
TVM 164

VIDEO
MATRIX
SWITCHER

Operating Instructions

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PREFACE

The TVM 164 is a high quality Video Matrix Switcher that is suitable to connect up to sixteen Cameras or other video sources. Four independent outputs allow to connect Monitors, Video Cassette Recorders, etc. On-screen display function allows higher operational efficiency.

Standard BNC-type input, output and synchronization connectors enable TVM 164 to be used with other CCTV equipment.

FEATURES

- 16 Video Inputs
- 4 Video Outputs
- 1 Synchronization Input
- 16 Synchronization Outputs
- 16 Alarm Inputs
- 24 Open-Collector Outputs
- 2 Relay Outputs
- RS-232/RS-485 Ports for System Communication
- VCR Clock
- VCR Remote Control
- Site Control
- Integral Menu-Driven Setup
- Password Protection with User Login
- Priority Lockout
- Programmable Camera Numbering
- System Partitioning
- Universal Tours - Programmable Camera Tours or Salvo Tours for all Monitors
- Monitor Sequence - Operator-Definable Camera Sequence for Individual Monitors
- Multi Monitor Sequence
- Salvo Switching
- Video Loss Detection
- Automatic Activation
- Alarm Processing
- Real Time Clock
- Function Processing
- Event Action
- Alarm Status Output
- Delectable Multi-Language On-Screen Display



PRECAUTIONS

- Use only the power source specified on the rating label located on rear of the cabinet.
- Do not drop metallic parts through slots. This action could permanently damage this unit. Do turn power off immediately and refer servicing to qualified service personnel.
- Avoid using this unit under the following conditions:
 - in extremely hot, cold or humid places,
 - in dusty places,
 - near appliances generating strong magnetic fields,
 - in places subject to direct sunlight, and
 - in badly ventilated places.
- Unplug this unit from power supply and refer servicing to qualified service personnel under the following conditions:
 - if the unit does not operate normally following the operating instructions
 - if the unit has been dropped or the cabinet has been damaged
 - when the unit exhibits a distinctive change in performance.

This unit is produced to comply with Directive 89/336/EEC.

WARNING:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WARNING:

THIS APPARATUS MUST BE EARTHED!

DESCRIPTION

INTEGRAL MENU-DRIVEN SETUP

First Monitor output provides On-Screen menus for System programming using a System Keyboard.

PASSWORD PROTECTION WITH USER LOGIN

8 User-assignable Passwords are available to limit User access to the System. Every User has to Log-In to the System by typing his User name and Password. The Log-In option can be disabled.

PRIORITY LOCKOUT

8 Priority levels, assignable to Users, permit capture of setups by higher priority Users and lock out of lower priority Users.

PROGRAMMABLE CAMERA NUMBERING

User-defined On-Screen pseudo Camera numbers assigned by floor, zone, area, etc. can replace hardware-defined numbers to aid in site identification.

SYSTEM PARTITIONING

Programmable partitioning limits User access to Monitors, User access to Cameras, Monitor access to Cameras and User access to Cameras controls.

UNIVERSAL TOURS

Up to 32 Universal Tours can be defined. Tour can have up to 64 positions. Advance in the position occurs when one of the selected conditions is true. The conditions are Dwell time, Digital inputs, Alarm input status, Time slot status and Function status. Dwell time can be defined from 0 to 999 seconds. Every position can activate one of the following Camera to Monitor switching with Auxiliary actions including Presets, Sequence to Monitor starting, Multi-Sequence to Monitor starting, Salvo to Monitor executing, Relay and Open-Collector output switching.

MONITOR SEQUENCE

32 Sequences of up to 32 Cameras with independent Dwell times for each Camera can be operator-defined.

MULTI-MONITOR SEQUENCE

The Multi-Sequence switching is used to define the selected Sequences on the selected Monitors. Up to 32 Multi-Sequences can be defined.

SALVO SWITCHING

32 Salvos can be programmed for direct operator call-up to a Monitor. A Preset scene and Auxiliary action can be defined for each Camera in each Salvo.

VIDEO LOSS DETECTION

Every Camera input is scanned to detect video signal. An action is provided if an error occurs.

AUTOMATIC ACTIVATION

Automatic Activation of the TVM 164 functions depending on Alarm status, Time slots and Digital inputs.

ALARM PROCESSING

The 16 Alarm inputs capability. Each Alarm input can be enabled/disabled from the set-up menu. The Alarm inputs can be defined as normal open or normal closed. The Alarm input can be also defined as the remote alarm input. In this way the alarm can be activated from the PC computer, alarm center, etc. It can be cleared manual or in the auto mode instant or after selected delay.

REAL TIME CLOCK

The real time clock with the function of the Time slots incorporating the calendar ability has all capability to manage the TVM 164 depending on Time & Date. With the calendar it is possible to define the type (up to four types) for every day in the year. It is possible to define up to 16 Time slots each with four time intervals plus day type.

FUNCTION PROCESSING

The Function is the logical sum of the Alarm status, Time slots status, Function status and Digital inputs. The Functions are used to combine up to 3 paragraphs (Alarm status, Time slots, etc.) in one Function status which can start the Event action. The operations between paragraphs are logical AND, OR, NOR, NAND and the negate of the entire Functions. Up to 32 Functions can be defined.

EVENT ACTION

Up to 32 Events can be defined. The Event Action is the programming utility intended to automating the processing of the Alarms, Time slots, Digital inputs, Functions, etc. The selected Action is automatically started when the selected Event happened. The Action can be Camera to Monitor switching with Auxiliary actions including Presets, Sequence to Monitor starting, Multi-Sequence to Monitor Starting, Salvo to Monitors, starting a Tour, Relay switching and VCR control.

ALARM STATUS OUTPUT

Relay Output(s) and/or Open-Collector Output(s) can be assigned to activate when an alarm occurs.

**DELECTABLE MULTI-LANGUAGE
ON-SCREEN DISPLAY**

The Date, Time, Camera number, Camera and Monitor (alarm) status and a 16-character programmable Title are inserted on the Monitor(s) with the On-Screen option. The position of the messages can be defined. User on/off control of the Camera number, Title in Alarm and normal mode and/or the Date/Time is provided.

**RS-232/RS-485 PORTS FOR SYSTEM
COMMUNICATION**

Up to 4 Ports are available to connect max. 4 Keyboards and other serial equipment; telemetry receivers, VCRs, PC, etc.

SITE CONTROL

The RS-485/RS-232 ports are used to control receivers actuating fixed or variable speed Pan/Tilts; Lens zoom, focus and iris and Auxiliaries at suitably equipped Camera sites. Up to 255 Presets may be programmed per Camera.

VCR CLOCK

VCR Clock inputs are available to control the TVM 164 via VCR. The Sequence of the defined Monitor depends on the VCR Clock pulse.

VCR REMOTE CONTROL

VCR control is available through the RS-232 serial interface and/or through the analog resistor output of the TVM 164.

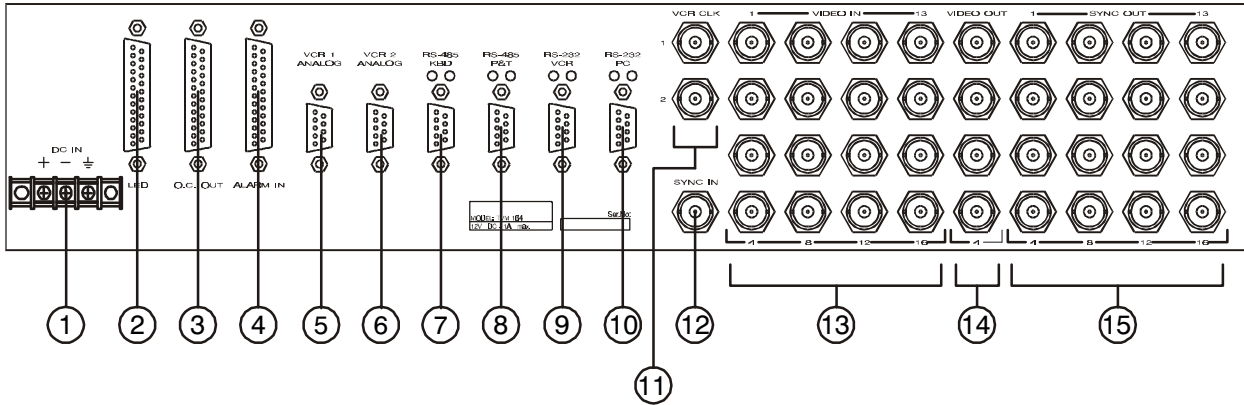
CONTROLS AND CONNECTORS

FRONT PANEL



(1) POWER
Switch to turn the power on/off. LED indicator lights in the power-on position.

REAR PANEL



(1) DC IN

Terminal-block connector to connect Power supply adapter 12V DC.

(2) LED

LED display and Digital input connector (D-25F). It allows to connect two LED displays with common anode. Seven general-purpose Digital inputs are also available.

(3) O.C. OUT

D-25F connector with twenty-four Open-Collector outputs.

(4) ALARM IN

D-25F connector with sixteen Alarm inputs and two built-in Relays with NO, NC and common contacts.

(5) VCR 1 / ANALOG

D-9F connector to connect Analog-control VCR.

(6) VCR 2 / ANALOG

D-9F connector to connect analog-control VCR.

(7) RS-485 / KBD

RS-485 keyboard connector (D-9F) to connect up to four System Keyboards. Green LED shows the RX state, red LED shows the TX state.

(8) RS-485 / P&T

RS-485 Site control connector (D-9F). It allows to connect up to thirty-two telemetry receivers. Green LED shows the RX state, red LED shows the TX state.

(9) RS-232 / VCR

D9-F connector to connect RS-232-control VCR. Green LED shows the RX state, red LED shows the TX state.

(10) RS-232 / PC

D-9F connector - RS-232 port to connect a Personal Computer. Green LED shows the RX state, red LED shows the TX state.

(11) VCR-CLK

Two VCR Clock connectors (BNC).

(12) SYNC IN

Synchronization input connector (BNC).

(13) VIDEO IN

Sixteen video input connectors (BNC).

