

TruVision DVR 20 User Manual



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Chapter 1

Product introduction

Product overview

This is the *TruVision DVR 20 User Manual* for models:

- TVR-2004-500EA
- TVR-2004-1TEA
- TVR-2008-500EA
- TVR-2008-1TEA
- TVR-2016-500EA
- TVR-2016-1TEA

The TruVision DVR 20 (TVR 20) digital video recorder generation is based on H.264 compression technology. It has enhanced recording capacity and improved network image transmission speed with high image quality. Comprehensive features and extended event recording settings enable the almost universal application of this DVR series.

With Graphical User Interface (GUI), users can command specific actions on the TVR 20 through graphical icons and visual indicators. Simply point, click, and drag the playback bar on the screen to playback the recordings in any time slot.

There are multiple control inputs, which include mouse control, front panel control, remote control, and keypad (KTD-405/KTD405-2D) control. Mouse control is supported with the simple GUI, offering experienced PC users the similarity of interactive command of a computer-controlled device. All GUI functions can be operated via front panel, IR remote, and keypad as well.

The TVR 20 is engineered for express operations. Setup, copy, search, and playback recordings in seconds with a simple “point and click” on the command icons.

Features

This section describes the available TVR 20 features.

Compression

The TVR 20 supports the following video features:

- Pentaplex operation (simultaneous live, recording, playback, archiving and remote viewing)
- User friendly GUI with graphical icons and visual indicators
- Real-time live display for all cameras
- Simultaneous VGA, composite and S-video output

Storage

The TVR 20 supports the following storage features:

- Built-in DVD burner
- Supports eSATA
- Two USB 2.0 ports (located on the front panel) for video archive and mouse usage

Preview and playback

The TVR 20 supports the following preview and playback features:

- Built-in DVR calculator for fast recording estimation
- Express setup: Located in menu option for quick and easy installation
- Express copy: Record video instantly while playing back (USB)
- Express Playback: Simply point, click and drag the playback bar to view previous recordings
- Express Search: Use intuitive playback bar with a simple drag & drop operation

Network

The TVR 20 supports the following network features:

- Free eZ-DDNS Service
- Remote configuration support from built-in web interface
- Gigabit Ethernet interface for remote network viewing and controlling
- On-screen PTZ control via mouse or front panel

Other features

The TVR 20 supports the following additional features:

- Auto-detect video mode (PAL or NTSC) on startup
- Multiple Control Inputs: mouse/front panel/remote control
- Audio recording capabilities*
- Multi-language support
- Watermark capabilities to identify intentional modifications of recorded data
- Rack mountable
- Support KTD-405/KTD405-2D keypad control

* Feature not available for all models.

Chapter 2

Installation

Installation environment

When installing your product, consider these factors:

- Ventilation
- Temperature
- Moisture
- Chassis load

Ventilation: Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. Ensure that the location planned for the installation of the unit is well ventilated.

Temperature: Consider the unit's operating temperature (0 to 40°C, 32 to 104°F) and noncondensing humidity specifications (10 to 90%) before choosing an installation location. Extremes of heat or cold beyond the specified operating temperature limits may reduce the life expectancy of the DVR. Do not install the unit on top of other hot equipment. Leave 44 mm (1.75 in.) of space between rack-mounted DVR units.

Moisture: Do not use the unit near water. Moisture can damage the internal components. To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.

Chassis: Equipment weighing less than 15.9 kg (35 lb.) may be placed on top of the unit.

Unpacking the TVR 20 and its accessories

When you receive the product, check the package and contents for damage, and verify that all items are included. There is an item list included in the package. If any of the items are damaged or missing, please contact your local supplier.

Items shipped with the product include:

- IR (infrared) remote control
- Two AAA batteries for the remote control
- AC power cord
- USB mouse
- External power supply unit x 1 (Europe and UK)
- DVR
- *TruVision DVR 20 Quick Start Guide*
- *TruVision DVR 20 User Manual* (on CD)

HDD capacity

Storage capacity for the TVR 20 varies depending on the model. Refer to Table 1 below for more information.

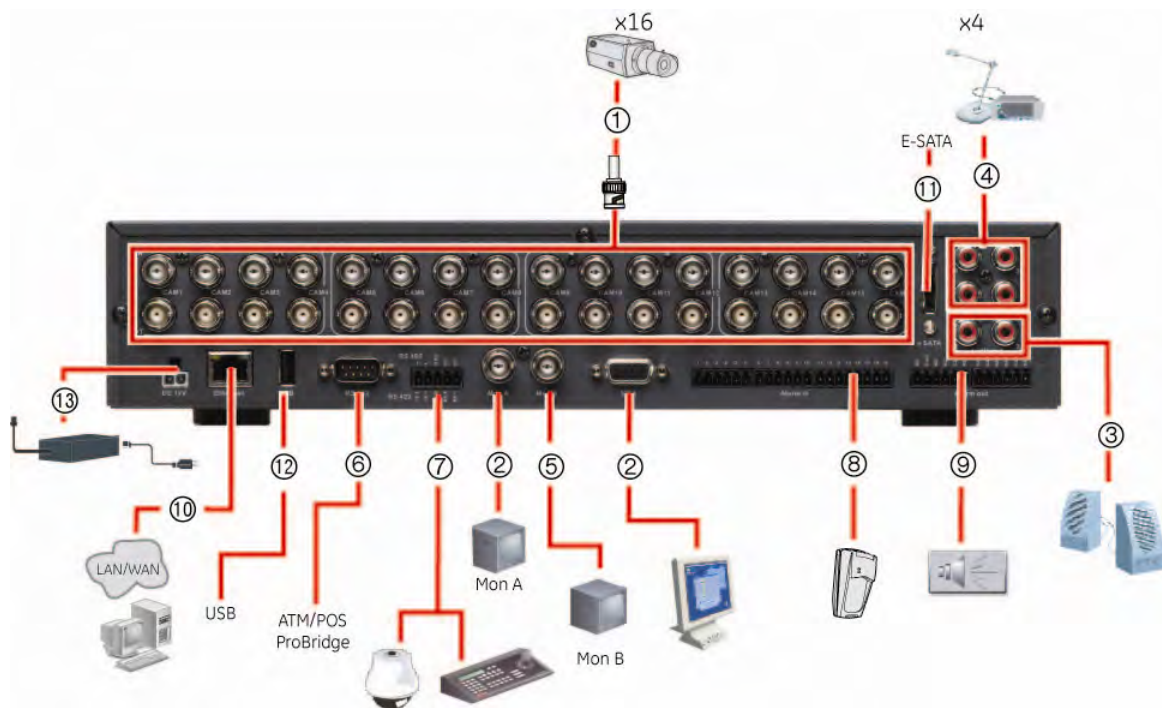
Table 1: TruVision DVR 20 model types

Model number	Description
TVR-2004-500EA	TruVision DVR Model 20, 4 ch, 500 GB
TVR-2004-1TEA	TruVision DVR Model 20, 4 ch, 1 TB
TVR-2008-500EA	TruVision DVR Model 20, 8 ch, 500 GB
TVR-2008-1TEA	TruVision DVR Model 20, 8 ch, 1 TB
TVR-2016-500EA	TruVision DVR Model 20, 16 ch, 500 GB
TVR-2016-1TEA	TruVision DVR Model 20, 16 ch, 1 TB

Connecting devices to the rear panel

Figure 1 below shows the rear panel connections and describes each connector on a typical TVR 20 digital video recorder. Details may vary for specific models.

Figure 1: Rear panel connections (16-channel model shown)



Required connections

1. **Video inputs:** Connect up to 16 cameras to the standard BNC video inputs.
2. **Monitor A or VGA monitor (default):** Connect the main monitor to one of the output connections

Optional connections

3. **Audio outputs:** Connect up to two audio outputs (depends on model) such as line level devices (for example, speakers with built-in pre-amplifiers).
4. **Audio inputs:** Connect up to four to audio input (depends on model) such as microphones.
5. **Monitor B:** Connect a spot monitor (Mon B) to the spot monitor output. The VGA monitor must support 800 x 600 Hz resolution.
6. **RS-232 connector:** Connect an RS-232 cable from a device such as a PC to the 9-pin D-sub input.
7. **RS-485/RS-422 connector:** For telemetry control or remote control via RS-485 keypads
8. **Alarm input:** Connect up to 16 dry contacts (depends on model). NO and NC supported.
9. **Alarm output:** Connect up to four NO/NC alarm output relays (depends on model).
10. **LAN:** Connect the network devices.
11. **e-SATA:** Connect the e-SATA for archive and storage expansion.
12. **USB port:** Insert USB devices. USB CD/DVD burner and USB HDD are not supported.

Power connection

13. **Power socket:** Connect the power cord to the TVR 20. Be sure that all devices are connected and turned on before turning on the unit. Use the external power supply unit provided.

Alarm inputs and outputs

Table 2: Number of inputs and outputs

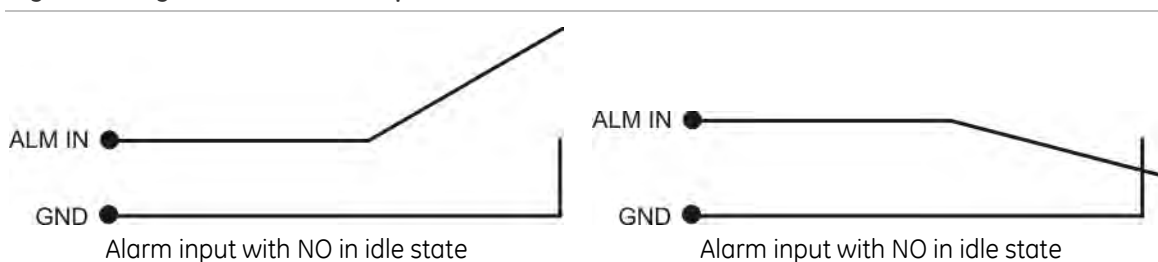
4-channel TVR 20	4 external alarm inputs	1 internal alarm output
8-channel TVR 20	8 external alarm inputs	2 internal alarm outputs
16-channel TVR 20	16 external alarm inputs	4 internal alarm outputs

Alarm inputs

There is a pin connector on the rear panel to connect the alarm inputs. The number of pins depends on the TVR 20 model. They can be wired normally open (NO) or normally closed (NC). They are configured in section “Responding to an alarm” on page 73.

Note: Do not attempt to wire any accessories directly to the I/O connector on the rear panel. These connections require dry contact (voltage free) closure to activate.

