

**KEYBOARDS - KEYPADS**  
**DISPLAY CONNECTING**



**WENNMACHER**

Electronic GmbH



Germany - Hong Kong - Taiwan - The Netherlands - South Africa - USA



**WENNMACHER** Electronic GmbH - Standort Deutschland D-63785 Obernburg

**Wennmacher** Electronic GmbH has become a global enterprise with companies around the world.

Our dynamic and future minded team handles your requirements and deliveries with the emphasis on quality and cost.

**Wennmacher** Electronic GmbH offers a large assortment of electromechanical and electrotechnical products and accessories:

- Active & passive components
- Connectors & flexible interconnections
- PC-boards & assembling
- Cable & customer specific cable assemblies
- Kitting service & programming
- Complete solutions & special applications

*Our strength is project support with custom solutions from the development stage to production.*

**Wennmacher** Electronic GmbH hat sich seit ihrer Gründung zu einem weltweit umspannenden und operierenden Unternehmen entwickelt.

Unser Team arbeitet zukunftsorientiert, dynamisch und mit der hohen Flexibilität eines mittelständischen Unternehmens. Zuverlässige Lieferungen, hoher Qualitätsstandard und Kostengünstigkeit sind unsere selbstverständlichen Zielstellungen.

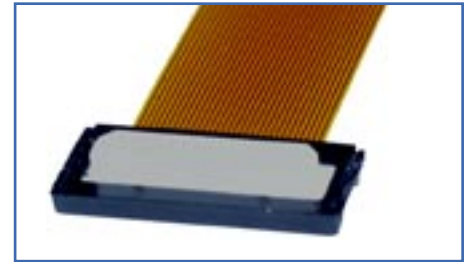
**Wennmacher** Electronic GmbH bietet ein umfangreiches Sortiment elektromechanischer und elektronischer Erzeugnisse und Zubehör, u. a.:

- Aktive / passive Bauelemente
- Steckverbinder & flexible Verbindungssysteme
- Leiterplatten & -bestückung
- Kabel & kundenspezifische Kabelkonfektionen
- Kittingservice & Programming
- Komplettlösungen und Sonderanfertigungen

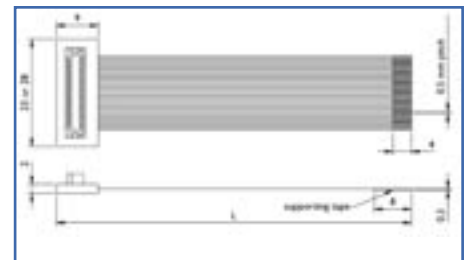
Unsere Stärke ist Projektarbeit für maßgeschneiderte, kundenspezifische Lösungen, von der Entwicklung bis zur Serienproduktion.



### 4 Flat Display Verbindungen - Produktbeschreibung *Flat display connections - Product description*



### 5 Flat Display Verbindungen - Masse und Bestellschlüssel *Flat display connections - dimensions and order information*



### 6 Keyboards *Membrane keyboard switch*



### 7 Keyboards *Silicon rubber keypads*



### PRODUKTBESCHREIBUNG - PRODUCT DESCRIPTION

Anzeigen verschiedener Ausführungen sind unverzichtbar als Informations- und Kontrollinstrument bei einer Vielzahl heutiger Anwendungen.

Sichere Verbindungssysteme sind Voraussetzung für eine dauerhafte und störungsfreie Funktion dieser Anzeigen. Hierfür ist eine hochwertige Produktlinie verfügbar.

Empfohlen wird die Kombination des Stecksystems mit flexiblen gedruckten Schaltungen wegen der überzeugenden Vorteile:

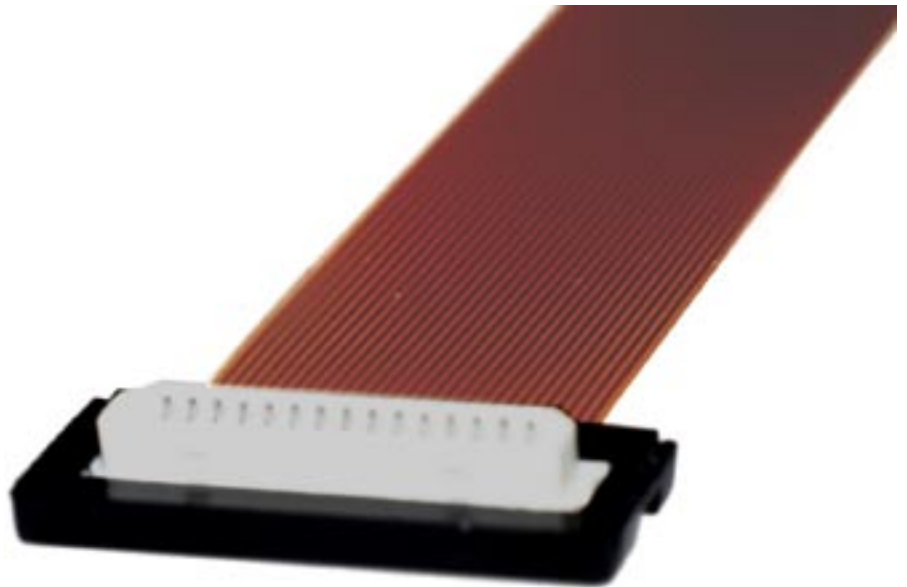
- Hohe Flexibilität
- Hohe Lebenszeit
- Hohe Biegezyklen und Biegefestigkeit
- Temperaturbeständigkeit
- Raum- und Gewichtsvorteil
- Vibrations- und Schocksicherheit

*Miscellaneous types of displays are essential to control and to provide information in a multitude of today's applications.*

*Reliable connections are a precondition for stable (durable) and failure-free operation of displays. For this purpose we offer a high quality standard productline.*

*We recommend the combination of the connector with FPC due to its convincing benefits:*

- High flexibility
- High life span
- High bending cycles and strength
- Temperature continuity
- Low weight
- Shock and vibration durability



### VORTEILE - FEATURES

- |  |  |
|--|--|
| ■ 0.5mm Raster.  | ■ 0.5mm pitch.   |
| ■ 31 / 41 polige Steckverbinder (DF9) / ZIF-Interface.                                     | ■ 31 / 41 position connectors (DF9) / ZIF-Interface.       |
| ■ Als Verbindungsleitung flexibles Flachkabel und flexible gedruckte Schaltung einsetzbar. | ■ Flexible flat cable or flexible printed circuit.         |
| ■ Abgeschirmte Version mit Kupferfilm und leitendem Kleber                                 | ■ Shielded Version by copper foil with conductive glue.    |
| ■ Temperaturbereich -40 ~ + 85°C   | ■ Temperature range -40 ~ + 85°C.                          |
| ■ Länge nach Wunsch  | ■ Length to requirements.                                  |
| ■ Umspritztes Steckergehäuse für 31 / 41-polige Steckverbinder (DF9).                      | ■ Overmolded housing for 31 / 41-position connector (DF9). |
| ■ Hochwertige Verbindung mit hohem Lebenszyklus.   | ■ High quality and high life span.                         |
| ■ Nach ISO 9002.   | ■ In accordance with ISO 9002.                             |

### MATERIAL FPC - MATERIAL FPC

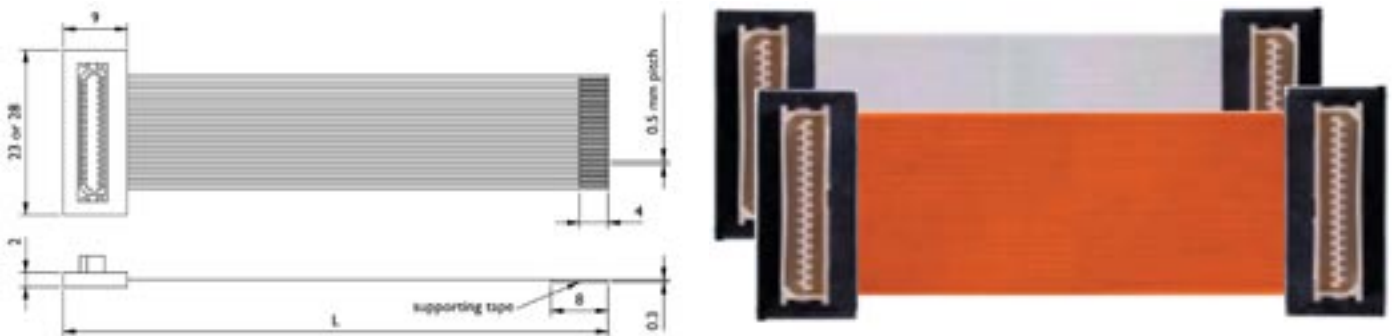
Polyamidfolie (Kapton, QC spec. JPC-FC-250A)