(14) VIDEO OUT

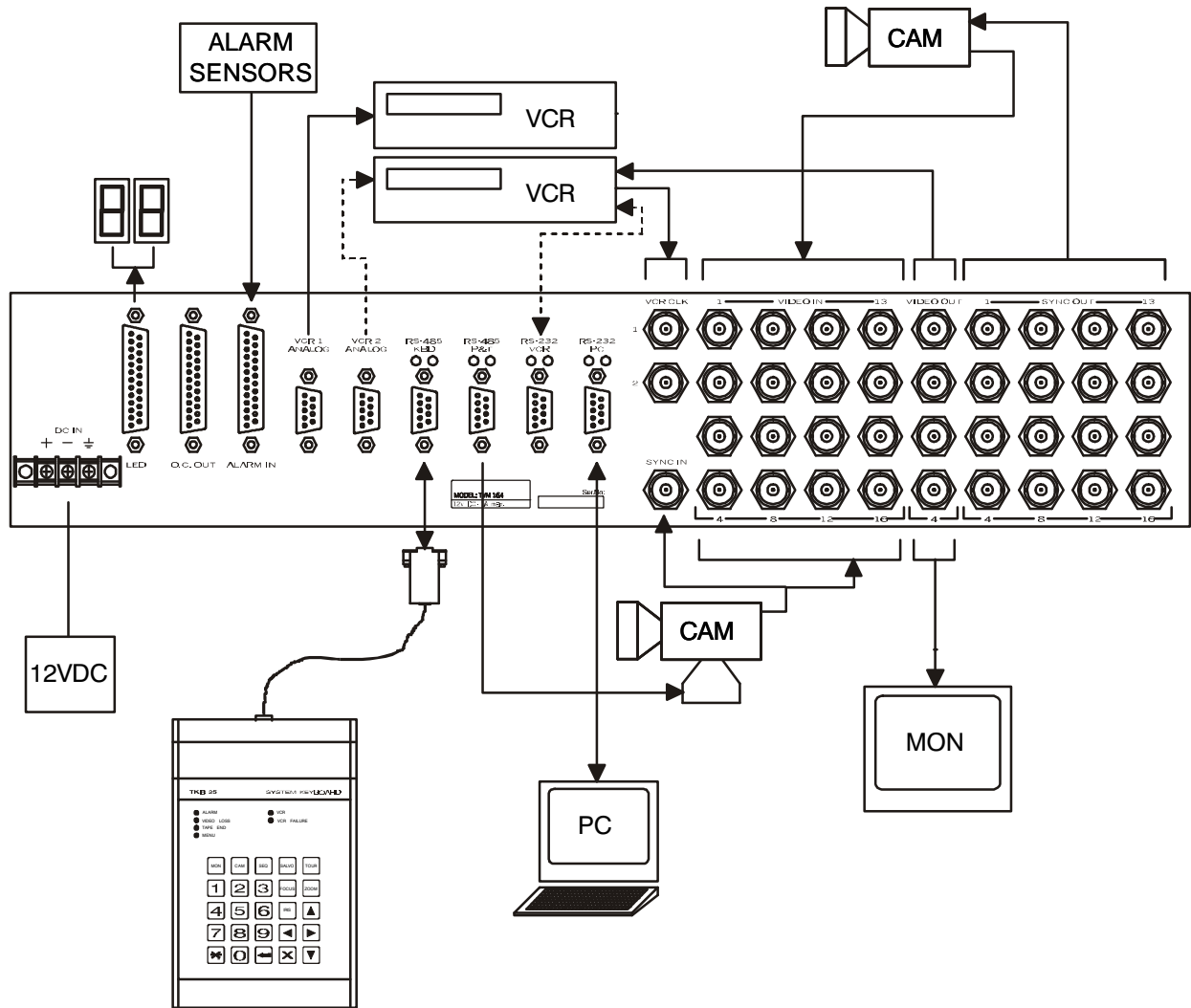
Four video output connectors (BNC).

(15) SYNC OUT

Sixteen synchronization output connectors (BNC).

CONNECTIONS

- Be sure to disconnect the power supply before connecting to other equipment.
- Also refer to the instruction manual of the equipment to be connected.



Note:

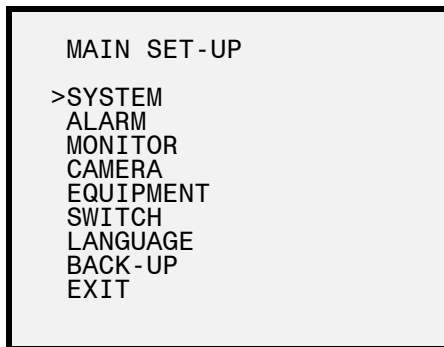
- These connections are typical of one System Keyboard.
- RS-485/KBD port allows to connect up to four Keyboards. (TKB 25)
- RS-485/P&T port allows to connect up to ten FastScan domes (Appendix 3), up to sixteen Star MD-1200/MD-2000 domes (Appendix 7) or up to sixteen TC 20 domes. (Appendix 8)
- RS-232/VCR port and RS-232/PC port allow to connect up to two Video Cassette Recorders (Mitsubishi, Appendix 2), telemetry receivers (RKD-16MFB etc., Appendix 4) or Personal Computer. (Appendix 6)

MENU PROGRAMMING

Access to menu programming is possible only from a TKB 25 System Keyboard. As a security feature this System have a Passcode entry with Priority Levels.

To access the menus from a TKB 25 System Keyboard press the * and **MON** and **TOUR** key.

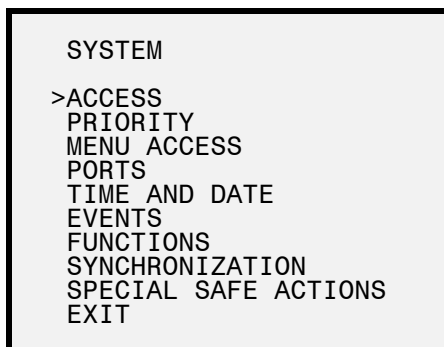
Following these procedures, the MAIN SET-UP menu is displayed.



To select a MAIN SET-UP menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

SYSTEM



To select a SYSTEM menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

The SYSTEM menu provide the means to define the system Access, Priority, Menu Access, Ports, Time and Date, Events, Functions, Synchronization and Special Safe Functions. Each selection of the System menu brings up another menu.

Access

```
ACCESS
>CAMERA/MONITOR
USER/MONITOR
USER/CAMERA VIEW
USER/CAMERA CONTROL
EXIT
```

The ACCESS menus define System partitioning which controls Cameras access to Monitors and User access to Monitors and Cameras.

Camera/Monitor

```
CAMERA/MONITOR
CAM:01    MONITOR:01
          0123456789
01 - 10:YYYYYYYYYYY
11 - 16:YYYYYYY
X-EXIT
```

In this menu it is the Monitor which controls what can be seen on itself. If access is denied, that

User/Monitor

```
USER/MONITOR
MON:01    USER:01
          0123
01 - 04:YYYY
X-EXIT
```

This menu defines the User-to-Monitor access which prevents selected User from accessing selected Monitors.

To select a ACCESS menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

To change the access for viewing the selected Camera on any Monitor:

1. Press * and @ keys or * and → keys to select a Monitor. (max. 4)
2. Position the cursor to the selected Camera with -, ^, → or @ key. (max. 16)
3. Press the ↵ key to change the access at the cursor location.(Y=yes, N=no)
Press X key to return to the main ACCESS menu.

Camera can not be called to that Monitor from a Keyboard.

To change the access to the Monitor from any User:

1. Press * and @ keys or * and → keys to select a User. (max. 8)
2. Position the cursor to the selected Monitor with -, ^, → or @ key. (max. 4)
3. Press the ↵ key to change the access at the cursor location.(Y=yes, N=no)
Press X key to return to the main ACCESS menu.

User/Camera View

```
USER/CAMERA VIEW
CAM:01      USER:01
           0123456789
01 - 10:YYYYYYYYYYY
11 - 16:YYYYYYY

X-EXIT
```

This menu defines the User-to-Camera viewing access, which prevents selected User from

To change the access to the selected Camera from any User:

1. Press * and @ keys or * and - keys to select a User. (max. 8)
2. Position the cursor to the selected Camera with -, -, - or @ key. (max. 16)
3. Press the j key to change the access at the cursor location.(Y=yes, N=no)
Press X key to return to the main ACCESS menu.

calling up selected Cameras for viewing on any Monitor.

User/Camera Control

```
USER/CAMERA CONTROL
CAM:01      USER:01
           0123456789
01 - 10:YYYYYYYYYYY
11 - 16:YYYYYYY

X-EXIT
```

This menu defines the User-to-Camera control access, which prevents selected User from

To change the Control access on selected Cameras for selected Users:

1. Press * and @ keys or * and - keys to select a User. (max. 8)
2. Position the cursor to the selected Camera with -, -, - or @ key. (max. 16)
3. Press the j key to change the access at the cursor location.(Y=yes, N=no)
Press X key to return to the main ACCESS menu.

controlling remote functions on selected Cameras.

Priority

```
PRIORITY
LOG-IN:ENABLE
>USER:001
PRIORITY LEVEL:001
PASSCODE:xxxxxx
EXIT
```

The PRIORITY menu is used to enable or disable identification Passcode entry into the System, to define the User to be selected, to configure a Priority Level and to set a Passcode.

To select a PRIORITY menu function move the cursor with - or - key to the desired line:

To enable or disable User passcode entry:

1. Press the ↓ key to change that selection.(Enable or Disable)

To define the User to be selected:

1. Press the ↓ key to access that selection.
2. Enter the User number to be defined.(max. 8)
3. Press the j key to accept the User number.

To set a user Priority Level:

1. Press the ↓ key to access that selection.
2. Enter a Priority Level number.(max. 8)
3. Press the j key to accept the Priority Level.

To set a passcode:

1. Enter a maximum of six digits at the keyboard.

Passcode entry is used as a security procedure to allow only authorized personnel to operate the System.

Menu access

```
MENU ACCESS
>MENU TYPE:SYSTEM
LEVEL:1
EXIT
```

This menu is used to define the level of Menu Type. If menu access is enabled, the selected

To select a MENU ACCESS menu function move the cursor with - or ^ key to the desired line:

To define the Menu Type to be selected:

1. Press the ↓ key to change that selection.

To set a menu Level:

1. Press the ↓ key to access that selection.

2. Enter a menu Level number. (max. 8)

3. Press the ↵ key to accept the menu Level.

Priority Level has access to the programming menus through the Keyboard.

Ports

```
PORTS
>PORT NUM.:1
EDIT
EXIT
```

The PORTS menu is used to select the Port Number to be defined in the Edit Port menu.

