Crimp Force Monitor  
A world standard system for detecting crimp errors

The CFM-MX series compact and low cost crimp force monitors are adaptable to most crimping presses and automatic wire processing machines. The piezo force sensor signal is analyzed by 300-sensor readings per crimp at 256 gain levels. The automatic trigger needs no rotary encoder, proximity switches and press fire pulses etc. Many outputs: machine stop, defects sorting, short wire cutting during teach-in are available.

**Model: CFM-MX20 two channel model**  
**Model: CFM-MX10 one channel model**

The PROMX data monitor program on PC via RS232C. All critical parameters and operation modes are protected with a security dongle-key.

Sensor set in the base plate

CFM detects defects in real time
- No copper in core crimp
- Low insulation
- Insulation in core crimp
- Strands out & pressed aside
- Strands pressed on top
- Strands out in air
- Insulation wing bent outside
- Insulation wing bent inside
- Wrong height set
- Bad machine condition
- Bad applicator condition

Sensor sandwiched by base plates is a popular setup method.

The CFM-GP uses Area and Sigma analysis tools. Force curves and data are displayed on a large LCD.

Ring Type Piezo Force Sensors
Compact, rigid and very accurate. There are 100kg, 500kg, 1 ton, 2 ton and 4 ton models

Sensor are set in the ram holder or base plates to receive full crimp force.

<table>
<thead>
<tr>
<th>Model</th>
<th>force</th>
<th>Model</th>
<th>force</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTW01</td>
<td>0.1t</td>
<td>FTC208</td>
<td>2.5t</td>
</tr>
<tr>
<td>FTW05</td>
<td>0.5t</td>
<td>FTC40</td>
<td>4.0t</td>
</tr>
<tr>
<td>FTW10</td>
<td>1.0t</td>
<td>FTW50</td>
<td>5t</td>
</tr>
<tr>
<td>FTW20</td>
<td>2.0t</td>
<td>FTW100</td>
<td>10t</td>
</tr>
</tbody>
</table>

Machine frame mount sensors
Mounted on the press frame with M6 setscrew, the PSS model sensor measures applied press force through deflection of the machine frame during crimping dynamically. A frame type sensor eliminates the need for specially designed base plates or ram. It is very precise and catches fine change of crimping.

Three models are available.
- PSS100 100mV/μ strain
- PSS 50 50mV/μ strain
- PSS25 25mV/μ strain
CFM learns **GOOD samples at teach-in for comparison with data in production.**

**Teach-in**
The CFM learns what the normal crimping forces look like based on several sample crimps. This becomes the standard to which all the other crimps will be compared.

**Operation is.**
Once a successful teach-in is completed, it immediately switches to the operation mode and production continues until a defect is detected. Data and force curves can be monitored by PC software ProMX and linked to a network by BBMX.

**What are the T1, T2, T3 and Td tools of CFM-MX?**
Crimper touching material area is T1, processing area is T2, and crimping completing area is T3. Every area change is controlled by tolerance. Also the total deviation index is Td. If any of them exceed individual tolerances, the crimp is defective. See the below curves.

**Crimp force curve on PC**

![Crimp force curve on PC](image)

- **Teach-in curve**
- **Data curve**

**Defects analysis. See how the force curves deviate from the red line!**

- Wire Strands out 2/7 pcs
- Insulation entered core crimp by 0.5mm
- Insulation entered core crimp by 2.0mm
- Low insulation by 1mm

<table>
<thead>
<tr>
<th><strong>Main specifications</strong></th>
<th>CFM-MX10 (N)</th>
<th>CFM-MX20 (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model name</td>
<td>CFM-MX10 (N)</td>
<td>CFM-MX20 (N)</td>
</tr>
<tr>
<td>Number of channel</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Power source</td>
<td>AC100~AC240V 50/60Hz</td>
<td></td>
</tr>
<tr>
<td>Dimensions/ Weight</td>
<td>(W)188X(H)72X(D) 220 mm / 2.2Kg</td>
<td></td>
</tr>
<tr>
<td>Standard accessories</td>
<td>I/O cable, BNC cable, Piezo force sensor (1 pc.)</td>
<td>I/O cable, BNC cable, Piezo force sensors (2pcs.)</td>
</tr>
</tbody>
</table>