Figure 2: Programmable alarm inputs



Alarm outputs

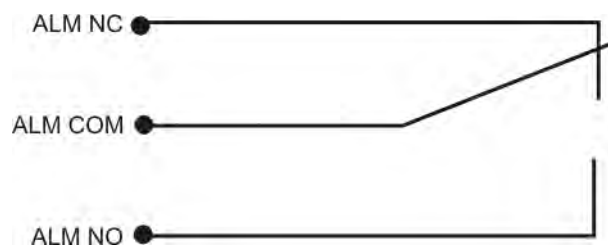
The four alarm output relays respond to input alarms and triggers. They can be configured as NO or NC in section “Alarm and event notification” on page 75.

Table 3: Alarm output pins

Alarm out number	Pin	Description
Alarm out 1	1	NO (Normally Open)
	2	C (Common)
	3	NC (Normally Closed)
Alarm out 2	1	NO (Normally Open)
	2	C (Common)
	3	NC (Normally Closed)

Alarm out number	Pin	Description
Alarm out 3	1	NO (Normally Open)
	2	C (Common)
	3	NC (Normally Closed)
Alarm out 4	1	NO (Normally Open)
	2	C (Common)
	3	NC (Normally Closed)

Figure 3: Alarm output relay in idle state



Camera inputs

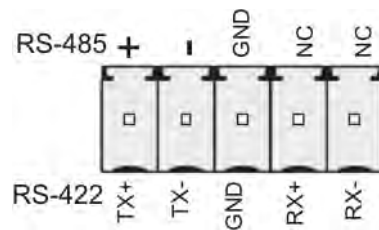
Connect cameras to the TVR 20 using 75-ohm video coaxial cables with BNC connectors. There are two BNC jacks for each camera. Either jack can receive a camera signal. The signal is looped (directly connected to the other jack), making the camera signal available to other equipment.

The camera input connectors are auto terminating. This means that the input signal will automatically be terminated with 75-Ohms unless a second cable is connected to the second BNC connector of the same camera input.

Make sure there is 75-Ohm termination at the end of the video line if the signal is looped through the TVR 20.

RS-485 port

The RS-485 port is used for pan, tilt, zoom control of PTZ cameras as well as for keypads. See “RS-232 and RS-485 port settings” on page 96 to configure this port. See Figure 4 on page 10 for the serial pin outs for the configuration.

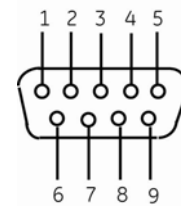
Figure 4: RS-485 pins

RS-232 port

The RS-232 port is provided for use with GE's ProBridge text insertion interface modules in conjunction with compatible CBR, PB3, POS (point of sale) and ATM (automated teller machine) systems. See "RS-232 and RS-485 port settings" on page 96 to configure this port.

Table 4: RS-232 pins

Pin	Description
2	TX
3	RX
5	Ground



PTZ dome camera set up

Use the USB mouse provided or the optional KTD-405 keypad for local telemetry control. If using the TVR 20 over a network, use the web browser to control the PTZ dome cameras.

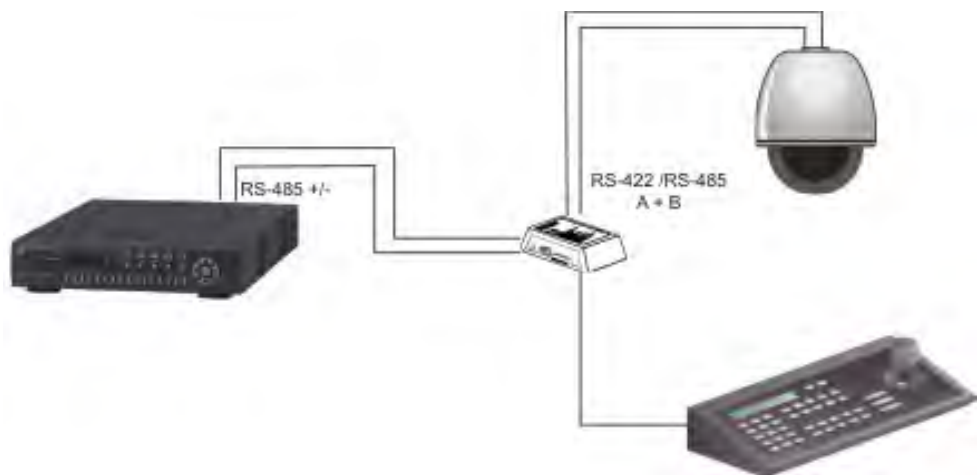
The supported protocols are: GE, Pelco-D, and Pelco-P

For information on setting up the PTZ protocols and presets see "PTZ setup" on page 70 and "RS-232 and RS-485 port settings" on page 96.

Connecting a TVR 20 to a PTZ dome camera

Use the input/output box that is supplied with the KTD-405 keypad to connect both a PTZ dome camera and a keypad to the TVR 20. See Figure 5 below.

Figure 5: Connecting a TVR 20 to a PTZ dome camera



Configuring the PTZ protocols for GE Security cameras

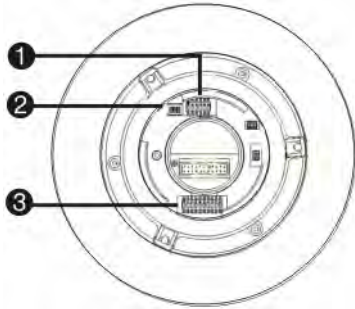
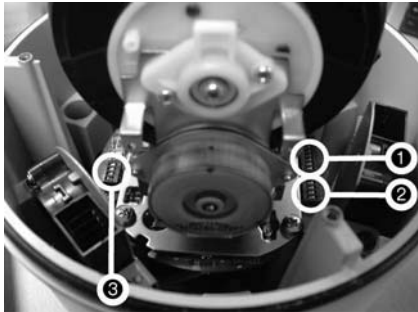
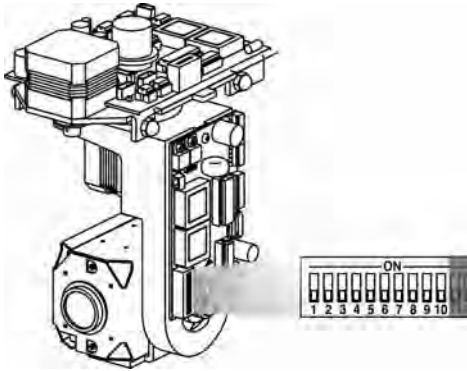
Before the PTZ cameras are assembled in their housings, set their protocol and address DIP switches for the TVR 20. See Table 5 below for different GE Security PTZ camera settings.

If you are using PTZ cameras from another company, please refer to their configuration instructions.

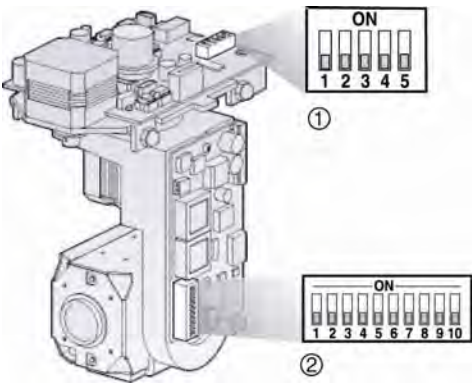
Table 5: PTZ protocols for GE Security cameras

Camera	Switch setting
TruVision Mini PTZ 12X: Indoor Dome	Protocol DIP switches 000000
	RS-485 communication DIP switches 0000000000
	Camera site ID DIP switches Select the camera ID DIP switch address as required.

1. Protocol DIP switches;
2. RS-485 communication DIP switches;
3. Camera site ID DIP switches


Camera	Switch setting	
TruVision Mini PTZ 12X: Outdoor Dome	Protocol DIP switches	000000
	RS-485 communication DIP switches	0000000000
	Camera site ID DIP switches	Select the camera ID DIP switch address as required.
		 <p>1. Protocol DIP switches; 2. RS-485 communication DIP switches; 3. Camera site ID DIP switches</p>
TruVision Dome 16X PTZ	Protocol switches	0111
	Camera site ID address switches	Select the camera ID DIP switch address as required.
	Baud rate	0000
		 <p>1. Address switches; 2. Baud switches; 3. Protocol switches</p>
CyberDome	Protocol switches	NA
	Camera site ID address switches	Select the camera ID DIP switch address as required.
		

Camera	Switch setting	
CyberDome II	Protocol switches	01000
	Camera site ID address switches	Select the camera ID DIP switch address as required.



1. Protocol switches;
2. Camera site ID address switches

Legend	Protocol switches	1
	Address switches	Select the camera ID DIP switch address as required.



Wiring the KTD-405 keypad

The KTD-405 keypad uses RS-485 simplex wiring. The signal is transferred by a single twisted pair line. An unshielded CAT5 network cable is recommended for normal applications. Use a shielded CAT5 cable if the cables could be exposed to interference.

The maximum number of TVR 20s that can be installed in one bus is 31, with a maximum cable length of 1200 m. Both can be expanded using a signal distributor.

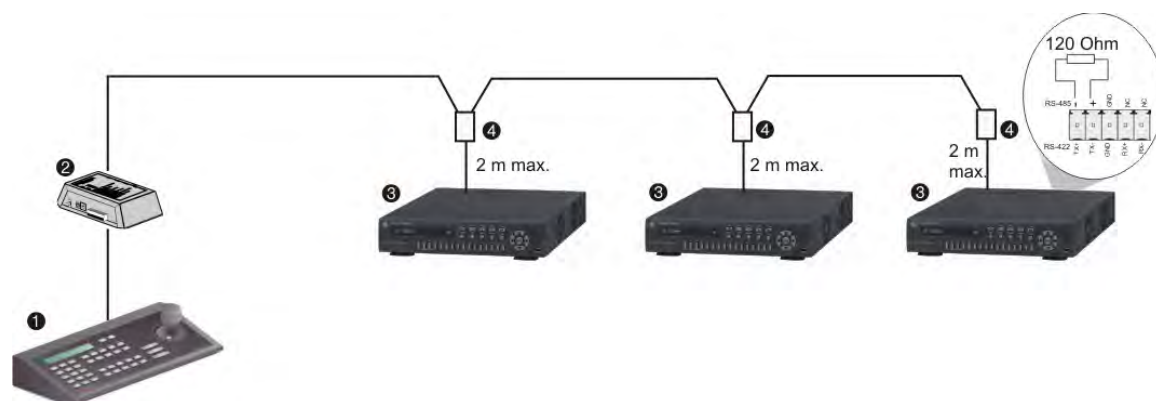
Both the first and the last device in series should be terminated with 120 Ohm resistance to minimize line reflections. See Figure 6 on page 14.