To select a PORTS menu function move the cursor with - or ^ key to the desired line:

To define the Port to be selected:

1. Press the ↓ key to access that selection.

2. Enter the Port Number to be defined.

(1- RS485/P&T; 2- RS232/VCR; 3- RS-232/PC)

3. Press the ↵ key to accept the Port Number.

To Edit ports:

1. Press the ↓ key to access that selection.

Edit Port

```
EDIT PORT
>BAUD RATE:1200
PARITY:EVEN
PROTOCOL:VCR 1
WORD LENGTH:8
EXIT
```

The EDIT PORT menu is used to configure the Baud Rate, Parity, Protocol and Word Length for the selected Port.

(Appendix 2, 3, 4, 6, 7 and 8)

To select a EDIT PORT menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.

2. Press the ↓ key to access that selection.

3. Press ↑ or ↓ key to change the selection.

(Baud Rate-1200, 2400, 4800 or 9600)

(Parity-Even, Odd, None)

(Protocol-VCR1, VCR2, FastScan, Videotec, Star, TCP 1, PC)

(Word Length-7 or 8)

4. Press the ↵ key to accept the displayed selection.

Time and date

```
TIME AND DATE
>SETTINGS
CREATE CALENDAR
EDIT CALENDAR
TIME SLOTS
SOLAR/LEGAL
EXIT
```

The TIME AND DATE menus define Time, Date, Day of Week, Month, Year, Day Type, Time Slots and Solar/Legal changes.

To select a TIME AND DATE menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Settings

```
SETTINGS
>DATE FORMAT:DD-MM-YY
DATE: 19-04-97
TIME: 11:59:59
DAY OF WEEK:SATURDAY
SET
EXIT
```

To select a SETTINGS menu function move the cursor with - or = key to the desired line:

To change the Date Format:

1. Press the ↵ key to change that selection.
- (MM-DD-YY, DD-MM-YY, YY-MM-DD)

To set the Date:

1. Press the ↵ key to access that selection.
2. Enter the six digits based on the selected format.

To set the Time:

1. Press the ↵ key to access that selection.
2. Enter the six digits.

To set the Day of Week:

1. Press the ↵ key to change that selection.

To accept the Settings move the cursor to the Set line and press the ↵ key.

Create Calendar

```
CREATE CALENDAR
>YEAR:97
1ST JANUARY:SUNDAY
CREATE
EXIT
```

The CREATE CALENDAR menus define the Calendar for the selected Year.

To select a CREATE CALENDAR menu function move the cursor with - or = key to the desired line:

To set the Year:

1. Press the ↵ key to access that selection.
2. Enter the four digits.
3. Press the ↵ key to accept the Year.

To change the day on the 1st January:

1. Press the ↵ key to change that selection.

To accept the Calendar move the cursor to the Create line and press the ↵ key.

Edit Calendar

```
EDIT CALENDAR
MONTH:JANUARY
DAY TYPE:WORKING-1
          0123456789
1-10: 0000023000
11-20: 0023000002
21-30: 3000002300
31   : 0
X-EXIT
```

The EDIT CALENDAR menu is used to change the Day Type in the created Calendar.

Time Slots

```
TIME SLOTS
>SLOT NUM.:01
EDIT
EXIT
```

The TIME SLOTS menu is used to select the Slot Number to be defined in the Edit Slot menu.

Edit Slot

```
EDIT SLOT
>DAY TYPE:WORKING-1
FROM 01:02 TO 02:03
FROM 05:06 TO 07:08
FROM 01:02 TO 02:03
FROM 05:06 TO 07:08
EXIT
```

To change the Day Type on selected months:

1. Press * and @ keys or * and - keys to select a month.
 2. Position the cursor to the day of month with -, ^, - or @ key.
 3. Press the < key to change the Day Type at the cursor location. (*Working-1,-2; Holiday-1,-2*)
- Press X key to return to the main TIME AND DATE menu.

To select a TIME SLOTS menu function move the cursor with - or ^ key to the desired line:

To define the Time Slot to be selected:

1. Press the < key to access that selection.
2. Enter the Slot Number to be defined. (*max.16*)
3. Press the < key to accept the Slot Number.

To Edit slots:

1. Press the < key to access that selection.

To select a EDIT SLOT menu function move the cursor with - or ^ key to the desired line:

To change the Day Type:

1. Press the < key to change that selection. (*Working-1,-2; Holiday-1,-2*)

To set the Time Slot:

1. Press the < key to access that selection.
2. Enter the eight digits.

Solar/Legal

```
SOLAR/LEGAL
SOLAR > LEGAL
>DATE: 01-01-01
TIME: 01:01
LEGAL > SOLAR
DATE: 01-01-01
TIME: 01:01
EXIT
DATE FORMAT - DD-MM-YY
```

This menu is used to define the Solar to Legal and Legal to Solar changes in the selected Year.

To select a SOLAR/LEGAL menu function move the cursor with - or ^ key to the desired line:

To set the Date:

1. Press the ↓ key to access that selection.
2. Enter the six digits based on the selected Date Format.

To set the Time:

1. Press the ↓ key to access that selection.
2. Enter the four digits.

Events

```
EVENTS
>EVENT NUM.:01
EVENT SOURCE:ALARM
SOURCE NUM.:01
ACTION TYPE:CAM-MON
EDIT-SET
EXIT
```

The EVENTS menu is used to identify each Event and to program each Event for automatic callups. A maximum of 64 Events are available for programming.

To select a EVENTS menu function move the cursor with - or ^ key to the desired line:

To define the Event Number to be selected:

1. Press the ↓ key to access that selection.
2. Enter the Event Number to be defined. (*max.64*)
3. Press the ↵ key to accept the Event Number.

To change the Event Source:

1. Press the ↓ key to change that selection.(*Alarm, Alarm Reset, Function, Input, Timer, None*)

To set the Source Number:

1. Press the ↓ key to access that selection.
2. Enter the Source Number. (*Alarm-max.80; Function-max.32; Input-max.7; Timer-max.16*)
3. Press the ↵ key to accept the Source Number.

To change the Action Type:

1. Press the ↓ key to change that selection. (*Cam-Mon, Seq-Mon, MultiSeq-Mon, Salvo, Tour, Relay/Out, VCR*)

To Edit Action Type

1. Press the ↓ key to access that selection.

Edit Cam-Mon

```
EDIT CAM-MON
>CAMERA NUM.:01
MONITOR NUM.:01
PRESET NUM.:001
EDIT AUX
EXIT
```

This menu is used to edit Camera-Monitor Action and to edit Camera Preset scenes.

To select a EDIT CAM-MON menu function move the cursor with - or ^ key to the desired line.

To set the Camera, Monitor and Preset Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (*Camera -max.16; Monitor -max.4; Preset -max.255, 00-skip*)
3. Press the ↵ key to accept the Number.

To Edit Aux:

1. Press the ↓ key to access that selection.

Edit Aux

```
EDIT AUX
>AUX 1:ON
AUX 2:ON
AUX 3:ON
AUX 4:ON
AUX 5:ON
AUX 6:ON
AUX 7:ON
AUX 8:ON
EXIT
```

If the Camera site is equipped with a receiver that has auxiliary relays, an Auxiliary defined in this menu can be activated automatically .

To select EDIT AUX menu function move the cursor with - or ^ key to the desired line:

To change the Aux 1 to Aux 8:

1. Press the ↓ key to change that selection. (*On, Off, Ignore*)

Edit Seq-Mon

```
EDIT SEQ-MON
>MONITOR NUM.:01
SEQ NUM.:01
EXIT
```

This menu is used to define the Sequences on the selected Monitors that can be activated automatically.

To select a EDIT SEQ-MON menu function move the cursor with - or ^ key to the desired line.

To set the Monitor and Sequence Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (*Monitor-max.4; Seq-max.32, 33-internal*)
3. Press the ↵ key to accept the Number.

Edit Multi-Sequence

```
EDIT MULTI-SEQ
>MULTI-SEQ NUM.:01
EXIT
```

This menu is used to define the Multi-Sequence that can be activated automatically.

To select a EDIT MULTI-SEQUENCE menu function move the cursor with - or ^ key to the desired line.

To set the Multi-Seq Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (*max.32*)
3. Press the ↵ key to accept the Number.

Edit Salvo

```
EDIT SALVO
>SALVO NUM. :01
EXIT
```

This menu is used to define the Salvo that can be activated automatically.

To select a **EDIT SALVO** menu function move the cursor with - or ^ key to the desired line.

To set the Salvo Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (max.32)
3. Press the ↵ key to accept the Number.

Edit Tour

```
EDIT TOUR
>TOUR NUM. :01
EXIT
```

This menu is used to define the Tour that can be activated automatically.

To select a **EDIT TOUR** menu function move the cursor with - or ^ key to the desired line.

To set the Tour Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (max.32)
3. Press the ↵ key to accept the Number.

Edit Relay/Out

```
EDIT RELAY/OUT
>RELAY/OUT NUM. :01
STATUS:OFF
EXIT
```

This menu is used to define the Relay and Open-Collector Outputs that can be activated automatically.

To select a **EDIT RELAY/OUT** menu function move the cursor with - or ^ key to the desired line.

To set the Relay/Out Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (Relay-01, 02; Open-Collector Out- 03-26)
3. Press the ↵ key to accept the Number.

To change the Status:

1. Press the ↓ key to change that selection. (On, Off)

Edit VCR

```
EDIT VCR
>VCR:VCR 1
  COMMAND:POWER
  COMMAND:PLAY
  COMMAND:NONE
  SEQ NUM.:00
  EXIT
```

This menu is used to define the VCR Clock Sequence Number and commands that can be activated automatically.

To select a EDIT VCR menu function move the cursor with - or ^ key to the desired line.

To change the VCR and Commands:

1. Press the ↓ key to change that selection. (VCR - VCR 1 or VCR 2; Command -the VCR commands)

To set the Seq. Number:

1. Press the ↓ key to access that selection.
2. Enter the Number (*max.32, 00-ignore, 33-internal, 34-defined in the VCR menu*)
3. Press the ↵ key to accept the Seq. Number.

Functions

```
FUNCTIONS
>FUNCTION NUM.:001
  EDIT
  EXIT
```

The FUNCTIONS menu is used to define the Operations between the selected Paragraphs.

To select a FUNCTIONS menu function move the cursor with - or ^ key to the desired line.

To set the Function Number:

1. Press the ↓ key to access that selection.
2. Enter the Function Number to be defined. (*max.32*)
3. Press the ↵ key to accept the Function Number.

