



PT MULTI MAKMUR TEKNIKATAMA

FOTEK



FC Series



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Multi Makmur Teknikatama

High compact Magnetic Sensor

FC series 磁簧傳感器

- High compact 堅固耐用
- High Reliability 高穩定性
- High Noise Resistance 高抗干擾力
- Short circuit protection DC type附短路保護
- High protection class IP-67 高防水等級IP-67



● Model guiding / 型號索引

Ex. FC-20 R-H-2M				
	1	2	3	4
1 Series (系列名稱)	「FC」: Magnetic sensor 「MS」: M8 Tubular type			
2 Model (形式)	「20」: Plastic housing 「11」: Plastic housing 「05」: Plastic housing 「08」: M8			
3 Output method (輸出方式)	「R」: Reed contact 「RE」: Output protection 「RN」: Reed contact NPN 「RP」: Reed contact PNP 「N」: NPN output 「P」: PNP output 「D」: Two wire solid state output			
4 Sensitivity (感度) or Output status	「Non」: Standard sensitivity (<80 Gauss) 「H」: High sensitivity (<40 Gauss) 「L」: Low sensitivity (<120 Gauss) 「B」: NC type			
5 Connection (出線方式)	「2M」: 2m cable/ 「1M」: 1m cable/ 「4M」: 4m cable 「PG」: M8 connector Lead wire/ 「PE」: Plastic connector Lead wire			

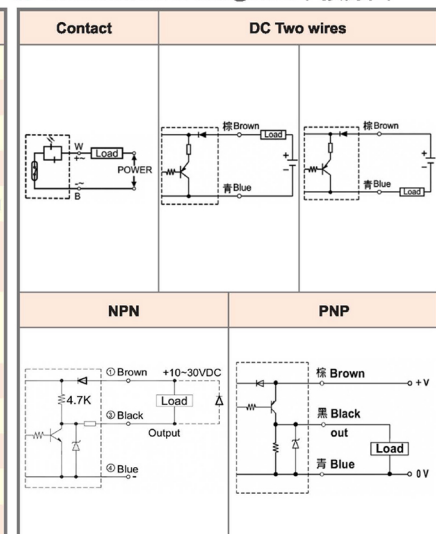
※ Notice for use / 選型使用注意事項 (※)

- 所有型號都有輸出短路及極性保護，除「FC-xxR」沒輸出短路保護。
 - 請配合氣缸磁環選用適當感度的機型。「感度太高」動作點會提前或易受帶磁外物干擾，「感度太低」無動作或訊號漏失。
 - 「2線式」最好不要超過2個以上串聯使用以免無法推動負載。(因每個都有輸出壓降約3.0V)
 - 「FC-xxR」及「FC-xxRE」極性反接仍可感應輸出但指示燈不會亮，須更換極性即可正常動作，其他型極性接反則無動作。
- All model with Output short circuit & Polarity reversed protection, excepted 「FC-xxR」.
 - Optimum sensitivity of sensor is required, if it is too high to be turned on too early or be interrupted, if it is too low to lose signal.
 - It maybe cannot operate the load, if series connection over 2 pieces of 「2 wire type」 sensor.
 - 「FC-xxR」 & 「FC-xxRE」 may turn on load but cannot turn on operating LED, other type don't work, if power polarity is reversed.

● General data / 共同規格

Specification	規格	Data	
Sensor	感應器	Reed sensor	Hall sensor
Contact rated	接點功率	10W max.	---
Output current	輸出電流	50mA or 150mA or 500mA max.	50mA or 150mA max.
Current consumption	消耗電流	non	8mA max.
Output protection	輸出保護	*	Short circuit & Polarity reversed
Vibration resistance	耐震動	50g (490m/S ² / (55 ~ 2000 Hz)) (IEC-60068-2-6)	60g (588m/S ² / (55 ~ 2000 Hz)) (IEC-60068-2-6)
Shock resistance	耐衝擊	100g (980m/S ² with 11ms) (IEC-60068-2-27)	120g (1176m/S ² with 11ms) (IEC-60068-2-27)
Protection class	保護等級	IP-67 (IEC-60529)	
EMC Interference	電磁相容	IEC 61000-6-4	
Dielectric strength	電介強度	2.5kv / 1 minute min.	
Insulation strength	絕緣強度	100 MΩ / 500vdc	
Operation circum.	工作環境	-25°C ~ +85°C : 100%RH max. (Condensation permitted)	