Kupferleiter, verzinkt

Polyamide foil (Kapton, QC spec. JPC-FC-250A)

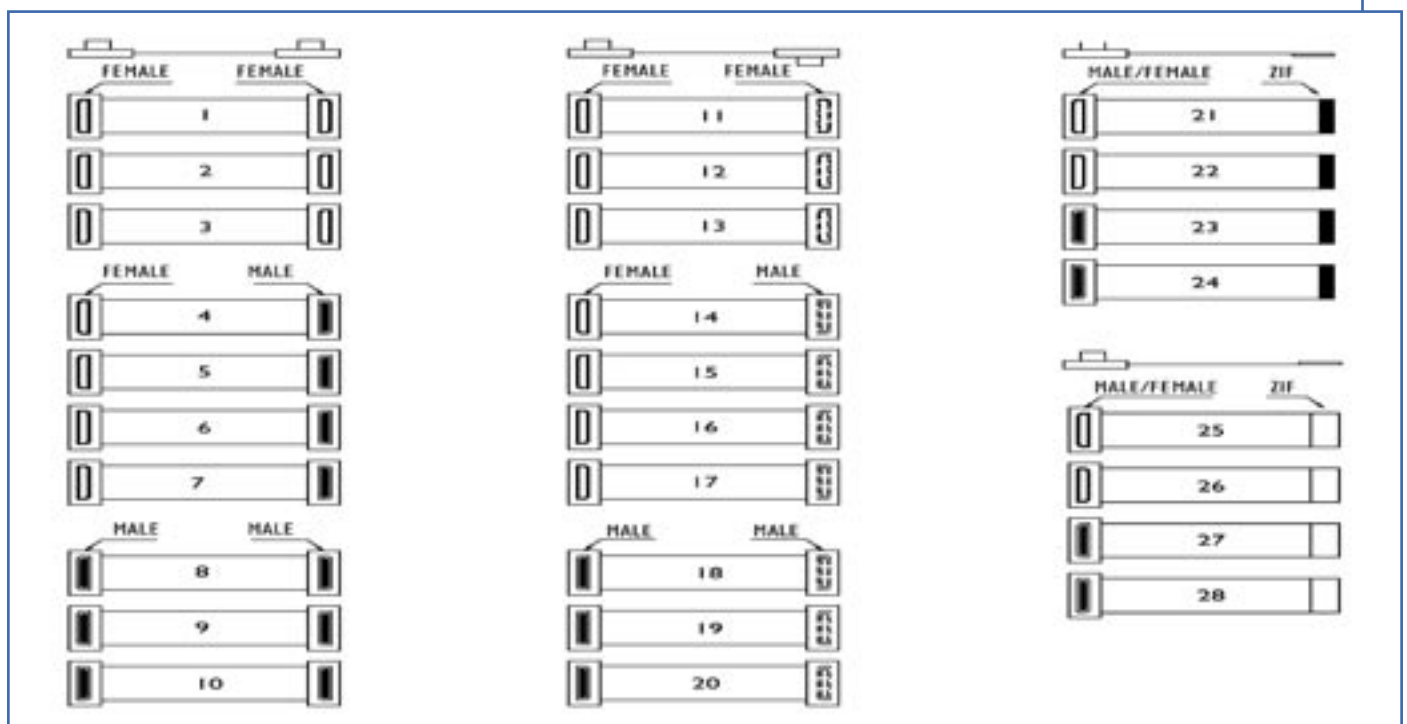
Copper conductors, tin-plated

### PRODUKTBESCHREIBUNG - PRODUCT DESCRIPTION



### BESTELLSCHLÜSSEL - ORDER INFORMATION

<b>FPC</b>	<b>31</b>	<b>100</b>	<b>F</b>	<b>F</b>	<b>8</b>
<b>FPC</b> =Flexible gedruckte Schaltung =Flexible printed circuit	<b>Polzahl</b> 31 und 41 <b>Number of positions</b> 31 and 41	Gesamtlänge ±5mm <b>Total length</b> ±5mm	<b>Seite 1</b> <b>Side 1</b>	<b>Seite 2</b> <b>Side 2</b>	
<b>FPCS</b> =Geschirmte flex. gedr. Schaltung =Shielded flex. printed circuit			<b>F</b> =Female Stecker <b>F</b> =Female connector	<b>F</b> =Female Stecker (DF9) <b>F</b> =Female connector (DF9)	
<b>FFC</b> =Flexibles Flachkabel =Flexible flat cable			<b>M</b> =Male Stecker <b>M</b> =Male connector	<b>M</b> =Male Stecker (DF9) <b>M</b> =Male connector (DF9)	
<b>FFCS</b> =Geschirmtes flexibles Flachkabel =Shielded flexible flat cable				<b>Z</b> =ZIF-Stecker Anschluß <b>Z</b> =ZIF-connector interface	



**WENNMACHER** Electronic co-operates with selected leading manufacturers of high quality membrane keyboard switch products.

Thus we offer competitive pricing and on-time delivery in addition to our level of service and commitment you expect from a reliable supplier.

Whether for key pads, various connection possibilities or complex applications we have the expertise.



### PRODUCT RANGE

- **Standard:**  
12 keys, 16 keys, 20 keys,  
no tooling charge necessary.
- **Available are:**  
Mylar dome and  
metal dome.
- **Special design:**  
EMI, RFI or  
ESD shielding.
- **Raised key with**  
mylar or metal tactile effect
- **SMD components on**  
mylar circuit  
or connector  
for tail termination.

### SPECIFICATIONS

■ Different kinds of membrane switch will have different specifications. The specifications below is

only for reference. Please contact with us for details.

#### Membrane keyboard switch

Operation voltage	<35 VDC
