Paperless Recording System

**PAPERLESS RECORDER**

*(5.7-inch touch panel)*  

**MODEL**  

**73ET**

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### MODEL & SUFFIX CODE SELECTION

- **MODEL**
- **POWER INPUT**
  - M2: 100 – 240V AC
  - R: 24V DC *1
  
  *1. Low Voltage Directive is not applied.

- **APPLICATION**
  - /0003 : Paperless Recorder

- **OPTIONS**

#### The following options are discontinued:

- /B : 128 MB CompactFlash Card
- /C : 256 MB CompactFlash Card
- /D : 512 MB CompactFlash Card

A CF Card is required to start up the 73ET.
M-System will not guarantee the product's performance if a CF Card other than purchased from M-System, or specified below, is used.

- Manufacturer: Hagiwara Sys-Com
- Model No.: MCF10P-xxxxS
- Capacity: 128 MB through 512 MB

(Alternative)

- Manufacturer: Hagiwara Sys-Com
- Model No.: CFI-xxxxDG
- Capacity: 128 MB through 512 MB

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### ORDERING INFORMATION

Specify code number. (e.g. 73ET-M2-M2/0003)

### PACKAGE INCLUDES...

- Paperles Recorder Software CD (model: CHARTLSP2)
- Installation Fasteners

### RELATED PRODUCTS

- Panel Mount Adaptor (model: A-73)
- PC Recorder I/O Modules (model: R1M/R2M/RZMS Series)
- Remote I/O Modules (model: R3/R5 Series)
- CF Card

### DATA INTERFACE

- **Serial**: RS-232C: COM1  
  (9-pin D-sub connector, male)
- **Network**: Ethernet I/F
- **Memory card**: CF Card; 1 slot

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### DISCONTINUED MODEL

**Functions & Features**

- Digital recording system replacing the conventional chart recorders
- User-friendly screen design transferred from conventional recorders
- Data exported to the host PC via Ethernet

**Typical Applications**

- System startup data logging, in combination with the R1M-GH2 (voltage and T/C inputs)

### TOUCH PANEL SPECIFICATIONS

- **Degree of protection**: IP65f (the front panel when mounted to a panel)
- **Display**
  - Type: TFT Color LCD (5.7-inch QVGA)
  - Colors: Max. 64k colors
  - Backlight: CCFL
- **Resolution**: 320 x 240 pixels
- **Dot pitch**: 0.360 x 0.360 mm
- **Effective display area**: 115.2 x 86.4 mm
- **Brightness control**: 4 levels

- **Touch Panel**
  - Resolution: 1024 x 1024
  - Type: Resistive film (analog)

- **Ethernet Communication**
  - IP address: 192.168.0.1 (factory setting)
INSTALLATION

Power input
AC: Operational voltage range 85 – 264V, 47 – 66 Hz, approx. 20VA
DC: Operational voltage range 24V ±10%, ripple 10% p-p max., approx. 12W

The CF Card may be destroyed if the power supply is removed during recording. Take protective measures against power failure.

Operating temperature: 0 to 45°C (32 to 113°F)
Operating humidity: 30 to 85% RH (non-condensing)
Dimensions: W170.5×H138×D76.7 mm (6.71”×5.43”×3.02”)
Weight: 1.3 kg (2.9 lbs)

STANDARDS & APPROVAL

EN 55011, Group 1, Class A
EN 61000-6-2
Low Voltage Directive (2006/95/EC)
EN 60950-1

PERFORMANCE

Insulation resistance:
AC powered: ≥10MΩ with 500V DC
DC powered: ≥20MΩ with 500V DC

Dielectric strength:
AC powered: 1500V AC @1 minute
DC powered: 1000V AC @1 minute