Figure 6: RS-485 bus serial wiring

1. KTD-405 keypad
2. I/O box

3. TVR 20

The cable length from box to device cannot exceed 2 m when using connector boxes. See Figure 7 below.

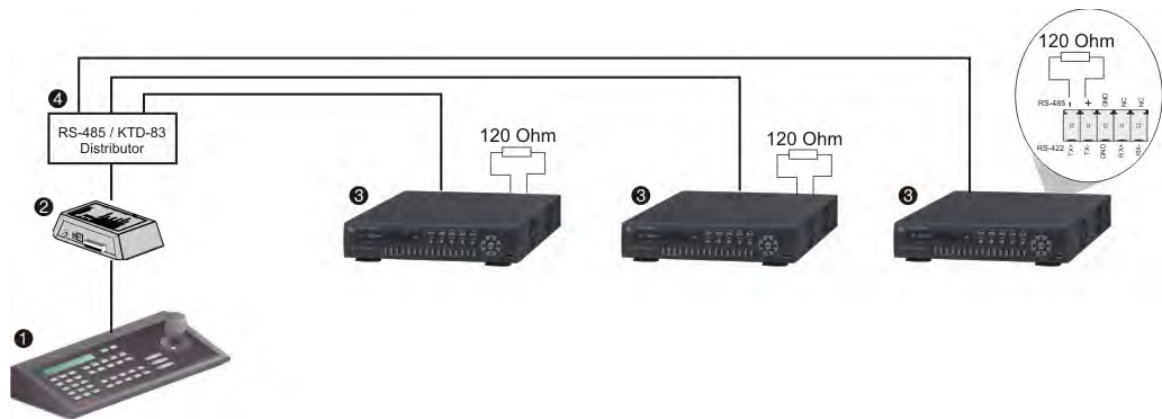
Figure 7: RS-485 bus serial wiring with connector boxes

1. KTD-405 keypad
2. I/O box

3. TVR 20
4. Connector box

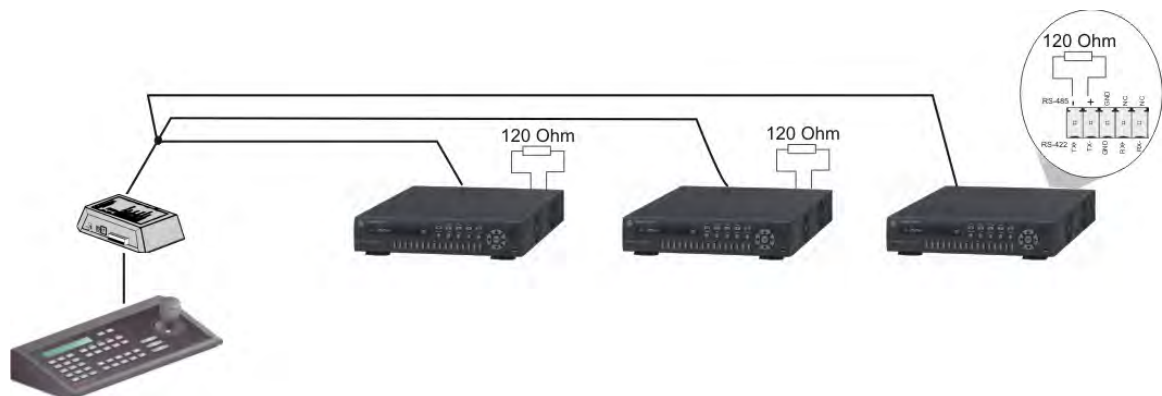
Use an RS-485 signal distributor for a star wiring configuration. See Figure 8 on page 15.

Figure 8: Star wiring with RS-485 signal distributor

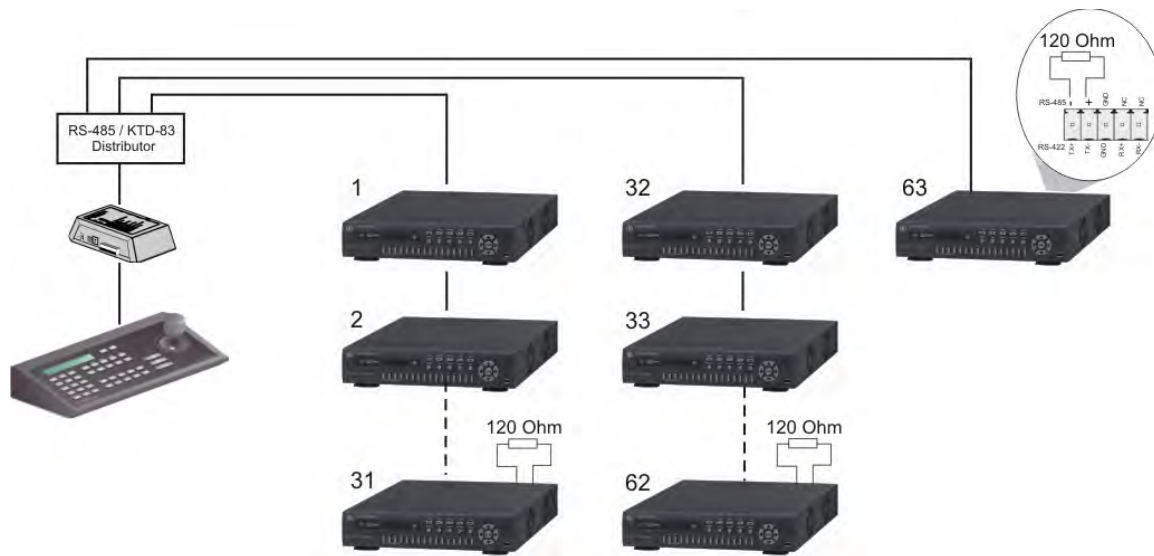
Correct

1. KTD-405 keypad
2. I/O box

3. TVR 20
4. RS-485/KTD-83 distributor

Incorrect

Use an RS-485/KTD-83 signal distributor to increase the maximum number of devices on the bus as well as the total range. Each distributor output provides another RS-485 bus, extending the output an additional 1200 m. Up to 31 TVR 20s can be connected to each output. See Figure 9 on page 16.

Figure 9: Expanding the system with an RS-485 signal distributor

Caution: Most signal distributors are unidirectional. This means that the signal only flows from the input towards the outputs. Consequently it is not possible to connect several keypads.

See "RS-232 and RS-485 port settings" on page 96 to configure the RS-485 port communication settings.

Using the KTD-405 keypad to address PTZ cameras in zone mode

The KTD-405 keypad can be programmed to operate in zone mode which allows you to use several DVRs and cameras. A zone is a remote switching device, such as a DVR, that serves a group of cameras. A system can be divided into as many as 32 zones, and each zone can have up to 32 cameras depending on the type of KTD-405 keypad used. See Table 6 on page 17 for the list of PTZ camera site address values by zone.

To call up a camera in a zone, you must know the zone number and camera number. See Table 6 on page 17 for the list of receiver site address values by zone.

Table 6: PTZ camera site address values by zone

Camera input	Zone number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0	32	64	96	128	160	192	224	256	288	320	352	384	416	448	480
2	1	33	65	97	129	161	193	225	257	289	321	353	385	417	449	481
3	2	34	66	98	130	162	194	226	258	290	322	354	386	418	450	482
4	3	35	67	99	131	163	195	227	259	291	323	355	387	419	451	483
5	4	36	68	100	132	164	196	228	260	292	324	356	388	420	452	484
6	5	37	69	101	133	165	197	229	261	293	325	357	389	421	453	485
7	6	38	70	102	134	166	198	230	262	294	326	358	390	422	454	486
8	7	39	71	103	135	167	199	231	263	295	327	359	391	423	455	487
9	8	40	72	104	136	168	200	232	264	296	328	360	392	424	456	488
10	9	41	73	105	137	169	201	233	265	297	329	361	393	425	457	489
11	10	42	74	106	138	170	202	234	266	298	330	362	394	426	458	490
12	11	43	75	107	139	171	203	235	267	299	331	363	395	427	459	491
13	12	44	76	108	140	172	204	236	268	300	332	364	396	428	460	492
14	13	45	77	109	141	173	205	237	269	301	333	365	397	429	461	493
15	14	46	78	110	142	174	206	238	270	302	334	366	398	430	462	494
16	15	47	79	111	143	175	207	238	271	303	335	367	399	431	463	495
17	16	48	80	112	144	176	208	240	272	304	336	368	400	432	464	496
18	17	49	81	113	145	177	209	241	273	305	337	369	401	433	465	497
19	18	50	82	114	146	178	210	242	274	306	338	370	402	434	466	498
20	19	51	83	115	147	179	211	243	275	307	339	371	403	435	467	499
21	20	52	84	116	148	180	212	244	276	308	340	372	404	436	468	500
22	21	53	85	117	149	181	213	245	277	309	341	373	405	437	469	501
23	22	54	86	118	150	182	214	246	278	310	342	374	406	438	470	502
24	23	55	87	119	151	183	215	247	279	311	343	375	407	439	471	503
25	24	56	88	120	152	184	216	248	280	312	344	376	408	440	472	504
26	25	57	89	121	153	185	217	249	281	313	345	377	409	441	473	505
27	26	58	90	122	154	186	218	250	282	314	346	378	410	442	474	506
28	27	59	91	123	155	187	219	251	283	315	347	379	411	443	475	507
29	28	60	92	124	156	188	220	252	284	316	348	380	412	444	476	508
30	29	61	93	125	157	189	221	253	285	317	349	381	413	445	477	509
31	30	62	94	126	158	190	222	254	286	318	350	382	414	446	478	510
32	31	63	95	127	159	191	223	255	287	319	351	383	415	447	479	511

Monitor connections

Connect the unit to the monitors via 75-ohm video coaxial cables with BNC connectors. The unit provides a 1 Vpp CVBS signal.

Audio inputs and output

The unit is equipped with four audio inputs and one audio output. Both the audio output and the audio inputs are line-level. The four audio inputs are associated with the first four cameras.

Audio input	RCA jack, 315 mV, 40k Ohms. Unbalanced
Audio output	RCA jack, 315mV, 600 Ohms. Unbalanced

Note: Line-level audio requires amplification.

Chapter 3

Express setup

The TVR 20 has an express installation wizard that lets you easily configure basic DVR settings when first used. It configures all cameras simultaneously. The configuration can then be customized as required. See Chapter 6 “Advanced setup” on page 61 for more information on customizing the TVR 20.



The TVR 20 can be set up to be either single or dual stream. Dual streaming allows a sub stream is used for viewing the DVR over the LAN or WAN when the resolution or frame rate of the recorded video is too high for the available bandwidth.

