

## Data sheet

FM 050 (050-1BB40)

## Technical data

Type         FM 050           Module ID         0881 2880           General information           Note         -           Features         2 channels 24 Bit DC 24 V           Current consumption/power loss           Current consumption from backplane bus         35 mA           Power loss           Technical data digital inputs           Number of inputs         2           Cable length, shielded         100 m           Cable length, unshielded         -           Rated load voltage         DC 20.428.8 V           Reverse polarity protection of rated load voltage         -           Current consumption from load voltage L+ (without load)         5 mA           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 delay of signal "1"         3 mA           Connection of Two-Wire-BEROs possible         yes           Max. permissible BERO quiescent current         0.8 μs           Input delay of "1" to "0"         0.8 μs	Order no.	050-1BB40
Seatures   Current consumption/power loss	Туре	FM 050
Features 2 channels 24 Bit DC 24 V  Current consumption/power loss  Current consumption from backplane bus 35 mA  Power loss 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 delay of "0" to "1" 3 mA  Connection of Two-Wire-BEROs possible yes  Max. permissible BERO quiescent current 0.5 mA  Input delay of "0" to "1" 0.8 µs  Input delay of "1" to "0" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	Module ID	0881 2880
Features 2 channels 24 Bit DC 24 V  Current consumption/power loss  Current consumption from backplane bus 35 mA  Power loss 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 delay of "0" to "1" 3 mA  Connection of Two-Wire-BEROs possible yes  Max. permissible BERO quiescent current 0.5 mA  Input delay of "0" to "1" 0.8 µs  Input delay of "1" to "0" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2		
Features 2 channels 24 Bit DC 24 V  Current consumption/power loss  Current consumption from backplane bus 35 mA  Power loss 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m  Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2		
Current consumption/power loss  Current consumption from backplane bus 35 mA  Power loss 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m  Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 ceristance - Input consideration of Two-Wire-BEROs possible yes  Max. permissible BERO quiescent current 0.8 µs  Input delay of "0" to "1" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2		<u>-</u>
Current consumption from backplane bus 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 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" 0.8 µs  Input delay of "0" to "1" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	Features	
Current consumption from backplane bus 0.5 W  Technical data digital inputs  Number of inputs 2 Cable length, shielded 100 m Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 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" 0.8 µs  Input delay of "0" to "1" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2		
Power loss  Technical data digital inputs  Number of inputs  2 Cable length, shielded 100 m  Cable length, unshielded - Rated load voltage  DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load)  S mA  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 Input delay of "0" to "1"  0.8 µs  Number of simultaneously utilizable inputs horizontal		
Technical data digital inputs  Number of inputs  2 Cable length, shielded  100 m  Cable length, unshielded  - Rated load voltage  DC 20.428.8 V  Reverse polarity protection of rated load voltage  - Current consumption from load voltage L+ (without load)  S mA  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 hysteresis  - Frequency range  Input resistance  Input current for signal "1"  3 mA  Connection of Two-Wire-BEROs possible  Max. permissible BERO quiescent current  10.8 μs  Input delay of "0" to "1"  0.8 μs  Number of simultaneously utilizable inputs horizontal		
Number of inputs  Cable length, shielded  Cable length, unshielded  Rated load voltage  Reverse polarity protection of rated load voltage  Current consumption from load voltage L+ (without load)  Rated value  DC 20.428.8 V  Reverse polarity protection of rated load voltage  Current consumption from load voltage L+ (without load)  S mA  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"  0.8 µs  Number of simultaneously utilizable inputs horizontal	Power loss	0.5 W
Cable length, shielded 100 m Cable length, unshielded - Rated load voltage DC 20.428.8 V Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA 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" 0.8 µs Number of simultaneously utilizable inputs horizontal 2	Technical data digital inputs	
Cable length, unshielded - Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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 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" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	Number of inputs	2
Rated load voltage DC 20.428.8 V  Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA  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" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	Cable length, shielded	100 m
Reverse polarity protection of rated load voltage - Current consumption from load voltage L+ (without load) 5 mA 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" 0.8 µs Number of simultaneously utilizable inputs horizontal 2	Cable length, unshielded	-
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  Input delay of "0" to "1"  0.8 µs  Number of simultaneously utilizable inputs horizontal	Rated load voltage	DC 20.428.8 V
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"       0.8 μs         Number of simultaneously utilizable inputs horizontal       2	Reverse polarity protection of rated load voltage	-
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" 0.8 µs Number of simultaneously utilizable inputs horizontal 2	Current consumption from load voltage L+ (without load)	5 mA
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" 0.8 µs  Input delay of "1" to "0" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	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" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	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 yes  Max. permissible BERO quiescent current 0.5 mA  Input delay of "0" to "1" 0.8 μs  Input delay of "1" to "0" 0.8 μs  Number of simultaneously utilizable inputs horizontal 2	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" 0.8 μs  Input delay of "1" to "0" 0.8 μs  Number of simultaneously utilizable inputs horizontal 2	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" 0.8 µs  Input delay of "1" to "0" 0.8 µs  Number of simultaneously utilizable inputs horizontal 2	Frequency range	-
Connection of Two-Wire-BEROs possible  Max. permissible BERO quiescent current  0.5 mA  Input delay of "0" to "1"  0.8 µs  Input delay of "1" to "0"  0.8 µs  Number of simultaneously utilizable inputs horizontal  2	Input resistance	-
Max. permissible BERO quiescent current  0.5 mA  Input delay of "0" to "1"  0.8 μs  Input delay of "1" to "0"  0.8 μs  Number of simultaneously utilizable inputs horizontal  2	Input current for signal "1"	3 mA
Input delay of "0" to "1" 0.8 μs Input delay of "1" to "0" 0.8 μs  Number of simultaneously utilizable inputs horizontal 2	Connection of Two-Wire-BEROs possible	yes
Input delay of "1" to "0" 0.8 μs  Number of simultaneously utilizable inputs horizontal 2	Max. permissible BERO quiescent current	0.5 mA
Number of simultaneously utilizable inputs horizontal 2	Input delay of "0" to "1"	0.8 µs
	Input delay of "1" to "0"	0.8 µs
		2
Number of simultaneously utilizable inputs vertical configuration 2	Number of simultaneously utilizable inputs vertical configuration	2
Input characteristic curve IEC 61131-2, type 1	Input characteristic curve	IEC 61131-2, type 1
Initial data size 20 Byte	Initial data size	20 Byte
Technical data digital outputs	Technical data digital outputs	
Number of outputs -	Number of outputs	-
Cable length, shielded -	Cable length, shielded	-
Cable length, unshielded -	Cable length, unshielded	-
Rated load voltage -	Rated load voltage	-
Current consumption from load voltage L+ (without load) -	Current consumption from load voltage L+ (without load)	-
Output delay of "0" to "1" -	Output delay of "0" to "1"	-



