 A
Minimum load current Lamp load 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. 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts	Output delay of "0" to "1"	max. 100 ns
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 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Output delay of "1" to "0"	max. 100 ns
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. 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 60 Byte 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 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 60 Byte 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. 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Parallel switching of outputs for redundant control of a load	not possible
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 60 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. 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Actuation of digital input	✓
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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	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 60 Byte Status information, alarms, diagnostics Status display green LED per channel 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 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Short-circuit protection of output	yes, electronic, and only highside
Switching capacity of contacts Output data size 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Trigger level	2.5 A
Output data size 60 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Number of operating cycle of relay outputs	-
Status information, alarms, diagnostics Status display green LED per channel Interrupts no	Switching capacity of contacts	-
Status display green LED per channel Interrupts no	Output data size	60 Byte
Interrupts no	Status information, alarms, diagnostics	
	Status display	green LED per channel
Process alarm no	Interrupts	no
	Process alarm	no



Diagnostic interrupt	A YASKAWA COMPAN
Diagnostic interrupt	110
Diagnostic functions Diagnostics information read-out	no possible
Supply voltage display	green LED
Group error display	red SF LED
Channel error display	none
Chairie errer display	1010
Isolation	
Between channels	-
Between channels of groups to	-
Between channels and backplane bus	✓
Insulation tested with	DC 500 V
PWM data	
PWM channels	-
PWM time basis	-
Period length	
Minimum pulse width	
PtP communication	-
Safety	
Safety protocol	-
Safety requirements	
Secure user address	
Watchdog	
Two channels	
Test pulse length	-
Circuit monitoring	-
Datasizes	
Input bytes	4
Output bytes	20 / 60
Parameter bytes	6
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
Weight	60 g
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL508 certification	yes
	,