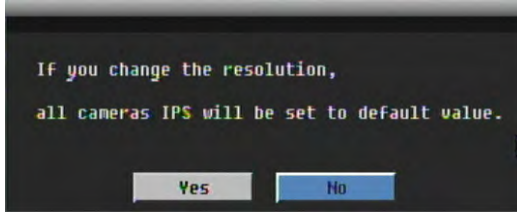
Figure 10: Express menu (Example shown has Dual Stream and Static IP as Network Type selected)



To quickly setup the TVR 20:

1. In live mode right-click the mouse or press the MENU button on the front panel. The Menu toolbar appears on-screen.
The Express screen appears by default.
2. Enter the setup values:

Option	Description
Date	Using the pop-up calendar, enter the current date and click the Done button. 
Time	Using the pop-up clock, set the time of the DVR. See the System menu to change time format. 
Dual stream	Select dual or single stream.
Resolution	Select the recording resolution depending on the video format. <ul style="list-style-type: none"> • NTSC: 704 x 480 (4CIF)/ 704 x 240 (2CIF)/ 352 x 240 (CIF) / 176 x 120 (QCIF, B stream only) • PAL: 704 x 576 / 704 x 288 / 352 x 288 / 176 x 144 (QCIF, B stream only)
Frame rate	Set the frame rate. The frame rate values available are: Full, 25 fps PAL (30 fps NTSC), 20, 16, 12, 10, 8, 6 (default), 4, 2, 1, 1/2, 1/4, 1/8, 1/16. Real time is 25 fps PAL (30 fps NTSC). Select a value.
Record preset	Select the number of days that the video can be recorded before being overwritten. Maximum number of days is 60.
Network Type	Select one of the three options from the drop-down list. <ul style="list-style-type: none"> • Static IP: Set a fixed IP for the network. • DHCP: The DHCP server in the LAN will automatically assign an IP for the network connection. • PPPoE: Set a dynamic IP for the network.
IP Address	Specifies the current IP address for the DVR. A Fixed IP address must be set manually. If DHCP or PPPoE has been selected, this value will be assigned automatically.
Subnet Mask	Specifies the subnet mask for your network so that the DVR is recognized within the network. If DHCP or PPPoE has been selected, this value will be assigned automatically. Default value is 255.255.255.0.
Gateway	Specifies the gateway for your network so that the DVR is recognized within the network. If DHCP or PPPoE has been selected, this value will be assigned automatically.

Option	Description
DNS Servers 1/2	<p>Specifies the DNS server for your network so that the DVR is recognized within the network.</p> <p>If DHCP or PPPoE has been selected, this value will be assigned automatically.</p>
Apply	<p>Click to save and apply the Express settings to the DVR.</p> <p>The DVR will automatically adjust the recording frame rate depending on the settings selected. This screen will pop up:</p>  <p>Click Yes to change the resolution, recording frame rate, and quality for the settings selected.</p>

Chapter 4

Operating instructions

Control interfaces

The TVR 20 has three control interfaces:

- Built-in interface
- Display interface
- Web browser interface

Built-in interface. The built-in interface is displayed on the monitor output. It consists of a main menu and several dialog screens that let you configure and control the device. You can invoke the built-in interface using the front panel, remote control, or mouse.

Display interface. The display interface consists of various toolboxes that appear on top of the monitor image. These let you control live or playback video while in PTZ or playback mode. You can invoke the display interface from the built-in interface screens or from the mouse menu. The controls in any toolbox can be operated using the front panel, remote control, and mouse.

Web browser. The Web browser interface uses Internet Explorer to simulate the display and control functions of the monitor on a remote PC. The Web browser interface can only be invoked by a PC with Internet access. See Chapter 7 “Web browser” on page 103.

Controlling the TVR 20

There are several ways to control the TVR 20:

- Front panel control
- IR remote control
- Mouse control

- KTD-405/KTD-405-2D keypad control
- Web browser control

You can use your preferred control method for any procedure, but in most cases we describe procedures using mouse terminology. Optional control methods are given only when they differ substantially from mouse control methods.

Using the front panel

The buttons on the front panel control can be used to operate many, but not all, of the main functions of the TVR 20 of the DVR functions. The LED indicators light up or flash to alert you of various conditions. The functions available can be limited by setting passwords. See Table 7 below for more information.

Figure 11: Front panel

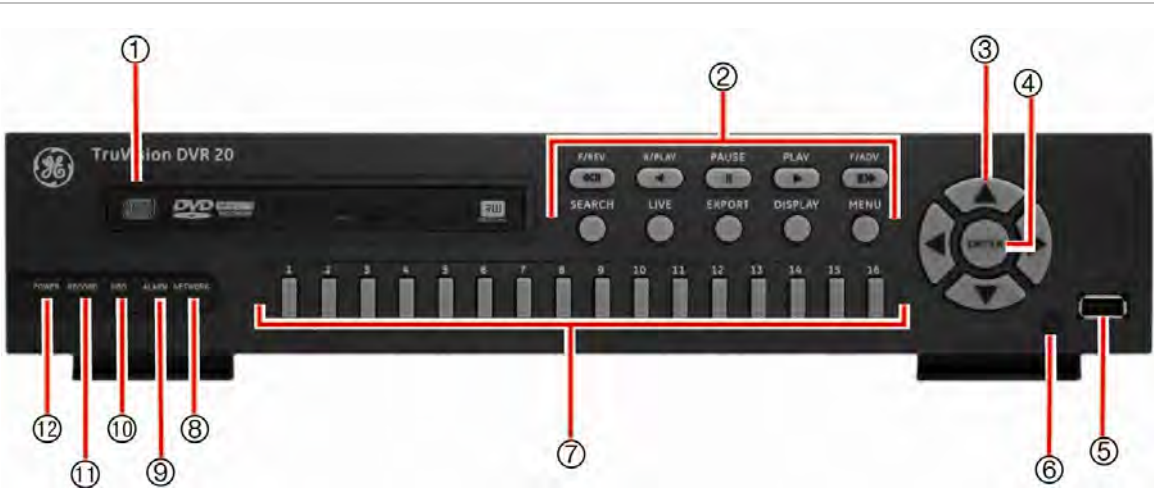


Table 7: Front panel legend

Item	Name	Description
1.	DVD+RW	DVD+RW drive to export video data for archiving.
2.	Function buttons	Use to operate the main functions of the TVR 20. However, they have limited functionality compared to the mouse. Many also have dual functionality depending on for how long they are pressed. See Table 8 on page 25 for information on how to use them.
3.	Arrow buttons	Use to navigate menus when in main menu. Use the Left or Right Arrow keys to navigate through fields. Use the Up or Down Arrow keys to change the value of a selected field. When in zoom mode, use the arrow buttons as directional keys.
4.	ENTER button	Use to select menus when main menu. Press ENTER to confirm menu selection (press MENU to return to previous menu). See Table 8 on page 25 for further information.
5.	USB port	USB-2.0 port to connect a USB device.
6.	IR receiver	This is the receiver for the remote control.

Item	Name	Description
7.	Cameras 1-16 buttons	Selects the channel for full screen display. There are 1 to 16 / 1 to 8 keys depending on the DVR model. The LED indicates which channel is active.
8.	Network LED	Green: Network working correctly. Red: Fault.
9.	Alarm LED	Green: No external alarm. Red: Indicates an external alarm status.
10.	HDD LED	Green (flashing): Hard drive is working correctly. Red: Fault
11.	Record LED	Green: Recording correctly. Red: Fault
12.	Power LED	Green: LED indicates that the DVR is working. No light: Indicates the DVR is powered down.

Using the front panel buttons

Table 8: Front panel button actions

Button	Live mode		Playback mode	PTZ mode
	Press button	Press button and hold for more than 1 second	Press button	Press button
F/REV	No action	No action	Fast reverse playback video from current time.	No action
R/PLAY	Reverse playback video from current time.	No action	Reverse playback video from current time.	No action
PAUSE	No action	No action	Pause playback of video.	No action
PLAY	Playback video from pre-programmed time (see page 96) or from latest recording found.	No action	Playback video at normal speed.	Zoom out
F/ADV	No action	No action	Fast forward video.	Zoom in
SEARCH	<i>Press once:</i> Enter Search menu. <i>Press twice:</i> Enter Advanced Search menu.	No action	<i>Press once:</i> Enter Search menu. <i>Press twice:</i> Enter Advanced Search menu.	No action

Button	Live mode		Playback mode	PTZ mode
	Press button	Press button and hold for more than 1 second	Press button	Press button
LIVE	View a sequence of images from several cameras on the main monitor.	View a sequence of images from several cameras on the spot monitor.	Enter Live mode.	No action
EXPORT	Enter Quick Archive menu.	Switch between VGA and BNC as main monitor.	<i>Press once:</i> Enter Archiving menu. <i>Press twice:</i> Begin archiving	Preset and channel number to save PTZ preset.
DISPLAY	Change display modes on main monitor.	Change between main and spot monitors.	Change display modes on main monitor.	Preset and channel number to activate PTZ preset.
MENU	Main menu appears on main monitor. Press again to return to live mode. Exit digital zoom mode.	No action	Return to Search menu.	Exit PTZ mode and return to live mode.
Arrows	Full screen view: No action. Multiscreen view: Cameo selector moves on main monitor.	No action	Full screen view: No action. Multiscreen view: Cameo selector moves on main monitor.	Pan and tilt functions.
ENTER	Toggle audio on/off. In main menu press to confirm menu selection.	Enter PTZ mode.	Toggle audio on/off.	Confirm preset entries.
Camera buttons	<i>Press once:</i> Switch between cameras on main monitor. <i>Press twice:</i> Enter digital zoom mode.	Switch between cameras on spot monitor.	Switch between cameras on main monitor.	Switch between cameras.

Using the mouse

The USB mouse provided with the TVR 20 can be used to operate all the functions of the DVR, unlike the front panel which has limited functionality. The USB mouse lets you navigate and make changes to settings in the user interface.

Connect the mouse to the TVR 20 by plugging the mouse USB connector into the USB port on the front panel. The mouse is immediately operational and the pointer should

appear. The recommended mouse types are Logitech® and Microsoft® wired USB wheel-mouse. The DVR does not support the wireless USB mouse.

Move the pointer to a command, option, or button on a screen. Left-click the mouse to confirm a selection.

To use the mouse in live mode:

1. Scroll forward and backward between cameras.

When in multiscreen mode, use the scroll button on the mouse to scroll forward and backward through the cameras.