To Edit Function:

1. Press the ↓ key to access that selection.

Edit Function

```
EDIT FUNCTION
>PAR.1 TYPE:TIMER
  PAR.1 NUM.:01
  OPER.1 TYPE:OR
  PAR.2 TYPE:ALARM
  PAR.2 NUM.:01
  OPER.2 TYPE:OR
  PAR.3 TYPE:FUNCTION
  PAR.3 NUM.:01
  NEGATE:YES
  EXIT
```

In this menu, Operators are AND, OR, NAND and NOR. The Function is defined as (Par.1*Oper.1*Par.2)*Oper.2*Par.3.

To select EDIT FUNCTION menu function move the cursor with - or ^ key to the desired line:

To change the Par.1, Par.2 and Par.3 Type:

1. Press the ↓ key to change that selection. (*Timer, Alarm, Function, Input*)

To set the Par.1, Par.2 and Par.3 Number:

1. Press the ↓ key to access that selection.
2. Enter the Number (*Timer-max.16; Alarm-max.80; Function-max.32; Input-max.7*)
3. Press the ↵ key to accept the Number.

To change the Oper.1 and Oper.2 Type:

1. Press the ↓ key to change that selection. (*And, Or, Nand, Nor*)

To Negate the Function:

1. Press the ↓ key to change that selection. (*Yes, No*)

Synchronization

```
SYNCHRONIZATION
>SYSTEM:PAL
MODE:NONE
EXIT
```

In this menu the Video In Synchronization Mode select the first active video input from one to eight.

To select a **SYNCHRONIZATION** menu function move the cursor with - or ^ key to the desired line:

To change the System and Mode:

1. Press the ↵ key to change that selection. (System -PAL or NTSC; Mode -None, External, Video In)

Special Safe Actions

```
SPECIAL SAFE ACTIONS
>TIME DELAY
TAPE END
EXIT
```

This menu is used to define the Safe Actions used in specific Bank Applications. (Appendix 1)

To select a **SPECIAL SAFE ACTIONS** menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Time Delay

```
TIME DELAY
>SOURCE:ALARM IN
SOURCE NUM.:01
TIME DELAY: 02:12
RELAY DELAY:55
MONITORING:OFF
LED-DISP:OFF
EXIT
```

To select a **TIME DELAY** menu function move the cursor with - or ^ key to the desired line:

To change the Source:

1. Press the ↵ key to change that selection. (Alarm in, Function, Input, None)

To set the Source Number:

1. Press the ↵ key to access that selection.
2. Enter the Number (Alarm in-max.16; Function-max.32; Input-max.7)
3. Press the ↵ key to accept the Number.

To set the Time Delay:

1. Press the ↵ key to access that selection.
2. Enter the four digits.

To set the Relay Delay:

1. Press the ↵ key to access that selection.
2. Enter the Relay Delay in seconds. (max.99)
3. Press the ↵ key to accept the Relay Delay.

To change the Monitoring and LED Display:

1. Press the ↵ key to change that selection. (On, Off)

Tape End

```
TAPE END
>INPUT ACTIONS
MONITORING:OFF
EDIT TITLE
BUZZER:OFF
LED:OFF
EXIT
```

To select a **TAPE END** menu function move the cursor with - or ^ key to the desired line:

To select **Input Actions to be defined:**

1. Press the ↓ key to access that selection.

To change the **Monitoring, Buzzer and LED:**

1. Press the ↓ key to change that selection. (*On, Off*)

To **Edit Title:**

1. Press the ↓ key to access that selection.

Input Actions

```
INPUT ACTIONS
>TAPE END:ALARM IN
TAPE END NUM.:01
ARMOUR OPEN:ALARM IN
ARMOUR OPEN NUM.:02
ARMOUR CLOSE:ALARM IN
ARMOUR CLOSE NUM.:03
EXIT
```

To select a **INPUT ACTIONS** menu function move the cursor with - or ^ key to the desired line:

To change the **Tape End, Open Armour and Close Armour:**

1. Press the ↓ key to change that selection. (*Alarm in, Function, Input, None*)

To **set the Number:**

1. Press the ↓ key to access that selection.

2. Enter the Number (*Alarm in-max.16; Function-max.32; Input-max.7*)

3. Press the ↵ key to accept the Number.

Edit Title

```
EDIT TITLE
TAP|E END
↑
X-EXIT
```

To enter a message in **EDIT TITLE** menu function:

1. Press the ↑ or ↓ keys to change the character.

2. Press the → or ← keys to select the character position.

Press **X** key to return to the main **TAPE END** menu.

ALARM

```
ALARM
>ENABLE
TYPE
INPUT
MANUAL RESET
AUTO RESET
EXIT
```

The ALARM menu provide the means to define the Alarm Enable, Type, Input, Manual Reset

To select a ALARM menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

and Auto Reset. Each selection of the Alarm menu brings up another menu.

Alarm Enable

```
ALARM ENABLE
INPUT:01 YES
          01234567
01 - 08:YYYYYYYY
09 - 16:YYYYYYYY

X-EXIT
```

This menu is used to Enable or Disable the selected Alarm Input.

To change the Alarm Enable on the selected Alarm Input:

1. Position the cursor to the selected Input with -, ↑, ↓ or @ key. (max. 80)
2. Press the ↵ key to change the selection at the cursor location.(Y=yes, N=no)
Press X key to return to the main ALARM menu.

Alarm Type

```
ALARM TYPE
INPUT:01 NO
          01234567
01 - 08:00000000
09 - 16:00000000

X-EXIT
```

This menu is used to define the Type of Alarm contacts on the selected Alarm Input.

To change the Alarm Type on the selected Alarm Input:

1. Position the cursor to the selected Input with -, ↑, ↓ or @ key. (max. 16)
2. Press the ↵ key to change the selection at the cursor location. (O-NO, C-NC)
Press X key to return to the main ALARM menu.

Alarm Input

```
ALARM INPUT
INPUT:01    REMOTE
          01234567
01 - 08:LLLLLLLL
09 - 16:LLLLLLLL

X-EXIT
```

The ALARM INPUT menu is used to define the mode of Alarm activation on the selected Input.

To change the Alarm Input mode:

1. Position the cursor to the selected Input with -, ↑, → or @ key. (*max. 16*)
2. Press the ↵ key to change the selection at the cursor location.(*L-Local, R-Remote*)
Press **X** key to return to the main ALARM menu.

Alarm Manual Reset

```
ALARM MANUAL RESET
INPUT:01    DISABLE
          01234567
01 - 08:DDDDDDDD
09 - 16:DDDDDDDD

X-EXIT
```

This menu is used to Enable or Disable the Alarm Manual Reset on the selected Input.

To change the Alarm Manual Reset on the selected Alarm Input:

1. Position the cursor to the selected Input with -, ↑, → or @ key. (*max. 80*)
2. Press the ↵ key to change the selection at the cursor location.(*D-Disable, E-Enable*)
Press **X** key to return to the main ALARM menu.

Alarm Auto Reset

```
ALARM AUTO RESET
INPUT:01    INSTANT
          01234567
01 - 08:IIIIIIII
09 - 16:IIIIIIII

TIME:255

X-EXIT
```

This menu is used to define the Alarm Auto Reset and to set the Reset Time on the selected Alarm Input.

To change the Alarm Auto Reset on the selected Alarm Input:

1. Position the cursor to the selected Input with -, ↑, → or @ key. (*max. 80*)
2. Press the ↵ key to change the selection at the cursor location.(*I-Instant, T-Timed*)

To set the Time at the Timed Auto Reset selection:

1. Press * and ↵ keys.
2. Enter the number in seconds. (*max.255, 0-infinite*)
3. Press the ↵ key to accept the Number.
Press **X** key to return to the main ALARM menu.

MONITOR

```
MONITOR
>MONITOR NUM.:001
DISPLAY
POSITION
SEQUENCE
EXIT
```

The MONITOR menu provide the means to define the Monitor Number and to set the Display and Position.

To select a MONITOR menu function move the cursor with - or ^ key to the desired line.

To define the Monitor Number:

1. Press the ↓ key to access that selection.
2. Enter the Monitor Number to be defined. (max.4)
3. Press the ↵ key to accept the Monitor Number.

To select the Display, Position and Sequence menu function:

1. Press the ↓ key to access that selection.

Display

```
DISPLAY
>TITLE: ON
NUMBER:ON
DATE: ON
TIME: ON
STATUS:ON
EXIT
```

This menu is used to define the messages Displayed on the screen.

To select a DISPLAY menu function move the cursor with - or ^ key to the desired line:

To change the selection:

1. Press the ↓ key to change that selection. (On, Off)

Position

```
POSITION
>TITLE
NUMBER
DATE
TIME
STATUS
EXIT
```

This menu is used to define the Positions of messages displayed on the screen.

To select a POSITION menu function move the cursor with - or ^ key to the desired line:

To position the message:

1. Press the ↓ key to access that selection.
 2. Position the message with -, ^, → or @ key to the desired location on the screen.
- Press X key to return to the main POSITION menu.

Sequence

```
SEQUENCE
>POSITIONS:10
EDIT
EXIT
```

The SEQUENCE menus define the internal Monitor Sequence depends on the number of

To select a SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To define the Positions:

1. Press the ↓ key to access that selection.
2. Enter the Positions number. (*max.32*)
3. Press the ↵ key to accept the Positions number.

To Edit Sequence:

1. Press the ↓ key to access that selection.

Cameras and their Positions. The internal Sequence number is 33.

Edit Sequence

```
EDIT SEQUENCE
POS
01.CAM:01 < TIME:001
02.CAM:02 TIME:001
03.CAM:03 TIME:001
04.CAM:04 TIME:001
05.CAM:05 TIME:001
06.CAM:06 TIME:001
07.CAM:07 TIME:001
08.CAM:08 TIME:001
X-EXIT
```

This menu is used to define the duration of each Camera in the selected internal Sequence.

To select a EDIT SEQUENCE menu function:

1. Position the cursor to the selected Camera or Time with -, ^, v or @ key.
 2. Press the ↵ key to access that selection.
 3. Enter the Camera Number (*max.16*) or Time (*max.255*)
 4. Press the ↵ key to accept the Camera Number or Time.
- Press X key to return to the main SEQUENCE menu.

CAMERA

```
CAMERA
>CAMERA NUM: 001
VIDEO IN NUM:001
TITLE
ALARM TITLE
VIDEO LOSS
CAMERA CONTROL
EXIT
```

The CAMERA menu provide the means to define the pseudo Camera Number in relation with physical Video Input Number and to set the

To select a CAMERA menu function move the cursor with - or ^ key to the desired line.