SYSTEM REQUIREMENTS PROVIDED BY THE USER

HARDWARE ENVIRONMENT FOR PC RECORDER SOFTWARE

<table>
<thead>
<tr>
<th>MSR128-V5</th>
<th>PC IBM PC/AT or compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Microsoft Windows 2000 or Windows XP SP1, SP2</td>
</tr>
<tr>
<td>CPU</td>
<td>Pentium III 800 MHz or higher</td>
</tr>
<tr>
<td>Screen area</td>
<td>1024 by 768 pixels or better resolution</td>
</tr>
<tr>
<td>Display color</td>
<td>65000 colors (16 bits)</td>
</tr>
<tr>
<td>Video memory</td>
<td>2 MB minimum; 4 MB recommended</td>
</tr>
<tr>
<td>Main memory</td>
<td>128 MB minimum; 256 MB recommended for Windows XP</td>
</tr>
<tr>
<td>Hard disk area</td>
<td>Use an internal hard disk. Max. approx. 100 MB required per day.</td>
</tr>
<tr>
<td>CD-ROM drive</td>
<td>Used when installing the software program.</td>
</tr>
<tr>
<td>Card reader drive</td>
<td>Used when reading data from Compact Flash Card</td>
</tr>
<tr>
<td>Communication port</td>
<td>RS-232C port (COM1 through COM5) supported by Windows, LAN card</td>
</tr>
</tbody>
</table>

*1. External (e.g. SCSI) devices may impair appropriate performance.
COMPONENT IDENTIFICATIONS

■ LEFT SIDE VIEW
RS-232C Connector
I/O interface

■ FRONT VIEW
Touch Panel
Switching screens, controls

■ RIGHT SIDE VIEW
10BASE-T
Modular Jack
Ethernet interface

■ REAR VIEW
Power Terminals

Touch Panel
Switching screens, controls

CONNECTION DIAGRAM

■ RS-232C INTERFACE

<table>
<thead>
<tr>
<th>ABBR.</th>
<th>PIN NO.</th>
<th>EXPLANATION OF FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB (RD)</td>
<td>1</td>
<td>Not Used.</td>
</tr>
<tr>
<td>BA (SD)</td>
<td>2</td>
<td>Received Data</td>
</tr>
<tr>
<td>CD (ER)</td>
<td>3</td>
<td>Transmitted Data</td>
</tr>
<tr>
<td>AB (SG)</td>
<td>4</td>
<td>DTE Ready</td>
</tr>
<tr>
<td>CF (CD)</td>
<td>5</td>
<td>Signal Common</td>
</tr>
<tr>
<td>CA (RS)</td>
<td>6</td>
<td>Received Line Signal Detector</td>
</tr>
<tr>
<td>CB (CS)</td>
<td>7</td>
<td>Request to Send</td>
</tr>
<tr>
<td>FG</td>
<td>8</td>
<td>Clear to Send</td>
</tr>
<tr>
<td>L (+)</td>
<td>9</td>
<td>Do Not Connect.</td>
</tr>
<tr>
<td>N (–)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 73ET SOFTWARE FUNCTIONS

#### NUMBER OF INPUT CHANNELS
Max. 128 points from PC Recorder Input Module (R1M/R2M/RZMS Series).

#### I/O MODULES

<table>
<thead>
<tr>
<th>Model No.</th>
<th>I/O Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1M-GH2</td>
<td>DC voltage/thermocouple input</td>
</tr>
<tr>
<td>R1MS-GH3</td>
<td></td>
</tr>
<tr>
<td>R1M-J3</td>
<td>RTD input</td>
</tr>
<tr>
<td>R1M-A1</td>
<td>Discrete input, totalized pulse input</td>
</tr>
<tr>
<td>R1M-D1</td>
<td>Discrete output</td>
</tr>
<tr>
<td>R1M-P4</td>
<td>Totalized pulse input, discrete input/output</td>
</tr>
<tr>
<td>R2M-2H3</td>
<td>Thermocouple input</td>
</tr>
<tr>
<td>R2M-2G3</td>
<td>DC voltage input</td>
</tr>
<tr>
<td>RZMS-U9</td>
<td>Universal (DC/TC/RTD/Pot) input</td>
</tr>
</tbody>
</table>

#### STORING RATE
0.5*, 1, 2, 5, 10 seconds, 1, 10 minutes

#### DATA STORING METHOD

Normal: Recording is manually initiated and stopped. Data is continuously stored while the recording is on.

Auto: Recording is automatically initiated and stopped at a predefined time.

Event recording: The 73ET detects an external event by trigger signal, and stores preset number of samples before and after the moment of event.

Remote trigger: Data is automatically recorded while the external trigger condition (input) is true.

#### DATA STORAGE
Sampled data and alarm history data are stored in a CompactFlash (CF) Card.

File format: Binary

Oldest data are overwritten with new data when the card memory is full.