2. Double-click to toggle between full-screen and multiview.

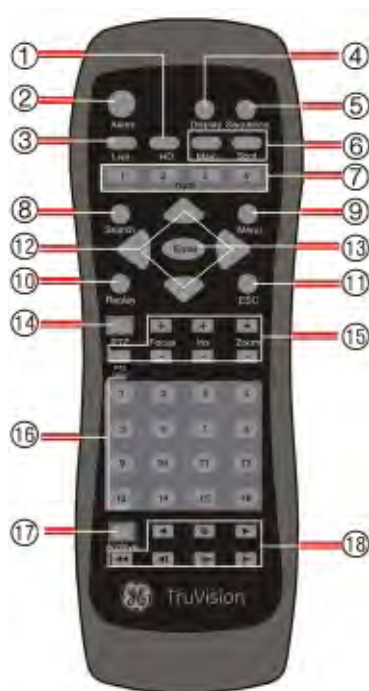
When in multiview, double-click a camera to display its image in full-screen view. Double-click again to return to multiview.

Using the remote control

The TVR 20 is supplied with an infra red (IR) remote control unit. Like the mouse, it can be used to operate all of the main functions of the TVR 20.

The remote control can be programmed with a unique address so that the controller will only be able to communicate with DVRs with that address. No programming is necessary if using a single TVR 20. See “Audio, remote control, language settings and playback replay time” on page 96 for information on setting up the remote control ID so that the DVR recognizes it.

Figure 12: Controls on the IR remote control



- | | |
|--|---|
| 1. HD button: For future use. | 10. Replay button: Replay the selected file from the beginning. |
| 2. Alarm button: Acknowledge an alarm. | 11. ESC button: Go back one step. |
| 3. Live button: Switch to live mode. | 12. Arrow buttons: Use to select a command, option, or button on a screen. |
| 4. Display button: Toggle between the multiview screens. | 13. Enter button: Use to confirm a selection. |
| 5. Sequence button: Start and stop sequencing. | 14. PTZ button: Start PTZ operation on the selected camera. |
| 6. Main & spot monitors: Toggle between the main and spot monitors. | 15. Lens control buttons: Control the zoom, iris, and focus of a camera. |
| 7. Device button: If there is more than one TVR 20, select the device to control. | 16. Numeric buttons: Select a camera, and enter numbers. |
| 8. Search button: Open the Advanced Search menu. | 17. Archive: Open the Quick Archive menu. |
| 9. Menu button: Access the main menu | 18. Playback buttons: Control playback. |

To place batteries into the remote control:

1. Remove the battery cover.
2. Insert the batteries. Make sure that the positive (+) and negative (–) poles are correctly placed.
3. Replace the battery cover.

To connect the remote control to the TVR 20:

1. Turn on the TVR 20 and wait for the live video to appear.
2. On the remote control, press the DVR button for the required TVR 20 device. The remote control is now operational.

Note: If there is only one TVR 20 used, the default DVR button is 1. If more than one TVR 20 is used, they must each be first allocated an ID for remote control. See “Audio, remote control, language settings and playback replay time” on page 96 for more information.

Troubleshooting the remote control:

If the remote control is not functioning properly, perform the following tests:

- Check the battery polarity.
- Check the remaining charge in the batteries.
- Check that the remote control sensor is not masked.

If the problem still exists, please contact your administrator.

Using a KTD-405/KTD-405-2D keypad

Use the keypad to carry out functions similar to the front panel buttons. We use the KTD-405/KTD-405-2D keypad controller (Figure 2) in this manual. For detailed keypad instructions, refer to the KTD-405/KTD-405-2D Controller Keypad User Manual.

Setting up a KTD-405 keypad to work with the TVR 20

To set up a KTD-405 keypad to work with the TVR 20:

1. Press and hold the **set** key of the keypad until Enter programming code displays.
2. At the code entry display, enter the programming code 9, 5, 1. Then press the **seq** button.
3. At the first menu display, press 1 to select the option Switcher/ MPLX.
4. At the Switcher/MPLX screen, press 2 to select the option Calibur.
5. At the Enter Calibur Address screen, enter the bus address of the TVR 20. See the section “RS-232 and RS-485 port settings” on page 96 for information on the bus address of your TVR 20.

To access the PTZ camera’s programming menus using a KTD-405 keypad:

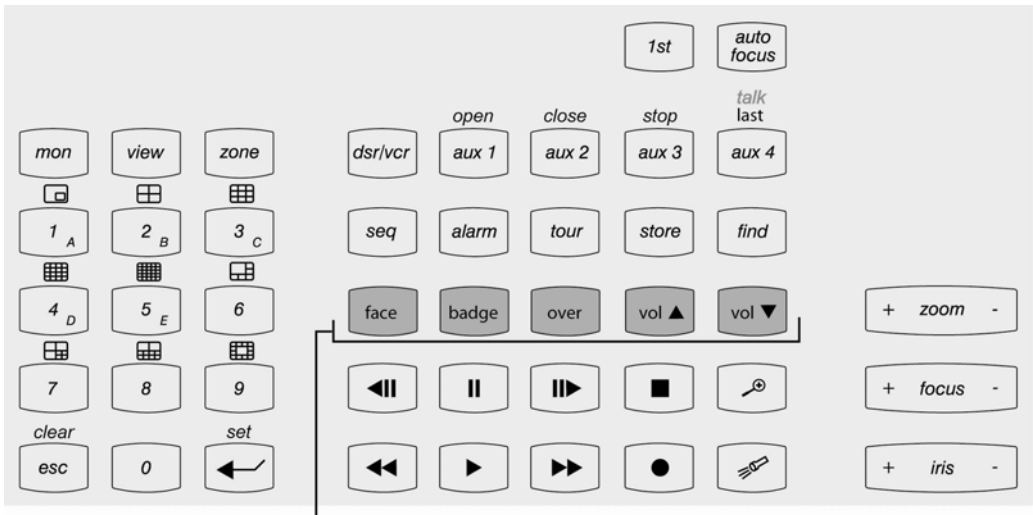
1. Switch the keypad to the camera you want to program.
2. Press and hold the **set** key until Enter programming code displays.
3. At the code entry display, enter the programming code 9, 5, 1. Then press the **seq** button.
4. At the first menu display, press 3 to select the option Camera.
5. At the Enter camera number screen, enter the site number of the PTZ camera you wish to program. Camera default value is 1. The Main Page 1 menu appears.

For further information on programming a PTZ camera, please refer to the PTZ camera user manual.

Navigating the menus with the KTD-405 keypad

You can use the keypad joystick and keys to navigate through the menu system. See Figure 13 below and Figure 14 on page 31 for further information on their use.

Figure 13: Menu keys of the KTD-405/405-2D keypad



Note: Shaded keys appear on the KTD-405A/ KTD-405-2DA only

Table 9: Navigating the programming menus using the KTD-405/405-2D keypad






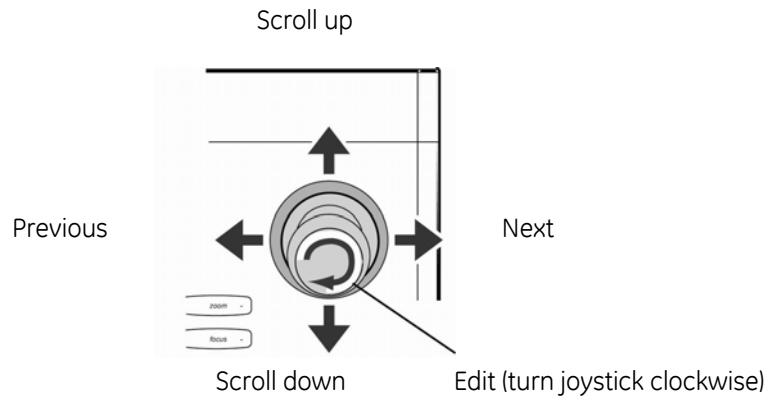
Key	Function
	Scroll up the menus.
	Scroll down the menus.
	Scroll left or right in the menu.
	Enter or exits a menu or submenu.
	Iris +: Enter or selects a menu option Iris -: Exit a menu option. There is no need to select the menu option Exit to quit a menu.

Figure 14: Joystick motion



Screen overview

Each setup menu screen includes various options and buttons. The screen is divided into three main sections (Figure 15 below) as shown below;

Figure 15: Setup menu (Camera setup menu shown)



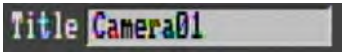
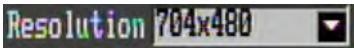
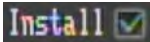
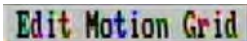
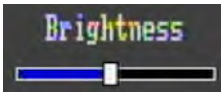
1. **Menu toolbar:** Setup options available for the selected menu function. Move the mouse over an icon and click to select it. See page 61 for a description of the icons.
2. **Submenus:** Submenus for the selected menu function are displayed. Click on an item to select it.
3. **Setup menu:** All the details for the selected sub-menu will be available. Click on a field to make changes.

Navigating through a dialog screen

Use the mouse to select any option or button on the screen. You can also use the directional arrow buttons (Up, Down, Left, or Right) on the front panel to navigate through the options and press ENTER to select. Press MENU to return to configuration category and icon.

Changes to screen settings can be entered in various ways as shown in Table 10 below.

Table 10: Types of control

Control	Function	Description
	Edit box	An edit box lets you type characters to set the value of an option, such as a camera name. You must be in edit mode before you can enter a value. Click the box and an on-screen keyboard will appear to enter text. See "Using the on-screen keyboard" below.
	List box	Provides more than two values for the option. Only one of them can be selected. Click the scroll arrows at the right-hand side of the box to scroll through the possible values. Click an option to then select it.
	Check box	Provides two values: ✓ indicates enabled and × indicates disabled. Click the check box.
	Button	Executes the function displayed on the button. Click the button.
	Bar	Lets you adjust the scale of a value. Click and hold the cursor. Adjust its position left or right along the bar.

Using the on-screen keyboard

A keyboard will appear on-screen when you need to enter characters in a screen option. Click a key to input that character. Inactive keys are white.

Figure 16: On-screen keyboard



The keys on the right and bottom have the following functions:

Table 11: Description of the keys in the on-screen keyboard

Key	Description
Esc	Cancel action and exit the on-screen keyboard
Del	Delete the character in front.
Bs	Backspace. Delete the character entered
OK	Confirm the selection and exit the on-screen keyboard
Cap	Enter a capital letter
Space	Enter a space
←	Move the cursor to the left
→	Move the cursor to the right

Chapter 5

Basic operation

Turning on the TVR 20

Before turning the TVR 20 power on, make sure that the power supply matches that of the TVR 20 and the AC adapter is connected correctly. Connect at least one monitor to the video out or the VGA interface. Otherwise, you will not be able to see the user interface and operate the device.

