

Data sheet

SM 021 (021-1BF01)

Technical data

Type SM 021 Module ID 0013 9FC1 General Information Note - Features 8 Inputs, 0.5ms Current consumption/power loss Current consumption from backplane bus 35 mA Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated load voltage or signal '0' DC 05 V Input voltage for signal '1' DC 05 V Input voltage for signal '1' DC 1528.8 V Input voltage for signal '1' DC 1528.8 V Input voltage for signal '1' DC 1528.8 V Input voltage for signal '1' DC 05 V Input voltage for	Order no.	021-1BF01
Seneral information	Туре	SM 021
Note	Module ID	0013 9FC1
Note		
Features 8 Inputs, 0.5ms Current consumption/power loss Current consumption from backplane bus 35 mA Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.0 V Input voltage for signal "1" DC 1528.0 V Input voltage for signal "1" DC 1528.8 V Input of signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input to signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage	General information	
Current consumption/power loss Current consumption from backplane bus 35 mA Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input resistance - Input certain for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostics information read-out none Module state green LED	Note	·
Current consumption from backplane bus 35 mA Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, shielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status display green LED per channel Interrupts no Process alarm no Diagnostics information read-out none Module state green LED	Features	8 Inputs, 0.5ms
Current consumption from backplane bus 35 mA Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, shielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status display green LED per channel Interrupts no Process alarm no Diagnostics information read-out none Module state green LED	Current consumption/power loss	
Power loss 0.9 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input resistance Input delay of "1" to "signal "1" DC 1528.8 V Input delay of "0" to "1" DC 1528.8 V Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "0" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Input delay of "1" to "1" Text. Sou ps Inp		35 mA
Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Module state green LED		0.9 W
Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Module state green LED		
Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "0" to "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none Module state green LED	Technical data digital inputs	
Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input resistance - Input consensation of two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "0" to "1" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic information read-out none Module state green LED	Number of inputs	8
Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" max. 500 µs Input delay of "1" to "0" IEC 61131-2, type 1 Input characteristic curve IEC 61131-2, type 1 Input characteristic curve IEC 61131-2, type 1 Input delata size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none	Cable length, shielded	1000 m
Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis Frequency range Input resistance Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Siatus display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic interrupt no Diagnostics information read-out Module state Text (without load) - Co5 V DC 1528.8 V DC 05 V DC 1528.8 V Input chas. V Input characterior for signal "1" a max. 500 µs m	Cable length, unshielded	600 m
Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Resistance IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Rated load voltage	-
Input voltage for signal *0* DC 05 V Input voltage for signal *1* DC 1528.8 V Input voltage hysteresis	Current consumption from load voltage L+ (without load)	-
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Frequency range - Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs wertical soft simultaneously utilizable inputs wertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Rated value	DC 20.428.8 V
Input voltage hysteresis Frequency range Input resistance Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 μs Input delay of "1" to "0" Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostics information read-out Module state	Input voltage for signal "0"	DC 05 V
Frequency range Input resistance Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 μs Input delay of "1" to "0" max. 500 μs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Residual to the simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out Module state green LED	Input voltage for signal "1"	DC 1528.8 V
Input resistance - Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 μs Input delay of "1" to "0" max. 500 μs Input delay of "1" to "0" max. 500 μs Input delay of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Input voltage hysteresis	-
Input current for signal "1" 3 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Frequency range	-
Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 µs Input delay of "1" to "0" Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions Diagnostics information read-out Module state 9.5 mA 10.5 max. 500 µs 10.5 max.	Input resistance	-
Max. permissible BERO quiescent current 0.5 mA Input delay of "0" to "1" max. 500 μs Input delay of "1" to "0" max. 500 μs Number of simultaneously utilizable inputs horizontal configuration 8 Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Input current for signal "1"	3 mA
Input delay of "0" to "1" max. 500 μs Input delay of "1" to "0" max. 500 μs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Connection of Two-Wire-BEROs possible	yes
Input delay of "1" to "0" max. 500 µs Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Max. permissible BERO quiescent current	0.5 mA
Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out Module state green LED	Input delay of "0" to "1"	max. 500 µs
Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions Diagnostics information read-out Module state IEC 61131-2, type 1 no green LED per channel no process alarm no process	Input delay of "1" to "0"	max. 500 µs
Input characteristic curve IEC 61131-2, type 1 Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED		8
Initial data size 8 Bit Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Number of simultaneously utilizable inputs vertical configuration	8
Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Input characteristic curve	IEC 61131-2, type 1
Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Initial data size	8 Bit
Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Status information, alarms, diagnostics	
Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED		green LED per channel
Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Module state green LED	Interrupts	no
Diagnostic functions no Diagnostics information read-out none Module state green LED	Process alarm	no
Diagnostics information read-out none Module state green LED	Diagnostic interrupt	no
Module state green LED	Diagnostic functions	no
	Diagnostics information read-out	none
Module error display red LED	Module state	green LED
	Module error display	red LED



Channel error display	none	A YASKAWA COMPANY	
Isolation			
Between channels	-		
Between channels of groups to	-		
Between channels and backplane bus	yes		
Insulation tested with	DC 500 V		
Safety			
Safety protocol	-		
Safety requirements	-		
Secure user address	-		
Watchdog	-		
Two channels	-	-	
Test pulse outputs	-		
Datasizes			
Input bytes	1		
Output bytes	0	0	
Parameter bytes	0		
Diagnostic bytes	0		
Housing			
Material	PPE / PPE GF10	PPE / PPE GF10	
Mounting	Profile rail 35 mm	Profile rail 35 mm	
Mechanical data			
Dimensions (WxHxD)	12.9 mm x 109 mm x 76	12.9 mm x 109 mm x 76.5 mm	
Weight	60 g		
Environmental conditions			
Operating temperature	0 °C to 60 °C	0 °C to 60 °C	
Storage temperature	-25 °C to 70 °C	-25 °C to 70 °C	
Certifications			
UL certification	in preparation	in preparation	
KC certification	in preparation	in preparation	