To define the Camera Number and Video Input Number:

1. Press the ↓ key to access that selection.
2. Enter the Number to be defined. (*max. 16*)
3. Press the ↵ key to accept the Number.

To select the Title, Alarm Title, Video Loss and Camera Control menu function:

1. Press the ↓ key to access that selection.

Title, Alarm Title, Video Loss and Camera Control.

Title

```
TITLE:
CAMERA 001
↑
X-EXIT
```

This menu is used to define the Camera Title displayed on the screen.

To enter a message in TITLE menu function:

1. Press the ↑ or ↓ keys to change the character.
 2. Press the → or ← keys to select the character position.
- Press X key to return to the main CAMERA menu.

Alarm Title

```
ALARM TITLE:
CAMERA 001 ALARM
↑
X-EXIT
```

This menu is used to define the Title displayed on the screen in the case of Alarm.

To enter a message in ALARM TITLE menu function:

1. Press the ↑ or ↓ keys to change the character.
 2. Press the → or ← keys to select the character position.
- Press X key to return to the main CAMERA menu.

Video Loss

```
VIDEO LOSS
VIDEO IN:01 TEST: NO
          01234567
01 - 08:NNNNNNNN
09 - 16:NNNNNNNN

X-EXIT
```

This menu is used to define the Video Loss detection on the selected Video Inputs.

To change the Video Loss testing on the selected Video Inputs:

1. Position the cursor to the selected Video Input with -, ↑, ↓ or @ key. (max. 16)
2. Press the ↵ key to change the selection at the cursor location.(Y=yes, N=no)
Press X key to return to the main CAMERA menu.

Camera Control

```
CAMERA CONTROL
CAM PORT SITE
01: 1< 001
02: 1 002
03: 1 003
04: 1 004
05: 1 005
06: 1 006
07: 1 007
08: 1 008

X-EXIT
```

This menu is used to define the Port and Site number of each Camera controller.
(Appendix 3, 4, 7 and 8)

To select a CAMERA CONTROL menu function:

1. Position the cursor to the selected Port or Site with -, ↑, ↓ or @ key.
2. Press the ↵ key to access that selection.
3. Enter the Port number (0- no site; 1- RS485/P&T; 2- RS232/VCR; 3- RS-232/PC) or Site number. (max.255)
4. Press the ↵ key to accept the Port or Site number.
5. Press * and ↵ keys to Edit Camera.
Press X key to return to the main CAMERA menu.

Edit Camera

```
EDIT CAMERA
>SERIAL PORT:NOT USED
ALARM
EXIT
```

This menu is used to define a type of Camera connected to the selected Site and remote Alarm relations.

To select a EDIT CAMERA menu function move the cursor with - or ↑ key to the desired line:

To set the Serial Port:

1. Press the ↓ key to access that selection. (not used)

To edit the Alarm:

1. Press the ↓ key to access that selection.

Edit Alarm

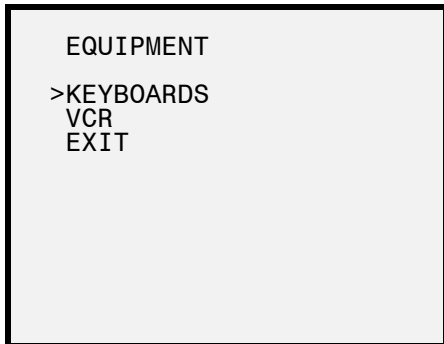
```
EDIT ALARM
>ALARM 1:000
ALARM 2:000
ALARM 3:000
ALARM 4:000
ALARM 5:000
ALARM 6:000
ALARM 7:000
ALARM 8:000
EXIT
```

This menu is used to define the relations between the Alarm Input of the Camera controller and the Alarm Input of the matrix.

To select a EDIT ALARM menu function move the cursor with - or ^ key to the desired line.

1. Press the ↵ key to access that selection.
2. Enter the Alarm number to be defined.
(017-080; 000-no relation)
3. Press the ↵ key to accept the Alarm number.

EQUIPMENT

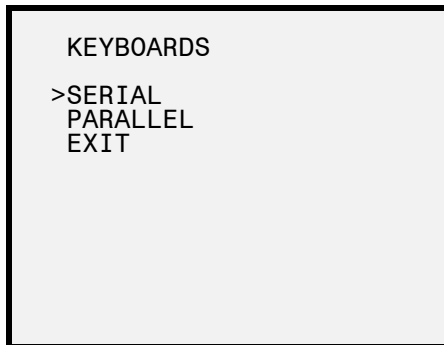


The EQUIPMENT menu provide the means to define the Keyboards and Video Cassette Recorders connected to the matrix.

To select a EQUIPMENT menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Keyboards

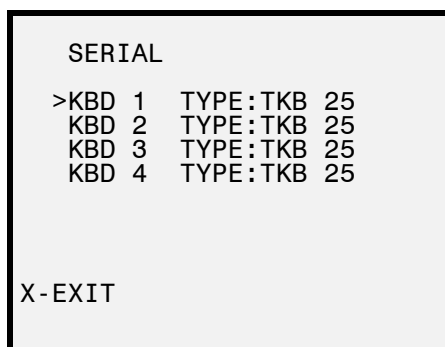


This menu is used to define the types of Keyboards connected to the matrix.

To select a KEYBOARDS menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Serial



This menu is used to define the type of Keyboards connected to the serial port RS-485/KBD of the matrix.

To select a SERIAL Keyboard menu function move the cursor with - or = key to the desired line:

1. Press the ↵ key to change that selection. (*TKB 25*) Press **X** key to return to the main KEYBOARDS menu.

Parallel

```
PARALLEL
>KBD 1 SOURCE:ALARM IN
KBD 1 SOUR. NUM.:01
KBD 2 SOURCE:ALARM IN
KBD 2 SOUR. NUM.:02
KBD 3 SOURCE:ALARM IN
KBD 3 SOUR. NUM.:03
KBD 4 SOURCE:ALARM IN
KBD 4 SOUR. NUM.:04
X-EXIT
```

This menu is used to define the standard sources to connect the simple one-key Keyboards. The key is connected between the selected Source and Ground. Keyboard (1 - 4) controls the Sequence of the Monitor (1 - 4). The

To select a **PARALLEL Keyboard** menu function move the cursor with - or ~ key to the desired line:

1. Press the ↓ key to change the Source. (*Alarm In, Input, None*)

To set the Source Number:

1. Press the ↓ key to access that selection.
 2. Enter the Number (*Alarm-max.16; Input-max.7*)
 3. Press the ↵ key to accept the Number.
- Press **X** key to return to the main CAMERA menu.

Sequence on the selected Monitor stops by pressing the key for about three seconds. In this manual mode the key is used to change the Cameras in the Sequence. The Sequence starts by pressing the key for about three seconds.

VCR

```
VCR
>VCR 1
VCR 2
EXIT
```

This menu is used to define the types of Video Cassette Recorders connected to the matrix. (Appendix 2)

To select a **VCR** menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↓ key to access that selection.

VCR 1

```
VCR 1
>TYPE:MITSUBISHI
CONTROL:SERIAL
MONITOR:00
SEQ NUM.:01
EXIT
```

This menu is used to define the Type of Video Cassette Recorder with Serial or Parallel Control connected to the selected Monitor (video

To select a **VCR 1** menu function move the cursor with - or ~ key to the desired line and press the ↵ key to access that selection:

To change the Type and Control:

1. Press ↑ or ↓ key to change the selection. (*Type-Mitsubishi, Type1, Type2, Type3*) (*Control-Serial-defined in the Ports menu; Parallel-VCR1/ANALOG*)

2. Press the ↵ key to accept the displayed selection.

To set the Monitor and the Seq. Number:

1. Enter the number (*Monitor: 2,3 or 4; 0-VCR Clock disabled*) (*Seq. Number: max.32; 33-internal*)
2. Press the ↵ key to accept the number.

output). The Sequence Number menu function defines the Sequence controlled by VCR Clock.

VCR 2

```
VCR 2
>TYPE:MITSUBISHI
CONTROL:SERIAL
MONITOR:03
SEQ NUM.:01
EXIT
```

This menu is used to define the Type of Video Cassette Recorder with Serial or Parallel Control connected to the selected Monitor (video

To select a VCR 2 menu function move the cursor with - or ^ key to the desired line and press the ↵ key to access that selection:

To change the Type and Control:

1. Press ↑ or ↓ key to change the selection.
(Type-*Mitsubishi*, *Type1*, *Type2*, *Type3*)
(Control-*Serial*-defined in the Ports menu; *Parallel-VCR2/ANALOG*)
3. Press the ↵ key to accept the displayed selection.

To set the Monitor and the Seq. Number:

1. Enter the number
(Monitor: 2,3 or 4; 0-VCR Clock disabled)
(Seq. Number: *max.32*; 33-internal)
2. Press the ↵ key to accept the number.

output). The Sequence Number menu function defines the Sequence controlled by VCR Clock.

SWITCH

```
SWITCH
>SEQUENCE
MULTI - SEQUENCE
SALVO
TOUR
EXIT
```

The SWITCH menu provide the means to define the Sequence, Multi-Sequence, Salvo and Tour Switching.

To select a SWITCH menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Sequence

```
SEQUENCE
>SEQUENCE NUM.:01
POSITIONS:10
EDIT
COPY
EXIT
```

The SEQUENCE menus define the Sequences depend on the number of Cameras and their Positions.

To select a SEQUENCE menu function move the cursor with - or = key to the desired line:

To define the Sequence or Positions:

1. Press the ↵ key to access that selection.
2. Enter the Sequence and Positions number. (*max.32*)
3. Press the ↵ key to accept the Positions number.

To Edit or Copy Sequence:

1. Press the ↵ key to access that selection.

Edit Sequence

```
EDIT SEQUENCE
POS
01.CAM:01 < TIME:001
02.CAM:02 TIME:001
03.CAM:03 TIME:001
04.CAM:04 TIME:001
05.CAM:05 TIME:001
06.CAM:06 TIME:001
07.CAM:07 TIME:001
08.CAM:08 TIME:001
X-EXIT
```

To select a EDIT SEQUENCE menu function:

1. Position the cursor to the selected Camera or Time with -, =, < or @ key.
 2. Press the ↵ key to access that selection.
 3. Enter the Camera Number (*max.16*) or Time (*max.255*)
 4. Press the ↵ key to accept the Camera Number or Time.
- Press X key to return to the main SEQUENCE menu.