The TVR 20 auto-detects the video mode (PAL or NTSC) on startup.

To turn on the TVR 20:

1. Connect power supply correctly.

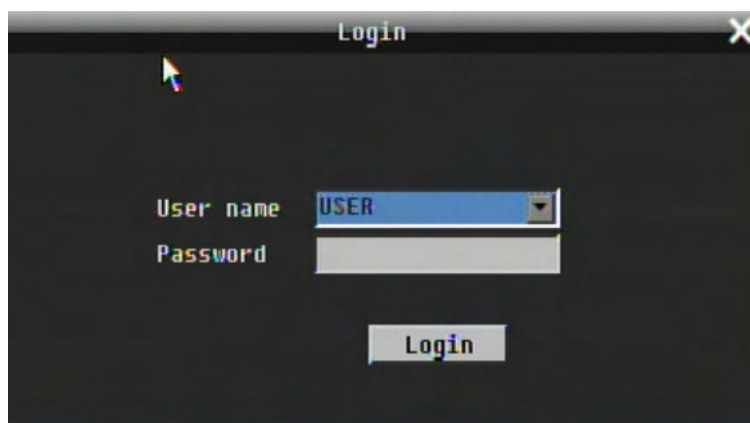
Once the TVR 20 is powered, the Power LED on the front panel should light up in green.

Logging on

Use passwords to limit access to the TVR 20. Only authorized users should be able to modify menu settings or carry out certain tasks.

The TVR 20 is shipped with one predefined user for the system administrator. The default system administrator log on uses "admin" as a user name with a default password of 1234. You can modify the admin password but not the admin user name. We recommend that you change the admin password once you have completed the installation and setup in order to protect against unauthorized access. The administrator can create up to nine users and define their privileges. For more information, see "Managing users" on page 91.

Figure 17: Login screen



To log on to the TVR 20 main menu:

1. In live mode right-click the mouse or press the MENU button on the front panel. The Login screen appears.
2. In the User Name box, select the default user name “admin” (lower case).
3. In the Password edit box, enter the default password of 1234 using the on-screen keyboard that appears.

Note: The password is always entered using the on-screen keyboard regardless of the input device used (mouse, front panel, keypad, remote control).

4. Click Login to enter the main menu.

Note: It is strongly recommended that you change the password of the administrator. Do not leave 1234 as the default password. See “Changing a user password” on page 92 for information on changing a password.

Note: You will hear an audible warning when an incorrect user name or password is entered. After three incorrect entries, the unit returns to live mode.

TVR 20 toolbar overview

In live mode (see “Live mode” on page 37) you can quickly access several frequently used functions that allow you to control what you see on-screen by using the Main toolbar. See Figure 18 below.

As you move the mouse over the icons displayed in the toolbar, the title of each icon will be displayed below.

Note: The eZ menu screen always appears by default under the Main toolbar.

Figure 18: Main toolbar



Table 12: Description of the icons in the main toolbar

Key	Description	Key	Description
1.	Monitor: Switch control between the main and spot monitors.	8.	Pause: Pause live mode of the selected camera.
2.	Main Menu: Access the Menu toolbar to customize the TVR 20 setup.	9.	Playback: Playback recorded video.
3.	Switch Channel: Switch channel selection between cameras.	10.	Archive: Archive recorded video.
4.	Layout: View multiscreen displays.	11.	Log: Display list of status and configuration changes as well as logins carried out.
5.	Sequence: View a sequence of live camera pictures of several cameras. Each camera has a pre-programmed dwell time.	12.	Alarm: Manually acknowledge alarm.
6.	PTZ: Move the camera to the desired position.	13.	Close: Close the Main toolbar.
7.	Search: Search for a recorded video.		

To access the Main toolbar from live mode:

1. Right-click the mouse, or press the MENU button on the front panel. The Main toolbar appears.

To close the main menu:

Click the "X" on the top right of the Main toolbar, or press the MENU button on the front panel.

Live mode

Live mode is the normal operating mode of the unit where you watch live pictures from the cameras. The TVR 20 automatically enters into live mode once powered up. On the display screen, you can see the current date and time, hard drive capacity, and camera name. To change the information displayed on-screen, see "Information displayed on screen" on page 89.

TVR 20 has camera autodetection mode so does not record from a channel if no camera is connected to it.

Note: Every time you logout from the main menu you will be required to log on again to access the system.

Displaying status information

Information about the camera and system status is displayed on-screen as icons on the main monitor. The camera status icons are shown for each camera, and the system status icons are shown along the bottom of the screen.

Each icon represents information on a specific item. Many can be set up to appear on screen. The Audio Out icon only appears when the option is manually selected by the user (see “Selecting audio” on page 40.) The Motion, Event and Alarm icons appear both as part of the camera status information as well as part of the system status information.

Four system status icons will trigger an alarm message: HD failure, Fan failure, HD temperature too high, and No network. See Table 19 on page 76 for a description and Chapter 9 “Troubleshooting” on page 113 for information on how to handle these alarms.

See Figure 19 below for a description of all the icons.

Figure 19: Status icons

Camera status information:

Appears automatically on-screen:



Recording



Video loss

Only appears on-screen when set up in the Display menu:



Playback



Fast forward



Fast backward



Back



Express copy



Pause



Alarm



Event



Motion

Only appears on-screen when manually selected:



Audio out

System status information:

Appears automatically on-screen:



Fan failure



HD failure



HD temperature too high



No network

Only appears on-screen when set up in the Display menu:



Monitor A selected



Monitor B selected



New firmware



Sequence



Alarm



Audio in



Motion



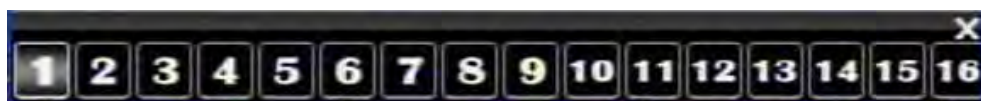
Event

Selecting the camera display

To select the camera displayed:

• Mouse

1. In live mode right-click the mouse to display the Main toolbar.
2. Click the Switch Channel icon. The camera number toolbar appears (16-channel DVR shown).



3. Click the camera number desired. The selected camera display appears.

• Front panel

In live mode press a numeric button on the front panel to switch to the corresponding camera display. For example, press button 2 to view camera 2 in full screen mode. The Main toolbar must be closed.

Viewing in multiscreen

The 16-channel TVR 20 has seven multiscreen display formats available as well as full screen. The eight-channel TVR 20 has six multiscreen display formats.

A cameo is any cell in a multiscreen display. A camera picture can only be shown in one cameo at a time. To change the order of cameras in the cameos, see "Switching cameras" on page 41.

To change the multiscreen format:

Note: You cannot scroll between the multiscreen formats if you are in digital zoom mode (the word Zoom appears on the top of the screen.) Press MENU to exit digital zoom mode and return to live mode.

• Mouse

1. In live mode right-click the mouse or move the cursor to the bottom of the screen. The Main toolbar appears.
2. Click the Layout icon. The monitor layout bar appears showing the display options available.



3. Click the desired display option.

• Front panel

1. In live mode press the DISPLAY button to scroll between the different layout options available.

To change between multiscreen and full-screen display:

1. In live mode double left-click the mouse on a camera cameo. The full-screen display of that camera appears. Double left-click the mouse again to return to multiscreen format.

Note: The Main toolbar must be closed.


Selecting audio

You can hear audio from a specified camera in both live and playback mode. Only audio for the selected camera is heard. However, in order to be able to hear audio in playback you must select the Record Audio option for a camera in the Camera menu (see "Basic camera setup" on page 64 for more information.)

Table 13: Number of audio channels available

DVR version	Number of audio channels
4-channel (2 audio in and 1 audio out)	1
8-channel (2 audio in and 2 audio out)	2
16-channel (4 audio in and 2 audio out)	4

To activate/deactivate audio:

1. In live mode select a camera display.
2. Press the ENTER button on the front panel to activate audio. The Audio In status icon  appears on the camera display.
3. Press the ENTER button again to deactivate audio for the specified camera.

Selecting a monitor

The TVR 20 can be connected to up to three monitors; two main monitors (VGA and BNC) and one spot monitor (BNC). However, only one monitor can be controlled at a time. If both VGA and BNC monitors are connected, the VGA monitor is the default main monitor. Use the “Display settings” on page 89 to set up the format of the main monitor.

To switch between the main and spot monitors:

On the front panel press the DISPLAY button for a few moments to change from the main to the spot monitor. Continue to press the DISPLAY button for a few moments to scroll between the different multiscreen options on the spot monitor.

Press the DISPLAY button quickly to change back to the main monitor.

The monitor status icon will appear on the main monitor screen indicating which monitor is active.



Monitor A (main) is selected



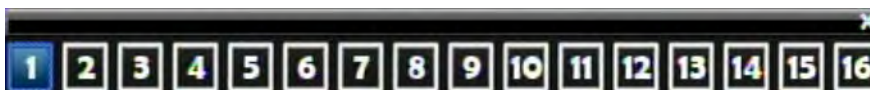
Monitor B (spot) is selected

Switching cameras

You can switch the channel of a camera with that of another camera in the system. This lets you, for example, have the images of camera 1 appear on channel 10, and the images of camera 10 appear on channel 1. This feature is useful when you want to watch the images from specific cameras next to each other on-screen.

To assign a camera to a different channel using the mouse:

1. In live mode select a camera by clicking its cameo in a multiscreen display.
2. Right-click the mouse or move the cursor to the bottom of the screen. The Main toolbar appears.
3. Click the Switch Channel icon. The Switch Channel bar appears on-screen. The channel for the selected camera is highlighted.



4. Click a different channel number for the camera. The switch automatically occurs.

To assign a camera to a different channel using the front panel:

1. In live mode select a camera by clicking its cameo in a multiscreen display.
2. Push and hold the camera button that you want to switch.

The two cameos switch positions on-screen.

Sequencing live mode

The sequencing feature allows a camera to be displayed briefly on-screen before advancing to the next camera in the sequence list. Sequencing can only be done in full screen mode.

Each camera on the main and spot monitors can have a pre-programmed dwell time and sequence order. See “Sequencing main and spot monitors” on page 91 for the setup information. The default sequence list displays each camera in numerical order.

Sequencing live mode using the mouse:

1. Select the camera where you want to start sequencing.
2. Right-click the mouse. The Main toolbar appears on-screen.
3. Click the Sequence icon. The sequencing starts.
4. Press the icon again to stop the sequencing.

Sequencing live mode using the front panel:

1. Select the camera where you want to start sequencing.
2. Press the LIVE button on the front panel. The sequencing starts.
3. Press the LIVE button again to stop the sequencing.