● Connection diagram / 接線圖



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● Specification / 規格

Series	Model	Wires	Operating voltage	Output method	Voltage drop	Leakage current	Output current	Sensitivity (Gauss)	Response frequency	Sensor	Housing material	Outline
FC-20	FC-20R	2c/4Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed sensor	Intensive Nylon	
	FC-20RE	2c/4Φ	5~60VDC	Contact	3.0V	non	150mA					
	FC-20RN	3c/4Φ	5~30VDC	NPN	3.0V	non						
	FC-20RP	3c/4Φ	5~30VDC	PNP	3.0V	non						
	FC-20D	2c/4Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5KHz	Hall sensor		
	FC-20N	3c/4Φ	5~30VDC	NPN	0.8V	0.1mA						
	FC-20P	3c/4Φ	5~30VDC	PNP	0.8V	0.1mA						
FC-04	FC-04R	2c/3Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed sensor	Intensive Nylon	
	FC-04RE	2c/3Φ	5~60VDC	Contact	3.0V	non	50mA					
	FC-04D	2c/3Φ	10~30VDC	T	3.5V	0.5mA	150mA					
	FC-04N	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA						
	FC-04P	3c/3Φ	5~30VDC	PNP	0.8V	0.1mA						
FC-05	FC-05R	2c/3Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed sensor	Intensive Nylon	
	FC-05RE	2c/3Φ	5~60VDC	Contact	3.0V	non	50mA					
	FC-05D	2c/3Φ	10~30VDC	T	3.5V	0.5mA	150mA					
	FC-05N	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA						
	FC-05P	3c/3Φ	5~30VDC	PNP	0.8V	0.1mA						
FC-10	FC-10D	2c/3Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5KHz	Hall sensor	ABS	
	FC-10N	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA						
	FC-10P	3c/3Φ	5~30VDC	PNP	0.8V	0.1mA						
FC-11	FC-11R	2c/3Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed sensor	Intensive Nylon	
	FC-11RE	2c/3Φ	5~60VDC	Contact	3.0V	non	50mA					
	FC-11D	2c/3Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5KHz	Hall sensor		
	FC-11N	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA						
	FC-11P	3c/3Φ	5~30VDC	PNP	0.8V	0.1mA						
FC-36	FC-36D	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	50mA	<40	5KHz	Hall sensor	Intensive Nylon	



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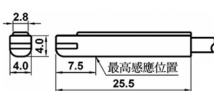
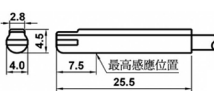
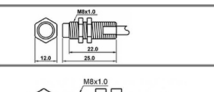
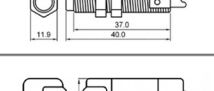
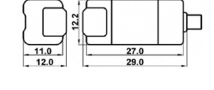
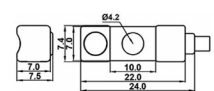
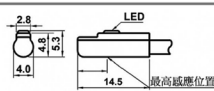
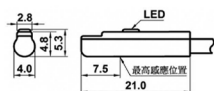
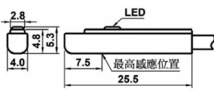
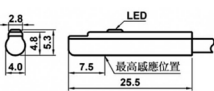
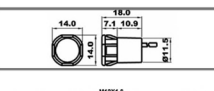
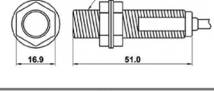
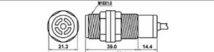
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● Specification / 規格

