

Data sheet FM 050 (050-1BB30)

Technical data

Order no.	050-1BB30
Туре	FM 050
Module ID	08C4 388B
General information	
Note	-
Features	2 Counter 32 Bit (AB)
	DC 24 V
Current consumption/power loss	
Current consumption from backplane bus	75 mA
Power loss	0.9 W
Technical data digital inputs	
Number of inputs	4
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)	15 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
Input delay of "1" to "0"	0.8 µs
Number of simultaneously utilizable inputs horizontal configuration	4
Number of simultaneously utilizable inputs vertical configuration	4
Input characteristic curve	IEC 61131-2, type 1
Initial data size	12 Byte
Technical data digital outputs	
Number of outputs	-
Cable length, shielded	-
Cable length, unshielded	-
Rated load voltage	
Current consumption from load voltage L+ (without load)	-
Output delay of "0" to "1"	-



Minimum load current       -         Lamp load       -         Parallel switching of outputs for increased powor       -         Actuation of digital input       -         Switching frequency with inductive load       -         Switching requency with inductive load       -         Trigger level       -         Number of operating cycle of relaxy outputs       -         Switching requency       4 Byte         Technical data counters       2         Cururer with       32 Bit         Maximum input frequency       100 kHz         Maximum input frequency       400 kHz         Mode pulse       -         Mode frequency counter       -         Mod	Output delay of "1" to "0"	- A YASKAWA COMPANY
Parallel switching of outputs for increased power       -         Actuation of digital input       -         Switching frequency with resistive load       -         Switching frequency on lamp load       -         Internal initiation of inductive study ontage       -         Short-circuit protection of output       -         Tringer leval       -         Number of operating cycle of relay outputs       -         Switching requency by computs       -         Switching requency       4 Bytee         Technical data counters       2         Counter with       32 Bit         Maximum input frequency       100 MHz         Maximum ownt frequency       400 Mz         Mode pulse       -         Mode pulse       -         Mode pulse       -         Mode pulse       -         Mode frequency counter       -         Mode pulse       -         Mode pulse       -         Currer output available       -         Lath input available       -	Minimum load current	
Parallel switching of outputs for increased power       -         Actuation of digital input       -         Switching frequency with resistive load       -         Switching frequency on lamp load       -         Internal limitation of indictive shut-oft voltage       -         Switching frequency on lamp load       -         Trigger lawal       -         Trigger lawal       -         Number of operating cycle of relay outputs       -         Switching capacity of contacts       -         Output data size       4 Byte         Technical data counters       2         Number of counters       2         Counter width       32 Bit         Maximum input frequency       100 kHz         Mode incremental encoder       yes         Mode incremental encoder       yes         Mode pulse / direction       -         Latch input available       -         Latch input available       -         Latch input available       -         Estatus information: alarms, diagnostics	Lamp load	
Actuation of digital input       -         Switching frequency with inductive load       -         Switching frequency on lamp load       -         Internal limitation of inductive shut-off voltage       -         Short-cricit protection of output       -         Trigger level       -         Number of operating cycle of relay outputs       -         Switching capacity of contacts       -         Output data size       4 Byre         Technical data counters       -         Number of contores       2         Counter width       32 Bit         Maximum count frequency       100 kHz         Maximum count frequency       400 kHz         Made pulse       -         Mode pulse/ direction       yes         Mode pulse/ direction       yes         Mode frequency counter       -         -       -         Gate input available       -         Cater input available       -         Cater input available       -         Counter width       -         Status display       yes         Interrupts       no         Process alarm       no         Process alarm       no	Parallel switching of outputs for redundant control of a load	
Switching frequency with resistive load         -           Switching frequency with inductive load         -           Switching frequency on lamp load         -           Internal limitation of inductive sub-off voltage         -           Short-circuit protection of output         -           Trigger level         -           Number of operating cycle of relay outputs         -           Switching agacity of contacts         -           Output data size         4 Byte           Technical data counters         2           Number of counters         2           Counter width         32 Bit           Maximum input frequency         100 kHz           Maximum input frequency         100 kHz           Mode pulse         -           Mode progeno         yes           Mode progeno         -           Status display         yes           Internary analable         -           Counter output available         -	Parallel switching of outputs for increased power	