Digital zoom

You can easily zoom in or out of a camera image using the digital zoom function. The zoom function doubles the size of the camera image. This function is only available from the front panel.

Note: You must be in live mode.

To quickly zoom in/out on a camera image:

1. Select the camera you wish to use.
Note: The Main toolbar must be closed.
2. Press the camera number button twice on the front panel for the selected camera. The word “Zoom” appears on-screen.
3. Using the arrow buttons move the camera image around on-screen.
4. To exit digital zoom, press the MENU button and return to live mode.

Controlling a PTZ camera

The PTZ control interface lets you control the PTZ operation of the cameras within the TVR 20 user interface. You can control PTZ cameras using the buttons on the front panel, the KTD-405 keypad, and remote control as well as using the PTZ toolbar accessed with the mouse. Access to PTZ functions may require a password.

Accessing PTZ mode using the mouse

In live mode right-click the mouse to display the Main toolbar. Click the PTZ icon to display the PTZ menu directly. The PTZ toolbar appears (see Figure 20 below.) If you were in multiscreen mode, the screen changes to full screen.

Figure 20: PTZ toolbar

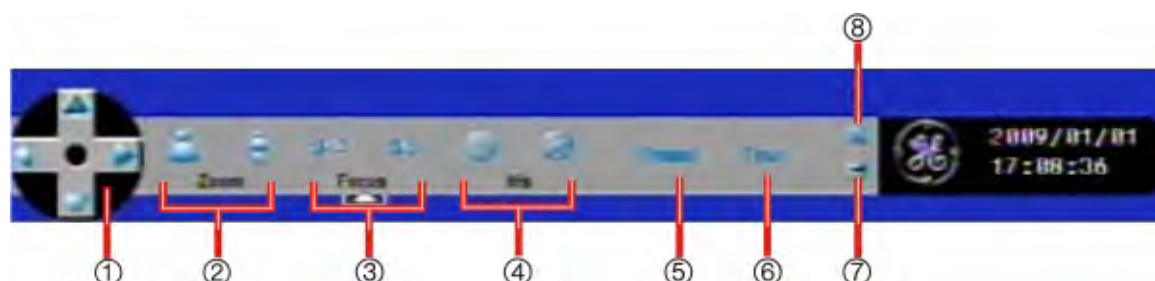


Table 14: Description of the PTZ toolbar

Key	Function	Description
1.	Direction arrow buttons	Use the arrow buttons $\leftarrow \rightarrow \downarrow \uparrow$ to move the PTZ camera to the desired position.
2.	Zoom	Use to zoom in or out. Click Z+ to zoom in, and Z- to zoom out.
3.	Focus	Use to focus in or out. Click F+ to focus in, and F- to focus out.
4.	Iris	Use to adjust the mount of light. Click I+ to increase light level, and I- to decrease the light level.
5.	Preset	Use to enter Preset values. An numeric keypad automatically appears on-screen to enter the value.
6.	Tour	Use to enter Shadow Tour values. A numeric keypad automatically appears on-screen to enter the value.
7.	Save	Save all changes made.
8.	Exit	Quit PTZ mode.

Accessing PTZ mode using the front panel

To enter PTZ mode press and continue to hold the ENTER button on the front panel when in live mode. The PTZ Help pop-up appears on-screen. It shows the front panel buttons to press to control PTZ. If you were in multiscreen mode initially, the screen changes to full screen.

Figure 21: PTZ Help pop-up using the front panel

PTZ HELP	
Move PTZ	-> Arrows
Zoom in & out	-> Fast forward/Play
Go to preset	-> Export
Hide Help	-> Display
PTZ Esc	-> Menu

Using preset positions

A preset point is a four-digit number represents the camera's position, zoom, focus, and iris. You can save up to 255 preset points.

Note: You must be in live mode.

To call up a preset position using the mouse:

1. Select a camera on-screen.
2. Right-click the mouse. The Main toolbar appears on-screen. If requested, enter a user name and password in the Login screen.
3. Click the PTZ icon. The PTZ toolbar appears on-screen.
4. Click the Preset button. A virtual keyboard appears on-screen.
5. Enter a Preset number. The number is displayed in the keyboard window. Correct the entry by pressing the Preset icon on the PTZ toolbar.
6. Click the Go button. The selected camera moves to the position of that preset number.
7. When finished, click the "X" on the top right of the menu to quit PTZ mode and return to live mode.

To call up a preset position using the front panel:

1. Select a camera on-screen.
2. Press and hold the ENTER key. The PTZ Help pop-up screen appears. If requested, enter a user name and password in the Login screen.
3. Press the EXPORT button to enter a preset number. A virtual keyboard appears on-screen.
4. Enter a Preset number. The number is displayed in the keyboard window. Correct the entry by pressing the EXPORT button again and re-enter the preset number.
5. Click the Go button. The selected camera moves to the position of that preset number.
6. When finished, press MENU to quit PTZ mode and return to live mode.

To program a preset position using the mouse:

1. Select a camera on-screen.
2. Right-click the mouse. The Main toolbar appears on-screen.
3. Click the PTZ icon. If requested, select a user name and enter the password in the Login screen. The PTZ toolbar appears on-screen.
4. Click the Preset button. A virtual keyboard appears on-screen.
5. Enter the numbers of the new preset position. The number appears in the top of the keyboard. Up to four digits can be entered. Correct the entry by pressing the Preset icon on the PTZ toolbar.
6. Click the Set button on the virtual keyboard to set the preset ID.
7. In the PTZ toolbar click the Save icon to save all changes.
8. When finished, press MENU to quit PTZ mode and return to live mode.

To program a preset position using the front panel:

1. Select a camera on-screen.
2. Press and hold the ENTER key. The PTZ Help pop-up screen appears. If requested, select a user name and enter the password in the Login screen.
3. Press the EXPORT button. A virtual keyboard appears on-screen.
4. Enter a Preset number. The number is displayed in the keyboard window. Correct the entry by pressing the EXPORT button again and re-enter the preset number.
5. Click the Set button on the virtual keyboard to set the preset ID.
6. When finished, press MENU to quit PTZ mode and return to live mode.

Using shadow tours

A shadow tour allows a preprogrammed motion of the camera.

Note: You must be in live mode.

To program a shadow tour using the mouse:

1. Select a camera on-screen.
2. Right-click the mouse. The Main toolbar appears on-screen.
3. Click the PTZ icon. If requested, select a user name and enter the password in the Login screen. The PTZ toolbar appears on-screen.
4. In the PTZ toolbar use the arrow keys to move the PTZ camera along the desired track.
5. Click the Tour button. A virtual keyboard appears on-screen.
6. Enter the numbers of the new shadow tour track. The number appears in the top of the keyboard. Up to four digits can be entered. Correct the entry by pressing the Tour icon on the PTZ toolbar.

7. Click the Set button on the virtual keyboard to save the shadow tour ID.
8. In the PTZ toolbar click the Save icon to save all changes.

To run a shadow tour using the mouse:

1. In the PTZ toolbar click the Tour button. A virtual keyboard appears on-screen.
2. Select the numbers of the desired shadow tour position. The number is displayed in the keyboard window.
3. Click the Go button. The camera moves in the shadow tour.

Playing back recorded video

The TVR 20 lets you to quickly locate and playback recorded video. There are several ways to playback video:

- Instant playback of recorded video.
- Search the video archives by specific time, date, event, or bookmarks. See “Searching and playing back recorded video” on page 53.

The DVR continues to record the live mode from a camera while simultaneously playing back video on that camera display. Access to playback functions may require a password.

You can playback more than one camera at a time. However, all multiscreen cameras in playback play simultaneously. This means, for example, that it is easy to follow the path of an intruder who has passed in front of several cameras.

You must be in live mode to playback video.

It is easy to select the start and end playback times using the playback toolbar. See Figure 22 on page 47.

Figure 22: Playback toolbar

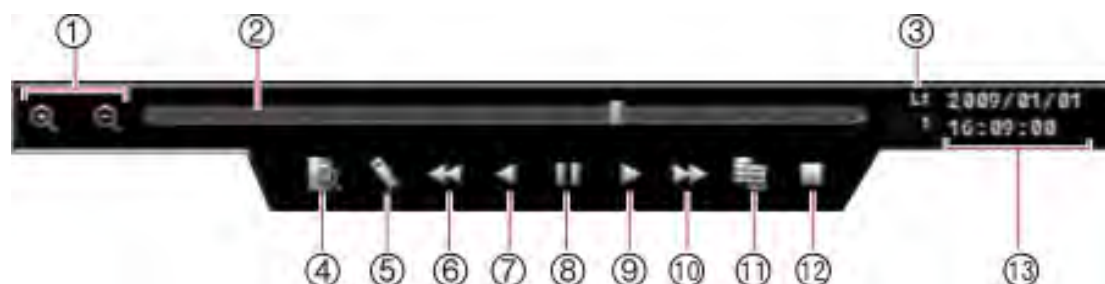


Table 15: Description of playback toolbar

Item	Description
1.	Zoom level: Zoom in or out of the time line to extend the period of time. There are five time levels ranging from one hour to one week: L1: Jump back up to one hour L2: Jump back up to four hours L3: Jump back up to eight hours L4: Jump back up to 24 hours L5: Jump back up to a week.
2.	Timeline: The timeline flows from left (oldest) to right (newest) video. Click on the line to move the cursor to the point where you want playback to start. The recorded video is seen immediately on the camera display.
3.	Zoom level selected: Displays the current zoom level in use.
4.	Quick search: Search for a recorded video by time, date, and/or camera.
5.	Bookmark: Save a specific period of playback for archiving.
6.	Decrease speed: Rewind the playback video. There are six levels of speed to choose from: -1, -2, -4, -8, -16, and -32. The selected speed is shown under the zoom level value.
7.	Reverse: Reverse the playback video.
8.	Freeze: Pause the playback image.
9.	Play: Start playback.
10.	Fast forward: Fast forward the playback video. There are six speed levels to choose from: 1, 2, 4, 8, 16, and 32. The selected speed is shown under the zoom level value.
11.	Quick archive: Save video on media (for example, USB)
12.	Stop: Exit playback and return to live mode.
13.	Date and time: Displays current playback date and time.

Selecting more than one camera for playback

Note: You must be in multiscreen mode.

Cameras individually selected for playback:



Select a camera and enter into playback mode. The playback icon appears on the camera display.

Repeat for each camera you want in simultaneous playback.

In this example, cameras 2 and 3 are in simultaneous playback.