This menu is used to define the duration of each Camera in the selected Sequence. If the VCR

Clock is selected the Time defines the number of Clock pulses between two Positions.

Copy Sequence

```
COPY SEQUENCE:
>SEQUENCE NUM.:01
COPY
EXIT
```

This menu is used to Copy the Sequence defined in the Edit Sequence menu.

To select a COPY SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To define the Sequence Number:

1. Press the ↓ key to access that selection.
2. Enter the Sequence Number. (max.32)
3. Press the ↵ key to accept the Sequence Number.

To Copy the defined Sequence:

1. Press the ↓ key to accept that selection.

Multi Sequence

```
MULTI-SEQUENCE
MULTI-SEQ NUM.:01
>EDIT
COPY
EXIT
```

This menu is used to define the Multi Sequences on the selected Monitors.

To select a MULTI-SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To define the Multi Sequence:

1. Press the ↓ key to access that selection.
2. Enter the Multi Sequence. (max.32)
3. Press the ↵ key to accept the Number.

To Edit or Copy Sequence:

1. Press the ↓ key to access that selection.

Edit Multi-Sequence

```
EDIT MULTI-SEQ
MON 1 SEQ:01<
MON 2 SEQ:02
MON 3 SEQ:03
MON 4 SEQ:04

X-EXIT 00-SKIP
```

This menu is used to define the selected Sequence on the selected Monitor.

To select a EDIT MULTI-SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To set the Sequence:

1. Press the ↓ key to access that selection.
2. Enter the Sequence number (max.32; 33-internal; 00-skip)
3. Press the ↵ key to accept the Sequence number. Press X key to return to the main MULTI SEQUENCE menu.

Copy Multi-Sequence

```
COPY MULTI-SEQ
>MULTI-SEQ NUM.:01
COPY
EXIT
```

This menu is used to Copy the Multi Sequence defined in the Edit Multi Sequence menu.

To select a COPY MULTI-SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To define the Multi Sequence Number:

1. Press the ↓ key to access that selection.
2. Enter the Multi Sequence Number. (max.32)
3. Press the ↵ key to accept the Multi Sequence Number.

To Copy the defined Sequence:

1. Press the ↓ key to accept that selection.

Salvo

```
SALVO
>SALVO NUM.:01
EDIT
COPY
EXIT
```

This menu is used to define the Salvo switching.

To select a SALVO menu function move the cursor with - or ^ key to the desired line:

To set the Salvo Number to be defined:

1. Press the ↓ key to access that selection.
2. Enter the Salvo Number. (max.32)
3. Press the ↵ key to accept the Salvo Number.

To Edit or Copy Salvo:

1. Press the ↓ key to access that selection.

Edit Salvo

```
EDIT SALVO          MON.:01
>SALVO SKIP:OFF
CAMERA NUM.:001
PRESET NUM.:001
EDIT AUX
EXIT
```

This menu is used to define the Camera to be switched to the selected Monitor when Salvo switching occurs.

To select a EDIT SALVO menu function:

Press * and @ keys or * and - keys to select a Monitor. (max. 4)

To set the Salvo Skip:

1. Press the ↓ key to change that selection. (On, Off)

To set the Camera and Preset number:

1. Press the ↓ key to access that selection.
2. Enter the number. (Camera -max.16; Preset - max.255, 00-skip)
3. Press the ↵ key to accept the number.

To Edit Aux:

1. Press the ↓ key to access that selection.

Edit Aux

```
EDIT AUX
>AUX 1:ON
AUX 2:ON
AUX 3:ON
AUX 4:ON
AUX 5:ON
AUX 6:ON
AUX 7:ON
AUX 8:ON
EXIT
```

If the Camera site is equipped with a receiver that has auxiliary relays, an Auxiliary defined in

To select a EDIT AUX menu function move the cursor with - or ^ key to the desired line:

To change the Aux 1 to Aux 8:

1. Press the ↵ key to change that selection. (*On, Off, Ignore*)

this menu can be activated when Salvo switching occurs.

Copy Salvo

```
COPY SALVO:
>SALVO NUM.:01
COPY
EXIT
```

This menu is used to Copy the Salvo defined in the Edit Salvo menu.

To select a COPY SALVO menu function move the cursor with - or ^ key to the desired line:

To define the Salvo Number:

1. Press the ↵ key to access that selection.
2. Enter the Salvo Number. (*max.32*)
3. Press the ↵ key to accept the Salvo Number.

To Copy the defined Salvo:

1. Press the ↵ key to accept that selection.

Tour

```
TOUR
>TOUR NUM.:01
POSITIONS:64
EDIT
COPY
EXIT
```

The TOUR menu is used to select the Tour Number to be defined in Tour Edit menu, to define the number of Positions and to Copy the Tour.

To select a TOUR menu function move the cursor with - or ^ key to the desired line:

To define the Tour Number or Positions:

1. Press the ↵ key to access that selection.
2. Enter the Tour and Positions number. (*Tour-max.32; Positions-max.64*)
3. Press the ↵ key to accept the Positions number.

To Edit or Copy Tour:

1. Press the ↵ key to access that selection.

Edit Tour

```
EDIT TOUR
POS
01>TIME :000 CAM-MON
02 TIME :000 CAM-MON
03 TIME :000 CAM-MON
04 TIME :000 CAM-MON
05 TIME :000 CAM-MON
06 TIME :000 CAM-MON
07 TIME :000 CAM-MON
08 TIME :000 CAM-MON
X-EXIT
```

To select a **EDIT TOUR** menu function, position the cursor to the desired location with **-**, **^**, **~** or **@** key.

To set the first column:

1. Press the **↵** key to change that selection. (*Alarm, Input, Time, Timer, or Function*)

To set the second column:

1. Press the **↵** key to access that selection.
2. Enter the number. (*Alarm-max.80; Input-max.7; Time-max.999; Timer-max.16; Function-max.32*)
3. Press the **↵** key to accept the number.

To set the third column:

1. Press the **↵** key to change that selection. (*Cam-Mon, Seq-Mon, Multi-Seq, Salvo or Relay/Out*)
2. Press ***** and **↵** keys to Edit that selection.

Press **X** key to return to the main TOUR menu.

Edit Cam-Mon

```
EDIT CAM-MON
>CAMERA NUM.:01
MONITOR NUM.:01
PRESET NUM.:001
EDIT AUX
EXIT
```

To select a **EDIT CAM-MON** menu function move the cursor with **-** or **^** key to the desired line.

To set the Camera, Monitor and Preset Number:

1. Press the **↵** key to access that selection.
2. Enter the Number. (*Camera-max.16; Monitor-max.4; Preset-max.255, 00-skip*)
3. Press the **↵** key to accept the Number.

To Edit Aux:

1. Press the **↵** key to access that selection.

This menu is used to Edit the Camera-Monitor switching and to Edit Camera Preset scenes.

Edit Aux

```
EDIT AUX
>AUX 1:ON
AUX 2:ON
AUX 3:ON
AUX 4:ON
AUX 5:ON
AUX 6:ON
AUX 7:ON
AUX 8:ON
EXIT
```

To select **EDIT AUX** menu function move the cursor with **-** or **^** key to the desired line:

To change the Aux 1 to Aux 8:

1. Press the **↵** key to change that selection. (*On, Off, Ignore*)

If the Camera site is equipped with a receiver that has auxiliary relays, an Auxiliary defined in this menu can be activated automatically.

Edit Seq-Mon

```
EDIT SEQ-MON
>MONITOR NUM.:01
SEQ NUM.:01
EXIT
```

This menu is used to define the Sequences on the selected Monitors that can be activated automatically.

To select a **EDIT SEQ-MON** menu function move the cursor with - or ^ key to the desired line.

To set the Monitor and Sequence Number:

1. Press the ↵ key to access that selection.
2. Enter the Number. (Monitor-*max.4*; Seq-*max.32*, 33-internal)
3. Press the ⏎ key to accept the Number.

Edit Multi-Sequence

```
EDIT MULTI-SEQ
>MULTI-SEQ NUM.:01
EXIT
```

This menu is used to define the Multi-Sequence that can be activated automatically.

To select a **EDIT MULTI-SEQUENCE** menu function move the cursor with - or ^ key to the desired line.

To set the Multi-Sequence Number:

1. Press the ↵ key to access that selection.
2. Enter the Number. (*max.32*)
3. Press the ⏎ key to accept the Number.

Edit Salvo

```
EDIT SALVO
>SALVO NUM.:01
EXIT
```

This menu is used to define the Salvo that can be activated automatically.

To select a **EDIT SALVO** menu function move the cursor with - or ^ key to the desired line.

To set the Salvo Number:

1. Press the ↵ key to access that selection.
2. Enter the Number. (*max.32*)
3. Press the ⏎ key to accept the Number.

Edit Relay/Out

```
EDIT RELAY/OUT
>RELAY/OUT NUM.:01
STATUS:OFF
EXIT
```

This menu is used to define the Relay and Open-Collector Outputs that can be activated automatically.

To select a EDIT RELAY/OUT menu function move the cursor with - or ^ key to the desired line.

To set the Relay/Out Number:

1. Press the ↓ key to access that selection.
2. Enter the Number. (Relay-01, 02; Open-Collector Out- 03-26)
3. Press the ↵ key to accept the Number.

To change the Status:

1. Press the ↓ key to change that selection. (On, Off)

Copy Tour

```
COPY TOUR:
>TOUR NUM.:01
COPY
EXIT
```

This menu is used to Copy the Tour defined in the Edit Tour menu.

To select a COPY TOUR menu function move the cursor with - or ^ key to the desired line:

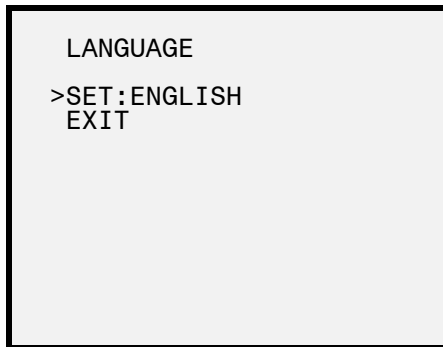
To define the Tour Number:

1. Press the ↓ key to access that selection.
2. Enter the Tour Number. (max.32)
3. Press the ↵ key to accept the Tour Number.