Output delay of "1" to "0"	A YASKAWA COMPANY
Minimum load current	
Lamp load	
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	
Switching frequency with inductive load	
Switching frequency on lamp load	
Internal limitation of inductive shut-off voltage	
Short-circuit protection of output	-
Trigger level	-
Number of operating cycle of relay outputs	
Switching capacity of contacts	-
Output data size	12 Byte
Technical data counters	
Number of counters	2
Counter width	24 Bit
Maximum input frequency	600 kHz
Maximum count frequency	600 kHz
Mode incremental encoder	-
Mode pulse / direction	-
Mode pulse	-
Mode frequency counter	yes
Mode period measurement	yes
Gate input available	-
Latch input available	-
Reset input available	-
Counter output available	-
Status information, alarms, diagnostics	
Status display	yes
Interrupts	no
Process alarm	no
Diagnostic interrupt	no
Diagnostic functions	no
Diagnostics information read-out	possible
Module state	green LED
Module error display	red LED
Channel error display	none
Isolation	
Between channels	
Between channels of groups to	
Between channels and backplane bus	yes
Between channels and power supply	- -
Max. potential difference between circuits	
Max. potential difference between inputs (Ucm)	
Max. potential difference between Mana and Mintern (Uiso)	-



Max. potential difference between inputs and Mana (Ucm)	-	A YASKAWA COMPANY
Max. potential difference between inputs and Mintern (Uiso)	-	
Max. potential difference between Mintern and outputs	-	
Insulation tested with	DC 500 V	
Datasizes		
Input bytes	20	
Output bytes	12	
Parameter bytes	8	
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		
UL certification	yes	
KC certification	yes	