Switching frequency with inductive load         -           Switching frequency on large load         -           Internal limitation of inductive shut-off voltage         -           Shitch-circuit protection of output         -           Trigger level         -           Number of operating cycle of relay outputs         -           Switching capacity of contacts         -           Output data size         4 Byte           Technical data counters         -           Number of counters         2           Counter width         32 Bit           Maximum input frequency         100 HHz           Maximum input frequency         400 HHz           Mode pulse / direction         yes           Mode pulse / direction         yes           Mode pulse / direction         yes           Mode pulse / direction         -           Gate input available         -           Latch input available         -           Counter width         -           Status display         yes           Interrupta         no           Process alarm         no           Diagnostic information, alarms, diagnostics         -           Status display         yes	Actuation of digital input	
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         4 Byte           Technical data counters         2           Number of counters         2           Counter width         32 Bit           Maximum input frequency         100 kHz           Mode pulse / direction         yes	Switching frequency with resistive load	-
Internal limitation of inductive shut-off voltage - Short-cicult protection of output - Trigger level - Number of operating cycle of relay outputs - Switching capacity of contacts - Output data size 4 Byte Technical data counters 2 Counter width 32 Bit Maximum input frequency 400 kHz Maximum input frequency 400 kHz Mode incremental encoder yes Mode pulse / direction yes Status display yes Interrupts no Process alarm no Diagnostic interrupt NO Di Dia	Switching frequency with inductive load	
Short-circuit protection of output     -       Trigger level     -       Number of operating cycle of relay outputs     -       Switching capacity of contacts     -       Output data size     4 Byte       Technical data counters     2       Counter width     32 Bit       Maximum input frequency     100 KHz       Maximum nout frequency     400 KHz       Mode pulse / direction     yes       Interrupt available     -       Latch input available     -       Counter output available     -       Status information, alarms, diagnostics     Status display       Status information alarms, diagnostics     no       Diagnostic functions     no       Diagnostic functio	Switching frequency on lamp load	
Trigger level       -         Number of operating cycle of relay outputs       -         Switching capacity of contacts       -         Output data size       4 Byte         Technical data counters       2         Number of counters       2         Counter with       32 Bit         Maximum input frequency       100 kHz         Maximum count frequency       400 kHz         Mode pulse       -         Mode pulse       -         Mode pulse       -         Mode prise       -         Mode pulse       -         Mode prise       -         Mode pulse       -         Mode prise       -         Eatch input available       -         Latch input available       -         Status display       yes         Interrupts       no         Process alarm       no         Diagnostic functions       na         Diagnostic functions       na <td>Internal limitation of inductive shut-off voltage</td> <td></td>	Internal limitation of inductive shut-off voltage	
Number of operating cycle of relay outputs       -         Switching capacity of contacts       -         Output data size       4 Byte         Technical data counters       -         Number of counters       2         Counter width       32 Bit         Maximum input frequency       400 kHz         Maximum count frequency       400 kHz         Mode pulse / direction       yes         Mode pulse / direction       -         Status allable       -         Counter output available       -         Counter output available       -         Status linformation, alarms, diagnostics       -         Status display       yes         Interrupts       no         Process alarm       no	Short-circuit protection of output	
Switching capacity of contacts       -         Output data size       4 Byte         Technical data counters       -         Number of counters       2         Counter width       32 Bit         Maximum input frequency       100 KHz         Maximum count frequency       400 KHz         Mode incremental encoder       yes         Mode pulse direction       yes         Mode project direction       yes         Mode frequency counter       -         Mode frequency counter       -         Gate input available       -         Latch input available       -         Counter output available       -         Status information, alarms, diagnostics       Status display         Process alarm       no         Diagnostic functions       no      <	Trigger level	
Output data size     4 Byte       Technical data counters       Number of counters       Counter width     32 Bit       Maximum input frequency     100 kHz       Maximum count frequency     400 kHz       Mode pulse / direction     yes       Mode pulse / direction     yes       Mode pulse / direction     yes       Mode prise / direction     yes       Mode prise / direction     yes       Mode prise / direction     -       Mode prise     -       Mode prise / direction     -       Status diable     -       Status information, alarms, diagnostics     -       Status information read-out     possible       Module state     green LED       Module state     green LED	Number of operating cycle of relay outputs	