Operating current	<100 mA
Contact resistance	<100 Ω
Open circuit resistance	>10 MΩ
Operation force	30g to 500g
Operation temperature	-35°C to +70°C
Storage temperature	-45°C to +90°C
Life expectancy	5x10 <sup>5</sup> to 3x10 <sup>7</sup> cycles
Switch stroke	0,1 - 0,6mm
Contact bounce	5 - 30 mSec

**WENNMACHER** Electronic co-operates with selected leading manufacturers of high quality silicon rubber keypads.









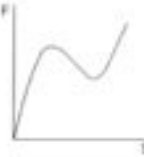
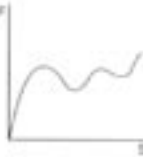


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PRODUCT RANGE	Rubber keypad	Variety of surface finishing
	<ul style="list-style-type: none"> <li>■ Regular keypad</li> <li>■ Multi-color-keypad</li> <li>■ Complete set                             <ul style="list-style-type: none"> <li>a. FPC + LED + keypad</li> <li>b. Mylar circuit + LED + keypad</li> <li>c. PCB + keypad + components</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Plastouch over coating</li> <li>■ Bright over coating</li> <li>■ Epoxy over coating</li> <li>■ Night time design (laser engraved)</li> <li>■ Anti-microbial</li> <li>■ Fluorescent</li> <li>■ Color changeable under lighting</li> </ul>

### BASIC CONSTRUCTION OF SILICONE RUBBER KEYPADS

Type						
Curve						
Force range	0 - 350g	30 - 250g	30 - 150g	30 - 80g	30 - 200g	20 - 80g
Stroke range	0,5 - 3,0mm	0,7 - 1,5mm	0,5 - 30mm	2,0 - 4,0mm	1,0 - 2,5mm	0,2 - 1,0mm
Life-cycle (x10 <sup>3</sup> )	500-2,000	500-2,000	1,000-3,000	5,000-20,000	500-3,000	500-10,000
Typical uses	Telephone, Remote control, Automobile, Radio, Toys, Calculator, ...etc.	Telephone, Remote control, Toys, Games, Calculator, ...etc.	Telephone, Remote control, Toys, Measuring Instruments, Office machine	Computer, Typewriter, ...etc.	Telephon, Typewriter, Test instruments, ...etc.	Remote control, Calculator, Typewriter, Computer, ...etc.

## KONTAKTE CONTACTS

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