#### DATA DISPLAY FUNCTIONS

**Trend View**

- Display rate: 0.5 sec. or 2 sec.
- Chart speed: High, Middle**, Low** and Very Low**
- Chart direction: Perpendicular or horizontal
- Number of pens displayed: Max. 12 per view***
- Number of display views: 3
- Pen thickness: Normal and wide
- Digital indicator: Shows momentary value.
- Alarm indicator: Shows alarm status of the channels displayed on the digital indicator.
- Scale: Linear and square root

**Overview**

- Display rate: 0.5 sec. or 2 sec.
- Number of pens displayed: Max. 32 per view
- Number of display views: 4

Digital indicator: Shows momentary value.
Alarm indicator: Shows alarm status, date/time of the last alarm trip and reset, of the channels displayed.

**Bargraph View**

- Display rate: 0.5 sec. or 2 sec.
- Bargraph direction: Perpendicular or horizontal
- Number of pens displayed: Max. 12 per view***
- Number of display views: 3
- Digital indicator: Shows momentary value.
- Alarm indicator: Shows alarm status of the channels displayed on the digital indicator.
- Scale: Linear and square root

**Alarm History View**

- Display items: Date/time of alarm events (trip and reset), Pen No., Tag Name and Alarm Message
- Number of display views: 1
- Number of displayed alarm events: 16
- Display update: Automatically updated by a new event
- Search function: Scrolling up/down, searching by date/time
- Alarm indicator: Shows alarm status of the channels displayed on the digital indicator.
- Number of stored alarm events: Depends upon the CF Card capacity.

<table>
<thead>
<tr>
<th>CF Card Capacity (MB)</th>
<th>Stored Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>250</td>
</tr>
<tr>
<td>256</td>
<td>500</td>
</tr>
<tr>
<td>512</td>
<td>1000</td>
</tr>
</tbody>
</table>

**Retrieve View**: Shows data stored in the CF Card.
- Number of display views: 3
- Time index search: Scroll or Specify a specific time index

**Settings View**

- **12 pens per screen**
- **Limited to 4 pens when the storing and/or display rates are set to 0.5 seconds.**

#### OTHER FUNCTIONS

Alarm output: When the input signal is out of a predetermined range, an alarm information is provided on the display and a contact output can be provide at a discrete output module.

Ethernet communication: Transmits data of specific channels stored in real time to a host PC installed with the PC Recorder Software Model MSR128. Transmits data stored in the CF Card to the MSR128 using FTP protocol.

#### PAPERLESS RECORDER SOFTWARE PACKAGE (model: CHARTLSP2)

- **PC Recorder Software (model: MSR128-V5)**
  - The 73ET can be connected to the host PC via Ethernet. Data can be stored in real time on the MSR128.
- **PC Configurator Software (model: 7xETBLD)**
  - Various parameters for the 73ET can be configured on the PC. Parameter setting can be downloaded via Ethernet to the 73ET. Used also to convert the data stored in the CF Card into a CSV file. The 73ET’s configuration can be also exported in a CSV file.
EXTERNAL DIMENSIONS mm (inch)

■73ET

■ A-73 PANEL MOUNT ADAPTOR
  ■ FRONT VIEW
  ■ SIDE VIEW
  ■ REAR VIEW

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The A-73 panel cutout conforms to DIN 43700. For each maintenance, operation and sufficient ventilation, at the minimum of 100 mm must be observed between the 73ET unit and adjacent structures or equipment.

**SYSTEM CONFIGURATION EXAMPLES**

**R1M, R2M, RZMS**

- **Paperless Recorder (model: 73ET)**
- **RS-232C**
- **RS-232C/RS-485 Converter (model: R2K-1)**
  - Insert an RS-232C/RS-485 Converter for isolation to expand the RS-485 line to a long distance.
- **RS-485**
- **PC Recorder (model: R1M-A1)**
- **PC Recorder (model: R1M-D1)**
- **PC Recorder (model: R1M-P4)**
- **PC Recorder (model: R2M)**
- **PC Recorder (model: R2M)**
- **RS-232C/RS-485 Converter (model: R2K-1)**

Specifications subject to change without notice.
SYSTEM CONFIGURATION EXAMPLES

**RS-NM1**


**R3-NM1**


**MONITORING AT THE MSR128 VIA ETHERNET**


**READING DATA FROM CF CARD AT THE MSR128**