Technical data counters       2         Number of counters       2         Counter width       32 Bit         Maximum input frequency       100 KHz         Maximum count frequency       400 kHz         Mode incremental encoder       yes         Mode pulse / direction       yes         Mode pulse / direction       yes         Mode pulse / direction       yes         Mode forequency counter       -         Mode for measurement       -         Gate input available       -         Latch input available       -         Counter output available       -         Counter output available       -         Status information, alarms, diagnostics       Status information, alarms, diagnostics         Status information, alarms, diagnostics       Status information, alarms, diagnostics         Diagnostic interrupt       no         Diagnostic interrupt       none         Diagnostic interrupt       none         Diagnostic interrupt       none         Diagnostic interrupt       none	Switching capacity of contacts	
Number of counters         2           Counter width         32 Bit           Maximum input frequency         100 kHz           Maximum count frequency         400 kHz           Made pulse / direction         yes           Mode pulse         -           Mode prive outter         -           Mode prive available         -           Latch input available         -           Counter output available         -           Counter output available         -           Counter output available         -           Status information, alarms, diagnostics         Status information, alarms, diagnostics           Status information alarms, diagnostics         status information alarms, diagnostics           Status information read-out         possible           Module state         green LED           Module state         green LED           Module stror display         red LED           Channel error display         red LED           Channel error display         ses           Between channels and boxelplane bus         yes           Between ch	Output data size	4 Byte
Number of counters         2           Counter width         32 Bit           Maximum input frequency         100 kHz           Maximum count frequency         400 kHz           Made pulse / direction         yes           Mode pulse         -           Mode prive outter         -           Mode prive available         -           Latch input available         -           Counter output available         -           Counter output available         -           Counter output available         -           Status information, alarms, diagnostics         Status information, alarms, diagnostics           Status information alarms, diagnostics         status information alarms, diagnostics           Status information read-out         possible           Module state         green LED           Module state         green LED           Module stror display         red LED           Channel error display         red LED           Channel error display         ses           Between channels and boxelplane bus         yes           Between ch		
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Maximum input frequency     100 kHz       Maximum count frequency     400 kHz       Mode incremental encoder     yes       Mode pulse / direction     -       Cate input available     -       Latch input available     -       Counter output available     -       Status information, alarms, diagnostics     -       Status display     yes       Interrupts     no       Process alarm     no       Diagnostic functions     no       Diagnostic functions     no       Diagnostic functions     no       Module state     green LED       Module state     -       Between channels     - </td <td>Number of counters</td> <td>2</td>	Number of counters	2
Maximum count frequency     400 kHz       Mode incremental encoder     yes       Mode pulse / direction     yes       Mode pulse / direction     yes       Mode pulse / direction     yes       Mode period measurement     -       Gate input available     -       Latch input available     -       Counter output available     -       Counter output available     -       Status information, alarms, diagnostics     -       Status display     yes       Interrupts     no       Process alarm     no       Diagnostic interrupt     no       Diagnostic information read-out     possible       Module state     green LED       Module error display     red LED       Channel error display     none       Isolation     -       Between channels of groups to     -       Between channels and power supply     -       Max. potential difference between circuits     -       Max. potential difference between circuits     -		32 Bit
Mode incremental encoder         yes           Mode pulse / direction         yes           Mode pulse         -           Mode period measurement         -           Gate input available         -           Latch input available         -           Counter output available         -           Counter output available         -           Counter output available         -           Status information, alarms, diagnostics         -           Status display         yes           Interrupts         no           Process alarm         no           Diagnostic interrupt         no           Diagnostic information read-out         possible           Module error display         red LED           Module error display         none           Isolation         -           Between channels of groups to         -           Between channels and backplane bus         yes           Between channels and power supply         -           Max. potential difference between circuits         -		100 kHz