Series	Model	Wires	Operating voltage	Output method	Voltage drop	Leakage current	Output current	Sensitivity (Gauss)	Response frequency	Sensor	Housing material	Outline					
FC-06	FC-06R	2c/2.5Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed	Intensive Nylon						
	FC-06RE	2c/2.5Φ	5~60VDC	Contact	3.0V	non	50mA										
	FC-06D	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-06N	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-06P	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-07	FC-07R	2c/2.5Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed	Intensive Nylon						
	FC-07RE	2c/2.5Φ	5~60VDC	Contact	3.0V	non	50mA										
	FC-07D	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-07N	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-07P	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
MS-08	MS08-10N	3c/4Φ	5~30VDC	NPN	0.8V	0.1mA	150mA	<40	5K Hz	Hall	Cu						
	MS08-10P	3c/4Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-08	FC-08R	2c/4Φ	5~240VDC/AC	Contact	3.0V	non	500mA	<40	200Hz	Reed	Cu						
	FC-08D	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-08N	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA											
FC-20z	FC-20zR	2c/4Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H/N/L	200Hz	Reed	Die cast Zn alloy						
	FC-20zD	2c/4Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-20zN	3c/4Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-20zP	3c/4Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-05z	FC-05zR	2c/3Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H/N/L	200Hz		Die cast Zn alloy						
	FC-05zD	2c/3Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-05zN	3c/3Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-05zP	3c/3Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-36z	FC-36zD	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	50mA	<40	5K Hz	Hall sensor	Die cast Zn alloy						
	FC-36zN	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-36zP	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-58z	FC-58zR	2c/2.5Φ	5~120VDC/AC	Contact	3.0V	non	100mA	<120	200Hz	Reed	Die cast Zn alloy						
	FC-58zRE	2c/2.5Φ	5~60VDC	Contact	3.0V	non	50mA										
	FC-58zRN	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA	150mA										
	FC-58zRP	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-06z	FC-06zR	2c/2.5Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed	Die cast Zn alloy						
	FC-06zRE	2c/2.5Φ	5~60VDC	Contact	3.0V	non	50mA										
	FC-06zD	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-06zN	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-06zP	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-07z	FC-07zR	2c/2.5Φ	5~240VDC/AC	Contact	3.0V	non	500mA	H<40 N<80 L<120	200Hz	Reed	Die cast Zn alloy						
	FC-07zRE	2c/2.5Φ	5~60VDC	Contact	3.0V	non	50mA										
	FC-07zD	2c/2.5Φ	10~30VDC	T	3.5V	0.5mA	150mA	<40	5K Hz	Hall sensor							
	FC-07zN	3c/2.5Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-07zP	3c/2.5Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-T12	FC-T12R	2c/3Φ	5~240VDC/AC	Contact	3.0V	non	100mA	<40	200Hz	Reed sensor	PC						
	FC-T12RE	2c/3Φ	5~60VDC	Contact	3.0V	non	50mA										
FC-12	FC-12R	2c/4Φ	5~240VDC/AC	Contact	3.0V	non	500mA	<40	200Hz	Reed	Cu						
	FC-12D	2c/4Φ	10~30VDC	T	3.5V	0.5mA	150mA										
	FC-12N	3c/4Φ	5~30VDC	NPN	0.8V	0.1mA											
	FC-12P	3c/4Φ	5~30VDC	PNP	0.8V	0.1mA											
FC-18	FC-18RE	2c/4Φ	5~60VDC	Contact	3.0V	non	500mA	<40	200Hz	Reed sensor	PP						
	FC-18N	3c/4Φ	5~30VDC	NPN	0.8V	0.01mA	150mA	<40	5K Hz	Hall sensor							