To Copy the defined Tour:

1. Press the ↓ key to accept that selection.

LANGUAGE

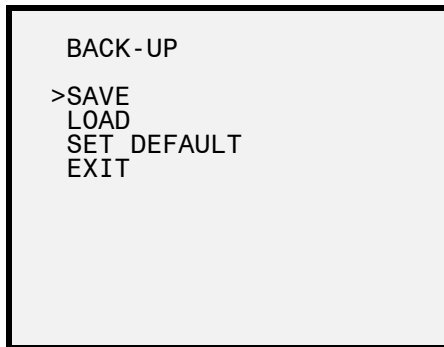


The LANGUAGE menu is used to set the On-Screen menus language.

To select a LANGUAGE menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to change that selection. (*English, Italiano*)

BACK-UP



The BACK-UP menu is used to Save or Load all the menu settings and to define the System standard settings.

To select a BACK-UP menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

STANDARD OPERATION

Standard operation of the TVM 164 includes:

- Log-In Operation
- Editing a Monitor Parameters
- Calling a Monitor to a Keyboard
- Calling a Camera to the Monitor under Control
- Pan&Tilt Control
- Lens Control
- VCR Control
- Running a Sequence and a Multi-Sequence
- Running a Tour
- Calling a Salvo
- Resetting Alarms
- Resetting a Selected Monitor
- Pre-position Control
- Auxiliary Control
- Log-Out Operation

LOG-IN OPERATION

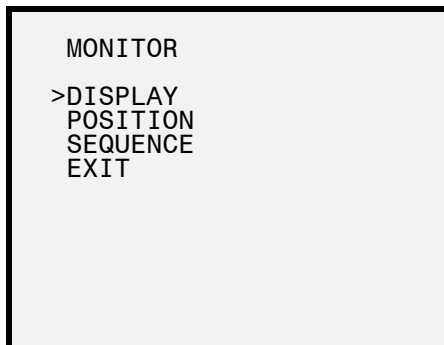
To Log-In the System:

1. Press the ↵ key
2. Enter the User Number (3 digits) and Password (6 digits)

The System automatically assign a free Monitor. The On-Screen Display shows *LOG-IN USER: XXX* until another key is pressed. Automatic Log-Out occurs when all the Monitors are occupied.

EDITING A MONITOR PARAMETERS

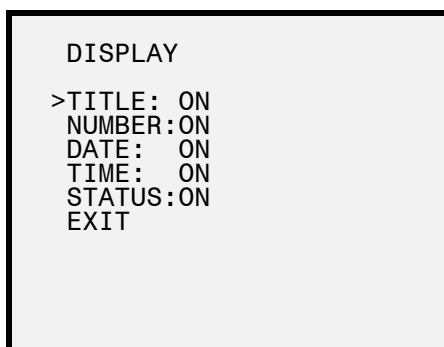
1. Press the * and MON keys to edit a Monitor parameters:



To select a MONITOR menu function:

1. Move the cursor with ↑ or ↓ key to the desired line.
2. Press the ↵ key to access that selection.

Display



To select a DISPLAY menu function move the cursor with - or = key to the desired line:

To change the selection:

1. Press the ↵ key to change that selection. (*On, Off*)

This menu is used to define the messages Displayed on the screen.

Position

```
POSITION
>TITLE
NUMBER
DATE
TIME
STATUS
EXIT
```

This menu is used to define the Positions of messages displayed on the screen.

To select a POSITION menu function move the cursor with - or ^ key to the desired line:

To position the message:

1. Press the ↓ key to access that selection.
2. Position the message with -, ^, → or @ key to the desired location on the screen.
3. Press X key to return to the main POSITION menu.

Sequence

```
SEQUENCE
>POSITIONS:10
EDIT
EXIT
```

The SEQUENCE menus define the internal Monitor Sequence depends on the number of

To select a SEQUENCE menu function move the cursor with - or ^ key to the desired line:

To define the Positions:

1. Press the ↓ key to access that selection.
2. Enter the Positions number. (max.32)
3. Press the ↵ key to accept the Positions number.

To Edit Sequence:

1. Press the ↓ key to access that selection.

Cameras and their Positions. The internal Sequence number is 33.

Edit Sequence

```
EDIT SEQUENCE
POS
01.CAM:01 < TIME:001
02.CAM:02 TIME:001
03.CAM:03 TIME:001
04.CAM:04 TIME:001
05.CAM:05 TIME:001
06.CAM:06 TIME:001
07.CAM:07 TIME:001
08.CAM:08 TIME:001
X-EXIT
```

This menu is used to define the duration of each Camera in the selected internal Sequence.

To select a EDIT SEQUENCE menu function:

1. Position the cursor to the selected Camera or Time with -, ^, → or @ key.
 2. Press the ↵ key to access that selection.
 3. Enter the Camera Number (max.16) or Time (max.255)
 4. Press the ↵ key to accept the Camera Number or Time.
- Press X key to return to the main SEQUENCE menu.

CALLING A MONITOR TO A KEYBOARD

1. Press the MON key.
The On-Screen Display shows *MONITOR NUM.:* _
2. Enter the Number of the desired Monitor.
3. Press the ζ key to accept the Monitor Number.
If desired Monitor is occupied the On-Screen Display shows *NOT AVAILABLE* for about two seconds.
If desired Monitor is not accessible from selected User On-Screen Display shows *NO ACCESS* for about two seconds.

CALLING A CAMERA TO THE MONITOR UNDER CONTROL

1. Press the CAM key.
The On-Screen display shows *CAMERA NUM.:* _
2. Enter the Number of the desired Camera.
3. Press the ζ key to accept the Camera Number.
If selected Camera View is not accessible from selected User On-Screen Display shows *VIEW NO ACCESS* for about two seconds.
If selected Camera Control is not accessible from selected User On-Screen Display shows *CONTROL NO ACCESS* for about two seconds.

PAN&TILT CONTROL

The -, ^, v and @ keys or JOYSTICK are used to control the Camera Pan and Tilt features.

LENS CONTROL

1. For manual IRIS control use CLOSE key to reduce and OPEN key to increase the amount of light entering the Camera to obtain proper video level.
2. NEAR and FAR keys are used to FOCUS the lens.
3. ZOOM OUT and ZOOM IN keys are used to obtain a ZOOM wide or ZOOM telephoto picture.

VCR CONTROL

1. Press the VCR key.
The On-Screen Display shows *VCR NUM.:* _
2. Enter the Number of the desired Video Cassette Recorder.
3. Press the ζ key to accept the VCR Number.
The PLAY, FF, REW, PAUSE/STILL, STOP and REC keys are used to control the Video Cassette Recorder.

If desired VCR is occupied the On-Screen Display shows *NOT AVAILABLE* for about two seconds.

RUNNING A SEQUENCE AND A MULTI-SEQUENCE

1. Press the SEQ or MULTI-SEQ key.
The On-Screen Display shows *SEQ. NUM.:* _ or *MULTI-SEQ. NUM.:* _.
2. Enter the Number of the desired Sequence or Multi-Sequence.
3. Press the ζ key to accept the Number.

RUNNING A TOUR

1. Press the TOUR key.
The On-Screen Display shows *TOUR. NUM.:* _.
2. Enter the Number of the desired Tour.
3. Press the ζ key to accept the Tour Number.
The TOUR STOP key is used to momentary stop the selected Tour. The On-Screen Display shows *TOUR STOP* for about two seconds.
The TOUR CONT key is used to restart the selected Tour. The On-Screen Display shows *TOUR CONT* for about two seconds.
To Reset the selected Tour press the TOUR STOP key when the Tour is momentary stopped. The On-Screen Display shows *TOUR RESET* for about two seconds.

CALLING A SALVO

1. Press the SALVO key.
The On-Screen Display shows *SALVO. NUM.:* _.
2. Enter the Number of the desired Salvo.
3. Press the ζ key to accept the Salvo Number.

RESETTING ALARMS

1. Press the ALARM RESET key.
The On-Screen Display shows *ALARM RESET NUM.:* _.
2. Enter the Alarm Number to be reset.
The 00 Number is used to Reset ALL the Alarms and also to Reset ALL the Monitors.
3. Press the ζ key to accept the Alarm Reset Number.

RESETTING A SELECTED MONITOR

This function is used to Reset the current Monitor when Alarms are not completely Reset by ALARM RESET key.

1. Press the MON RESET key to Reset the current Alarmed Monitor.

The On-Screen Display shows *MONITOR RESET* for about two seconds.

PRE-POSITION CONTROL

The PRESET key is used to call preset scenes. A preset scene is a location that the camera points at.

To set a Preset scene:

1. Adjust the Pan, Tilt, Zoom, Iris and Focus to obtain the desired scene.

2. Press the SET PRESET key.

The On-Screen Display shows *SET PRESET NUM.:_.*

3. Enter the Number.

4. Press the \checkmark key to accept the Number.

To call a Preset scene:

1. Press the PRESET key.

The On-Screen Display shows *PRESET NUM.:_.*

2. Enter the Preset Number.

3. Press the \checkmark key to accept the Preset Number.

The SCAN key is used to moving a selected camera through predefined vectors.

To define Vectors:

1. Press the SET SCAN key.

The On-Screen Display shows *SET SCAN.*

2. Define the Vectors. (Appendix 2)

3. Press the \checkmark key to accept the Vectors.

To activate a Scanning:

1. Press the SCAN key.

The On-Screen Display shows *SCAN NUM.:_.*

2. Enter the Scan Number.

3. Press the \checkmark key to accept the Scan Number.

AUXILIARY CONTROL

The action of Auxiliaries depends on the options installed on the Receiver at the Site being controlled.

1. Press the AUX key.

The On-Screen Display shows *AUX NUM.:_.*

2. Enter the Aux Number.

3. Press the \checkmark key to accept the Aux Number. The On-Screen Display shows *AUX NUM.:X* and *>ON*

4. Press the \rightarrow or \otimes keys to select OFF or ON.

5. Press the \checkmark key to accept that selection.

LOG-OUT OPERATION

1. Press the LOG-OUT key to Log-Out of the System.

The On-Screen Display shows *LOG-OUT* for about two seconds.