Mode pulse / direction       yes         Mode pulse       -         Mode priod measurement       -         Gate input available       -         Latch input available       -         Reset input available       -         Counter output available       -         Counter output available       -         Status information, alarms, diagnostics       -         Status display       yes         Interrupts       no         Process alarm       no         Dlagnostic interrupt       no         Dlagnostic interrupt       no         Dlagnostic interrupt       no         Dlagnostic interrupt       no         Module state       green LED         Module state       green LED         Module error display       red LED         Channel error display       none         Isolation       -         Between channels of groups to       -         Between channels and power supply       -         Max. potential difference between circuits       -         Max. potential difference between en inputs (Ucm)       -	Maximum count frequency	400 kHz
Mode pulse       -         Mode frequency counter       -         Mode period measurement       -         Gate input available       -         Latch input available       -         Reset input available       -         Counter output available       -         Counter output available       -         Status information, alarms, diagnostics       -         Status display       yes         Interrupts       no         Process alarm       no         Diagnostic interrupt       no         Diagnostic interrupt       no         Diagnostic functions       no         Diagnostic information read-out       possible         Module state       green LED         Module error display       red LED         Channel error display       none         Isolation       -         Between channels       -         Between channels and backplane bus       yes         Between channels and power supply       -         Max. potential difference between circuits       -         Max. potential difference between en inputs (Ucm)       -	Mode incremental encoder	yes
Mode frequency counter       -         Mode period measurement       -         Gate input available       -         Latch input available       -         Reset input available       -         Counter output available       -         Counter output available       -         Status information, alarms, diagnostics       -         Status display       yes         Interrupts       no         Process alarm       no         Diagnostic interrupt       no         Diagnostic interrupt       no         Diagnostic information read-out       possible         Module error display       red LED         Channel 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 circuits       -	Mode pulse / direction	yes
Mode period measurement       -         Gate input available       -         Latch input available       -         Reset input available       -         Counter output available       -         Counter output available       -         Status information, alarms, diagnostics       -         Status display       yes         Interrupts       no         Process alarm       no         Diagnostic interrupt       no         Diagnostic functions       no         Diagnostic information read-out       possible         Module error display       red LED         Module 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)       -	Mode pulse	-
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Status information, alarms, diagnostics         Status display       yes         Interrupts       no         Process alarm       no         Diagnostic interrupt       no         Diagnostic functions       no         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)       -	Reset input available	-
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Diagnostic interruptnoDiagnostic functionsnoDiagnostic functionsnoDiagnostics information read-outpossibleModule stategreen LEDModule error displayred LEDChannel error displaynoneIsolationIsolationBetween channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)-	Interrupts	no
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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)       -	Module state	green LED
Isolation         Between channels       -         Between channels of groups to       -         Between channels and backplane bus       yes         Between channels and power supply       -         Max. potential difference between inputs (Ucm)       -	Module error display	red LED
Between channels-Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)-	Channel error display	none
Between channels of groups to-Between channels and backplane busyesBetween channels and power supply-Max. potential difference between circuits-Max. potential difference between inputs (Ucm)-	Isolation	
Between channels and backplane bus     yes       Between channels and power supply     -       Max. potential difference between circuits     -       Max. potential difference between inputs (Ucm)     -	Between channels	-
Between channels and power supply       -         Max. potential difference between circuits       -         Max. potential difference between inputs (Ucm)       -	Between channels of groups to	-
Max. potential difference between circuits     -       Max. potential difference between inputs (Ucm)     -	Between channels and backplane bus	yes
Max. potential difference between inputs (Ucm) -	Between channels and power supply	-
	Max. potential difference between circuits	
Max. potential difference between Mana and Mintern (Uiso) -	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	12	
Output bytes	4	
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	
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	