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● **Fixed parts / 固定帶**

<p>PNS/PNA (for FC-20)</p> <p>Band PNS-16</p> <p>Diameter of cylinder 16 : Ø16.0 20 : Ø20.0 150 : Ø150.0</p> <p>Material of cylinder S : Stainless steel A : Aluminum Alloy</p>	<p>BSS/BSA (for FC-48) / BES/BSA (for FC-70)</p> <table> <tr> <th colspan="3">Alumina alloy cylinder</th> <th colspan="3">Stainless steel cylinder</th> </tr> <tr> <th>Model</th> <th>Inner dia.</th> <th>Outer dia.</th> <th>Model</th> <th>Inner dia.</th> <th>Outer dia.</th> </tr> <tr> <td>BSA-20 / BEA-20</td> <td>20Φ</td> <td>25Φ</td> <td>BSS-06 / BES-06</td> <td>6Φ</td> <td>8.5Φ</td> </tr> <tr> <td>BSA-25 / BEA-25</td> <td>25Φ</td> <td>30Φ</td> <td>BSS-08 / BES-08</td> <td>8Φ</td> <td>10Φ</td> </tr> <tr> <td>BSA-30 / BEA-30</td> <td>30Φ</td> <td>35Φ</td> <td>BSS-10 / BES-10</td> <td>10Φ</td> <td>11Φ</td> </tr> <tr> <td>BSA-32 / BEA-32</td> <td>32Φ</td> <td>38Φ</td> <td>BSS-12 / BES-12</td> <td>12Φ</td> <td>13.2Φ</td> </tr> <tr> <td>BSA-40 / BEA-40</td> <td>40Φ</td> <td>47Φ</td> <td>BSS-16 / BES-16</td> <td>16Φ</td> <td>17Φ</td> </tr> <tr> <td>BSA-50 / BEA-50</td> <td>50Φ</td> <td>58Φ</td> <td>BSS-20 / BES-20</td> <td>20Φ</td> <td>21.5Φ</td> </tr> <tr> <td>BSA-63 / BEA-63</td> <td>63Φ</td> <td>72Φ</td> <td>BSS-25 / BES-25</td> <td>25Φ</td> <td>26.5Φ</td> </tr> <tr> <td>BSA-80 / BEA-80</td> <td>80Φ</td> <td>89Φ</td> <td>BSS-32 / BES-32</td> <td>32Φ</td> <td>33.5Φ</td> </tr> <tr> <td>BSA-100 / BEA-100</td> <td>100Φ</td> <td>110Φ</td> <td>BSS-40 / BES-40</td> <td>40Φ</td> <td>42Φ</td> </tr> <tr> <td></td> <td></td> <td></td> <td>BSS-50 / BES-50</td> <td>50Φ</td> <td>52Φ</td> </tr> <tr> <td></td> <td></td> <td></td> <td>BSS-63 / BES-63</td> <td>63Φ</td> <td>65Φ</td> </tr> </table>	Alumina alloy cylinder			Stainless steel cylinder			Model	Inner dia.	Outer dia.	Model	Inner dia.	Outer dia.	BSA-20 / BEA-20	20Φ	25Φ	BSS-06 / BES-06	6Φ	8.5Φ	BSA-25 / BEA-25	25Φ	30Φ	BSS-08 / BES-08	8Φ	10Φ	BSA-30 / BEA-30	30Φ	35Φ	BSS-10 / BES-10	10Φ	11Φ	BSA-32 / BEA-32	32Φ	38Φ	BSS-12 / BES-12	12Φ	13.2Φ	BSA-40 / BEA-40	40Φ	47Φ	BSS-16 / BES-16	16Φ	17Φ	BSA-50 / BEA-50	50Φ	58Φ	BSS-20 / BES-20	20Φ	21.5Φ	BSA-63 / BEA-63	63Φ	72Φ	BSS-25 / BES-25	25Φ	26.5Φ	BSA-80 / BEA-80	80Φ	89Φ	BSS-32 / BES-32	32Φ	33.5Φ	BSA-100 / BEA-100	100Φ	110Φ	BSS-40 / BES-40	40Φ	42Φ				BSS-50 / BES-50	50Φ	52Φ				BSS-63 / BES-63	63Φ	65Φ	<p>PH (for FC-20)</p>
Alumina alloy cylinder			Stainless steel cylinder																																																																													
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BSA-30 / BEA-30	30Φ	35Φ	BSS-10 / BES-10	10Φ	11Φ																																																																											
BSA-32 / BEA-32	32Φ	38Φ	BSS-12 / BES-12	12Φ	13.2Φ																																																																											
BSA-40 / BEA-40	40Φ	47Φ	BSS-16 / BES-16	16Φ	17Φ																																																																											
BSA-50 / BEA-50	50Φ	58Φ	BSS-20 / BES-20	20Φ	21.5Φ																																																																											
BSA-63 / BEA-63	63Φ	72Φ	BSS-25 / BES-25	25Φ	26.5Φ																																																																											
BSA-80 / BEA-80	80Φ	89Φ	BSS-32 / BES-32	32Φ	33.5Φ																																																																											
BSA-100 / BEA-100	100Φ	110Φ	BSS-40 / BES-40	40Φ	42Φ																																																																											
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● **Magnetic ring / 磁環**

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