INSTALLATION

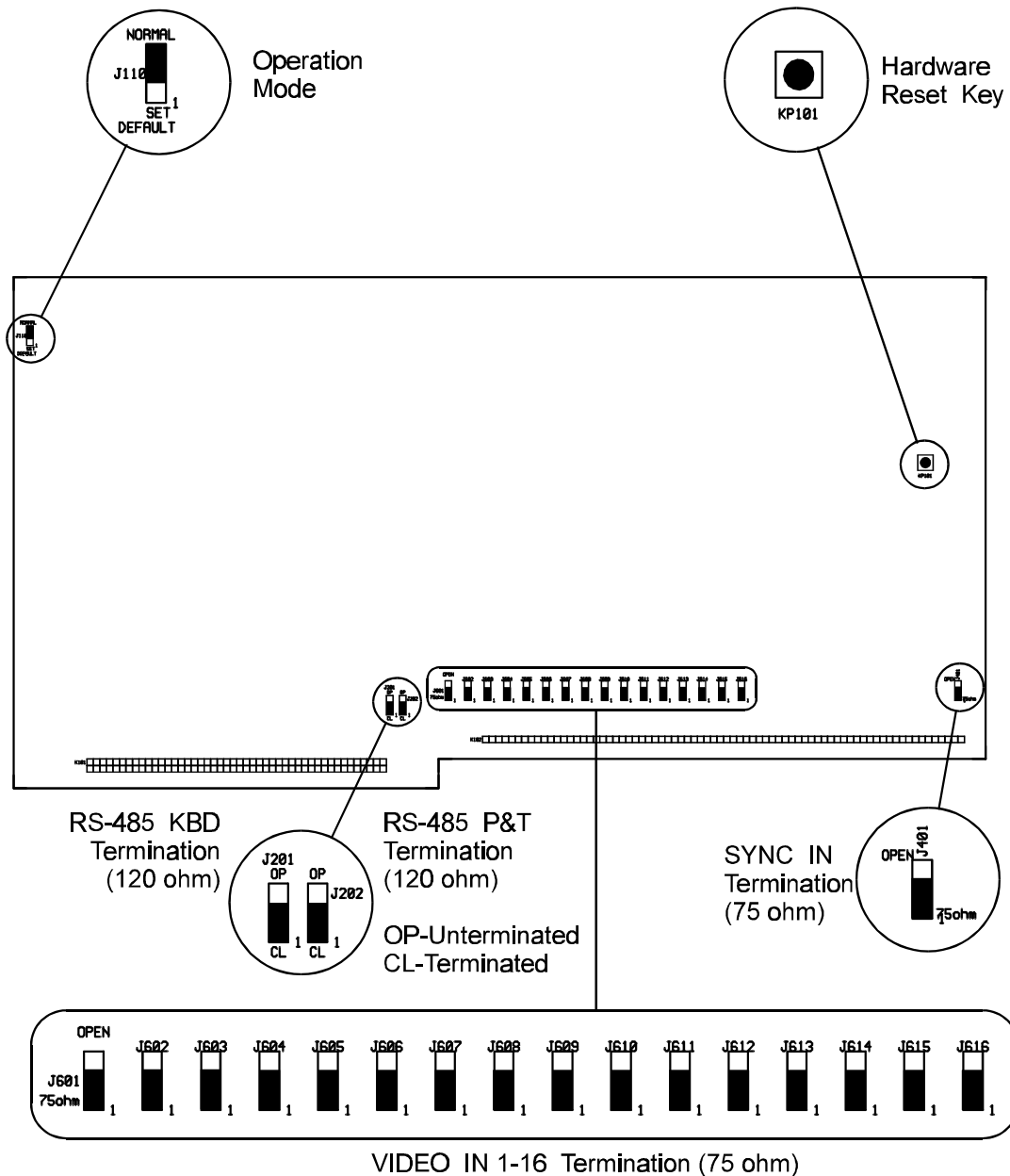
TABLETOP UNIT

This unit is fitted with rubber feet on the base plate for use as a tabletop unit.

RACK MOUNTING

The TVM 164 is designed for rack mounting in a standard 19-inch (EIA) rack. Before mounting remove the rubber feet and use the rack mounting kits.

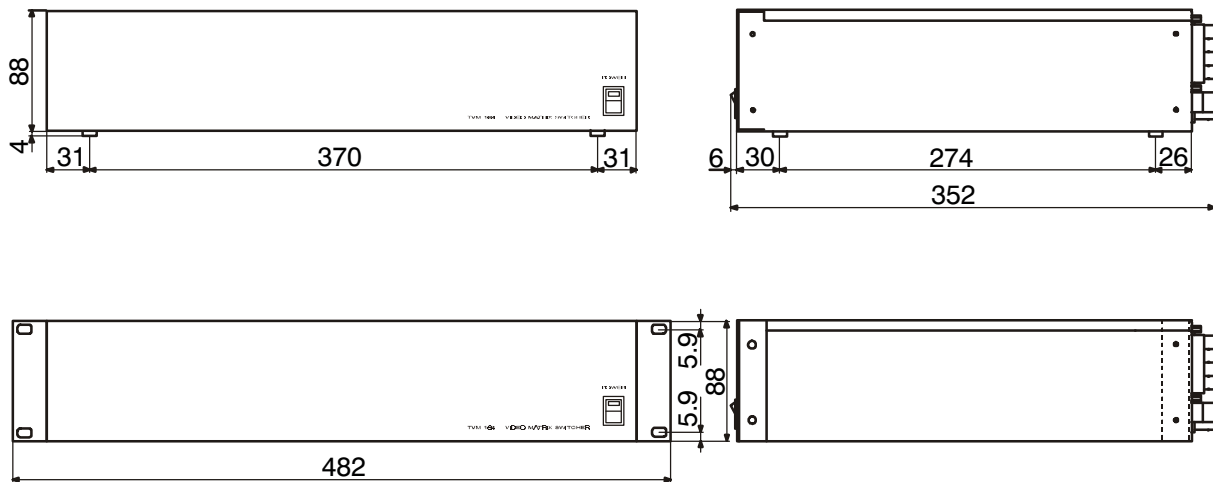
INTERNAL SETTINGS



Note:

- To set (factory) default operation:
 1. Switch the power off.
 2. Move the jumper J110 (Operation Mode) to SET DEFAULT position.
 3. Switch the power on.
 4. Move the jumper J110 (Operation Mode) to NORMAL position.

APPEARANCE

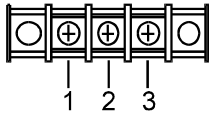


SPECIFICATIONS

Video Inputs	16 (BNC), Protected 1 Vpp / 75 Ω
Video Outputs	4 (BNC) 1 Vpp / 75 Ω
Video Bandwidth	10 MHz ± 3 dB
Signal/Noise Ratio	> 60 dB
Crosstalk	56 dB (4.5 MHz)
Alarm Inputs	16 (D-25F), Protected
Relay Outputs	2 relays (D-25F) 2 A, 30 V DC/125 V AC, max.60 W (125 VA)
Digital Inputs	7 (D-25F), Protected, General-Purpose
Synchronization Input	1 (BNC), Protected
Synchronization Outputs	16 (BNC)
Open-Collector Outputs	24 (D-25F)
VCR Clock Inputs	2 (BNC), Protected
VCR Control	2 (D-9F), Analog
RS-232 Interfaces	2 (D-9F)
RS-485 Interfaces	2 (D-9F)
LED Display Outputs	2 (D-25F), Multiplexed, Common Anode
Power Requirement	12 V DC
Consumption	max.1 A DC
Dimensions (W x H x D)	432 x 88 x 352 mm
Weight	4.8 kg
Standard accessory	Rack Mounting Kits

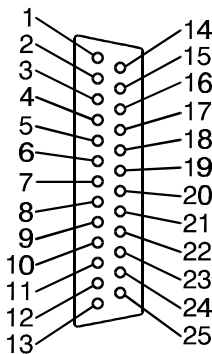
PIN ASSIGNMENT

DC Power Supply connector:



PIN	DC IN (1)
1	+12V
2	GND
3	EARTH

D-25F connectors:

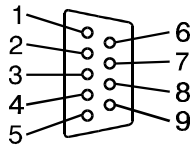


PIN	LED (2)	O.C. OUT (3)	ALARM IN (4)
1	LED Disp. a	OUT 1	Alarm IN 1
2	LED Disp. b	OUT 2	Alarm IN 2
3	LED Disp. c	OUT 3	Alarm IN 3
4	LED Disp. d	OUT 4	Alarm IN 4
5	LED Disp. e	OUT 5	Alarm IN 5
6	LED Disp. f	OUT 6	Alarm IN 6
7	LED Disp. g	OUT 7	Alarm IN 7
8	LED Disp. DP	OUT 8	Alarm IN 8
9	LED 1 Com.A	OUT 9	Alarm IN 9
10	LED 2 Com.A	OUT 10	Alarm IN 10
11	GND	OUT 11	Alarm IN 11
12	GND	OUT 12	Alarm IN 12
13	GND	OUT 13	Alarm IN 13
14	Dig.IN 1	OUT 14	Alarm IN 14
15	Dig.IN 2	OUT 15	Alarm IN 15
16	Dig.IN 3	OUT 16	Alarm IN 16
17	Dig.IN 4	OUT 17	GND
18	Dig.IN 5	OUT 18	GND
19	Dig.IN 6	OUT 19	GND
20	Dig.IN 7	OUT 20	Relay 1 Com.
21	+5V	OUT 21	Relay 1 NC
22	+5V	OUT 22	Relay 1 NO
23	+5V	OUT 23	Relay 2 Com.
24	GND	OUT 24	Relay 2 NC
25	GND	GND	Relay 2 NO

Note:

- The LED Display Output is multiplexed to connect two displays with common anode.
- The Digital Inputs are activated by connecting to ground.
- The current of each Open Collector Output can be 100 mA DC max.
- The current sum for all Open Collector Outputs can be 500 mA DC max.
- The Alarm Inputs are activated by connecting or disconnecting from ground.

D-9F connectors:



PIN	VCR 1 ANALOG (5)	VCR 2 ANALOG (6)	RS-485 KBD (7)	RS-485 P&T (8)	RS-232 VCR (9)	RS-232 PC (10)
1	IN-1	IN-2	RS +	RS +	NC	NC
2	OUT-1	OUT-2	RS -	RS -	RX	RX
3	GND	GND	NC	NC	TX	TX
4	GND	GND	+12V	NC	NC	NC
5	GND	GND	GND	GND	GND	GND
6	NC	NC	NC	NC	NC	NC
7	NC	NC	NC	NC	<u>RTS</u>	<u>RTS</u>
8	+5V	+5V	NC	NC	<u>CTS</u>	<u>CTS</u>
9	+5V	+5V	+5V	+5V	NC	NC

Note:

- The current sum for all +5V sources of the TVM 164 can be 100 mA DC max.
- The current of +12V source can be 300 mA max.

OPTIONAL ACCESSORIES

- On-screen display on the selected outputs
- Telemetry control via coaxial cable