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INTRODUCTION

The KW1-P Programmable Real-Time Clock is an option for the PDP-11 System which provides a method of accurately measuring time intervals. The KW1-P consists of a quartz crystal module (M729) that provides programmed real-time interval interruptions and interval counting in several modes of operation. Addition of this module to a PDP-11 system allows hardware interval counting which reduces program instruction time and allows more efficient use of computer time.

Although signals are transferred between the KW1-P module and the Unibus, this manual does not describe the operation of the Unibus. A detailed description of the Unibus is presented in the PDP-11 Unibus Interface Manual, W11-1-5070.

This manual is intended for use with the theory of operation necessary to understand and maintain the KW1-P module. The manual is organized into four chapters: Introduction, General Description, Detailed Description, and Procedures.

The drawing set is identified as DCM-7280-A, sheets 1 through 5. The drawing set is a

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Sheet 1 — Component Placement and Parts Reference (KW1-1)
Sheet 2 — Clock Control (KW2-1)
Sheet 3 — Counter Control (KW3-1)
Sheet 4 — Interface Control (KW4-1)
Sheet 5 — Address Control (KW5-1)
CHAPTER 2

GENERAL DESCRIPTION
### 2.4 INSTALLATION

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 1</td>
<td></td>
</tr>
<tr>
<td>COMP 2</td>
<td></td>
</tr>
<tr>
<td>COMP 3</td>
<td></td>
</tr>
<tr>
<td>COMP 4</td>
<td></td>
</tr>
<tr>
<td>COMP 5</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Ensure all components are securely connected according to the diagram.
- Follow the installation guidelines provided with each component.
- Regular maintenance is required to ensure optimal performance.

**Configuration:**
- Ensure the correct configuration settings are applied to each component.
- Adjust settings as necessary for optimal operation.

**Wiring Diagram:**
- Use the provided wiring diagram to connect components correctly.
- Double-check all connections to prevent electrical issues.

**Performance:**
- Regular testing is recommended to maintain performance.
- Monitor components for any signs of wear or failure.

**Documentation:**
- Keep all installation and configuration documents for future reference.
- Ensure all personnel are trained on the proper operation of each component.

**Maintenance:**
- Schedule regular maintenance to extend the life of components.
- Replace components when necessary to maintain system integrity.

**Safety:**
- Ensure all personnel are aware of safety guidelines.
- Adhere to all safety protocols during installation and maintenance.

**Power Supply:**
- Ensure the power supply meets all requirements.
- Regularly check power supply for voltage fluctuations.

**Environmental Considerations:**
- Protect components from environmental factors such as temperature and humidity.
- Ensure components are not exposed to extremes in temperature or humidity.

**Record Keeping:**
- Keep a record of all installation and maintenance activities.
- Use these records for future reference and troubleshooting.

**Emergency Protocols:**
- Develop an emergency protocol to handle unexpected situations.
- Train all personnel on the emergency protocol.

**Contact Information:**
- Provide contact information for technical support.
- Keep a list of all technical contacts for ease of access.

**Additional Resources:**
- Refer to the manufacturer's manual for detailed instructions.
- Access online forums and communities for additional support.

**Certifications:**
- Ensure all components meet the necessary certifications.
- Regularly check for updated certification requirements.

**Legal Compliance:**
- Ensure compliance with all local and national regulations.
- Keep all necessary documentation for regulatory compliance.

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The following diagram illustrates the operation of the XW10 address and control block diagram. The diagram shows how the address is formed and how it is used to select and control the memory block.

**Figure 3-1** XW10 Address and Control Block Diagram

- **Address Selection and Control**: The diagram illustrates how the address is formed by combining the block address with the page number and by using the block address to select the memory block.
- **Control and Status Register**: The register contains information about the status of the memory block, such as whether it is valid or not.

**Figure 3-2** Address Word Format (Figure 3-1)

The address word consists of block address, page number, and control bits. The block address is formed by concatenating the block address with the page number, and the control bits are used to select and control the memory block.

**3.2 Address Selection and Control**

The address selection and control block diagram is used to form the address word and to control the memory block. The diagram shows how the address is formed and how it is used to select and control the memory block.

**3.1 Introduction**

This chapter discusses the design and implementation of the XW10 memory management unit. Each section focuses on a specific aspect of the memory management unit, providing a detailed description of how it operates and how it is used to manage the memory blocks.
### 3. CLOCK AND CONTROLS

**Function:**
- **Reset:**
- **Select:**
- **Set:**
- **Cancel:**
- **Complete:**

**Output Signal and Function:**

<table>
<thead>
<tr>
<th>Output Signal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**NOTE:**
- Output signals are denoted as X.
- The function of the output signals on the control panel are shown in Table 3.2.
### Control and Status Register

<table>
<thead>
<tr>
<th>Register</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Enable</td>
</tr>
<tr>
<td>B</td>
<td>1=ON, 0=OFF</td>
</tr>
<tr>
<td>R</td>
<td>RX Buffer</td>
</tr>
<tr>
<td>E1</td>
<td>Error 1</td>
</tr>
<tr>
<td>E2</td>
<td>Error 2</td>
</tr>
</tbody>
</table>

#### B Mode

- **ON**: Receiver enabled. Data is received from the RX pin.
- **OFF**: Receiver disabled. No data is received.

#### E1 and E2 Registers

- **E1**: Error 1 register. Shows any error conditions detected by the receiver.
- **E2**: Error 2 register. Shows any error conditions detected by the receiver.

#### RX Buffer

- When **B** is **ON**, the RX buffer stores received data for transmission to the microcontroller.

#### Run/Stop Mode

- **RUN**: Normal operation. The receiver is enabled.
- **STOP**: Receiver is disabled. No data is transmitted or received.

- **INT**: Interrupt request. The receiver generates an interrupt when new data is available in the RX buffer.

- **MDSEL**: Mode select. Selects the mode of operation:
  - **0**: Normal operation
  - **1**: Run/Stop mode
  - **2**: INT mode
  - **3**: Other modes

#### Run/Stop Mode

- **INT**: Interrupt request. The receiver generates an interrupt when new data is available in the RX buffer.

- **MDSEL**: Mode select. Selects the mode of operation:
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  - **3**: Other modes

- **ERR**: Error register. Shows any error conditions detected by the receiver.

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- **ERR**: Error register. Show...
EXAMPLE 3

TOTAL NUMBER OF EVENTS IS MOUNTED BY VALUE IN COUNTER (CLR = 127505)

EXAMPLE 4

TOTAL NUMBER OF EVENTS IS MOUNTED BY VALUE IN COUNTER (CLR = 127505)

EXAMPLE 5

TOTAL NUMBER OF EVENTS IS MOUNTED BY VALUE IN COUNTER (CLR = 127505)

EXAMPLE 6

TOTAL NUMBER OF EVENTS IS MOUNTED BY VALUE IN COUNTER (CLR = 127505)

EXAMPLE 7

TOTAL NUMBER OF EVENTS IS MOUNTED BY VALUE IN COUNTER (CLR = 127505)