All cameras selected for playback:



Using the left or right arrow keys on the front panel, scroll through each camera individually to highlight it. When you reach the end of the multiscreen group the next camera selection will highlight all cameras. Thick green frames surround all the camera cameos and the Playback icon appears on-screen for every camera.

In this four-screen example, the fifth time the arrow key was pressed selected all cameras for simultaneous playback. Press the arrow button again to select one camera.

Instant replay of recorded video

Use the Playback toolbar to quickly locate video recorded in the past week to playback. The playback images can be seen on-screen as you scroll the playback time bar.

To instantly replay recorded video using the mouse:

1. Select the camera or cameras required.
2. Right-click the mouse to display the Main toolbar and click the Playback icon.

The Playback toolbar appears. The playback status icon also appears in the selected camera display.

3. Click along the time bar to where you want to start playback. The playback time is displayed in the playback bar. Playback immediately starts from that point.

Note: If only one camera in a multiscreen display is in playback, both the current time and the playback time will be displayed on the playback bar. However, if all the cameras displayed on-screen are in playback, then only the playback time will be displayed.

4. Click the time selector buttons or the other playback buttons to adjust the time or speed of playback.
5. Press the Stop button to stop playback and return to live mode.

To instantly playback recorded video using the front panel:

1. Select the camera or cameras required.
2. Press the PLAY button on the front panel.

The playback toolbar appears. The playback status icon also appears in the selected camera display.

Playback starts immediately from the pre-programmed playback replay time. See “Audio, remote control, language settings” on page 96 for information on setting up the playback replay time.

To hide the Playback toolbar:

If the Playback toolbar is unused for more than 20 seconds, it automatically sinks below the bottom of the screen out of view.

To hide the toolbar double right-click the mouse or press the MENU button on the front panel. However, the toolbar will reappear when the mouse is next moved.

To exit playback mode:

1. Select the camera in playback mode.
2. Click the Stop icon on the Playback toolbar, or press the LIVE button on the front panel, to exit playback mode and return to live mode.

Note: If you are in a multiscreen display and the camera selected is not in playback mode, you will not exit playback mode when the Stop icon is clicked.

Bookmarking recorded video

You can bookmark important scenes in a recorded file for later reference. When an intruder, for example, crosses in front of several cameras you can bookmark the intruder’s path across these cameras in a single file.

To save a bookmark:

1. In playback mode use the playback time bar cursor to select the playback start time.
2. Position the mouse cursor over the Bookmark icon, which displays “Set bookmark start time”. Click the icon.
3. Using the playback time bar cursor select the playback end time and click the Bookmark icon again to set the end time.
4. Click the bookmark again to save the bookmark. The “Add Bookmark” screen appears.
5. Check the cameras to be included in the bookmark.
6. Change the start and end playback times, if required.
7. In the Name box enter the bookmark name using the virtual keyboard.
8. Click Add and return to playback mode. A message screen appears saying the bookmark was saved successfully. Close this screen.

Archiving recently recorded video

Archive recorded files on an external device such as a USB. You must be in live mode to archive video. Access to archive functions may require a password.

You can insert a mini-USB hub to the USB port to attach a mouse for navigation and a USB drive for archiving. However, the unit may not support all types of USB hubs.

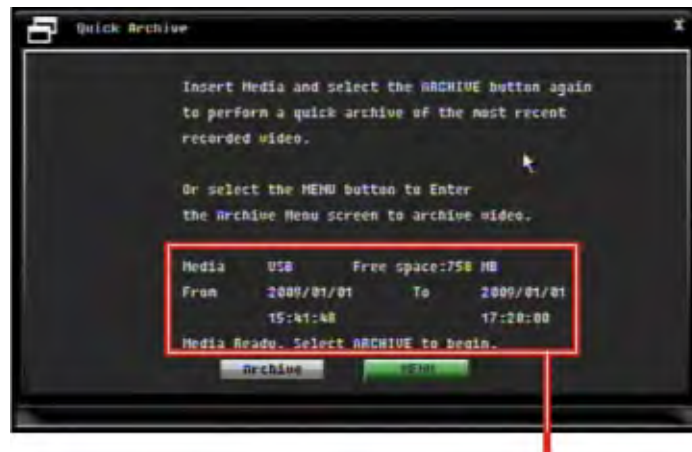
The tool, Player, is supplied with TVR 20 to play recorded files on your PC. It can be downloaded with the recorded video file onto the external device. The tool does not need to be installed on your PC if it has already been included on the USB/CD.

Note: Avoid moving the external recording device when backing up information onto it.

There are two ways to archive files:

Quick Archive: Quick archive lets you archive recorded files quickly by using the EXPORT button on the front panel or by clicking Archive on the screen. The TVR 20 then downloads all the recorded files to fill the available memory space on the media. See Figure 23 on page 51.

Figure 23: Quick Archive screen



Information about the available memory on the media as well as the time and date of the recording

Archive screen: Use the Archive screen to specify archiving settings such as a specific time and date period as well as cameras.

Figure 24: Archive screen



1. **Archive Length:** Quickly select an archive period in minutes from the current time.
2. **Memory capacity:** The estimated size of the copied files is displayed. TVR 20 is a Linux-based DVR. Consequently the space available may differ between a PC and a USB stick.
3. **Start/End time and dates:** Select an archive period based on the start and end time and date.

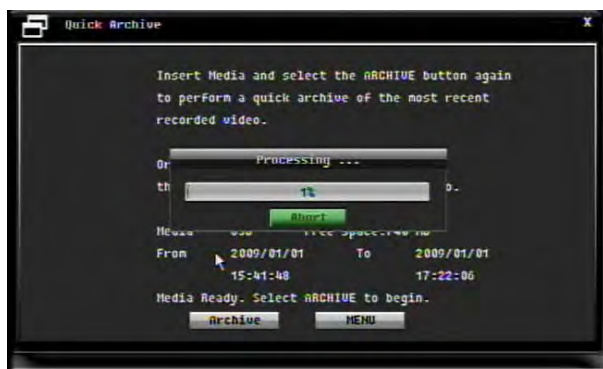
Using Quick Archive

To archive recorded video using Quick Archive:

1. Insert the backup device into the TVR 20.

If using a USB memory drive, insert the device into the USB port on the front panel. If using a digital video disk (DVD), insert the disc into the DVD drive. If both media are found in the TVR 20, the USB device takes precedence over the DVD.

2. Press the EXPORT button on the front panel or remote control, or click the Archive icon on the Main menu toolbar. The Quick Archive screen appears.
3. Click Archive on the Quick Archive screen. The unit starts to download the files.



A message will appear to confirm when the download is completed.

Using the Archive screen

To archive recorded video using the Archive screen:

1. Insert the backup device into the TVR 20.
If using a USB memory drive, insert the device into the USB port on the front panel. If using a digital video disk (DVD), insert the disc into the DVD drive. If both media are found in the TVR 20, the USB device takes precedence over the DVD.
2. Press the EXPORT button on the front panel or remote control, or click the Archive icon on the Main menu toolbar. The Quick Archive screen appears.
3. Click the MENU button on the Quick Archive screen to enter the Archive screen.
4. Enter or select the settings, as required:

Option	Description
Media	Select the media type used (USD or DVD)
Archive name	Enter the name of the file to be archived
Select bookmark	Click Bookmark. The Bookmark screen appears listing all available bookmarks. Select the bookmarks required.
Archive length	If the archive period required is recent, enter the number of minutes to archive.
Include Player	Check to include the Player program as part of the copy.
Camera	Select the camera(s) from which recordings will be copied.
Start date/time	If the archive period required is for a specific period, enter the start times and dates to be copied.
End date/time	If the archive period required is for a specific period, enter the end times and dates to be copied.

5. Click the Archive Now button to start archiving.

A message will appear when the download is completed.

Searching and playing back recorded video

You can search recorded video and then play it back. Video can be searched by several criteria:

- Start and end time of recording
- Events (such as motion detection and POS/ATM text insertion)
- Alarms

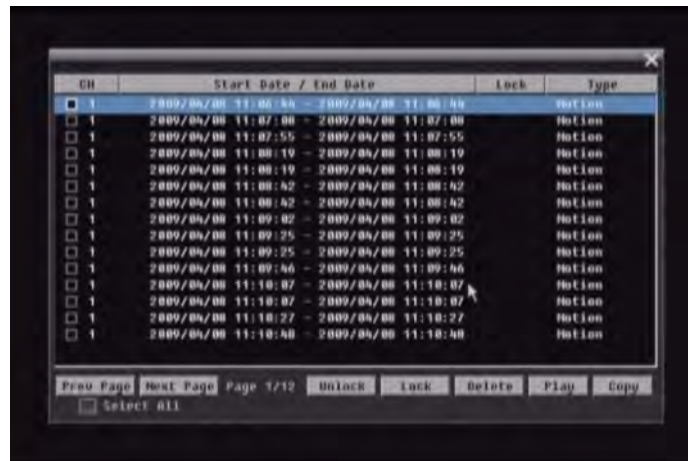
You can setup what the camera records such as it is always recording or only records when there is an event or alarm. See “Camera settings” on page 62 for further information. The TVR 20 can playback several cameras simultaneously.

You must be in live mode to playback video. Access to search functions may require a password.

Playing back the results of a search

A search will usually produce a list of files, which may extend to several pages (see Figure 25 below.) The files are listed by date, with the most recent file listed first. See below for an example:

Figure 25: Example of search result list



Function	Description
Prev page	Go to the previous page.
Next page	Go to the next page.
Unlock	Unlock the selected file, if locked.
Lock	Lock the selected file or files. When locked, the selected file will display “Locked” in the Lock column. Locked files cannot be deleted.

Function	Description
Delete	Delete the selected file or files. Locked files cannot be deleted.
Play	Playback the selected file or files.
Copy	Archive the selected file or files to a media such as a USB.

Quickly search for recorded video

To do a quick search for recorded video:

1. Right-click the mouse or press the SEARCH button on the front panel. The Main toolbar appears on-screen.
2. Click the Search icon. The Quick Search screen appears.



3. Enter the start playback date and time to be searched.
4. Select the camera or cameras to be searched.
5. Click Search. The list of all events recorded appears.
To change the search criteria close the list result screen by clicking the X in the top right corner and return to the Quick Search screen.
6. In the channel (Ch) column click the cameras to playback.
7. Click Play. The cameras selected appear on screen in playback.
8. Click Stop on the playback toolbar to stop the playback and return to the Quick Search screen.
9. If you want to copy a video file click the Copy button and enter the requested information in the screen that appears.
10. Click the X in the upper right corner of the Quick Search screen to exit and return to live mode.

Searching video using disk analysis

TVR 20 can run a disk analysis to get a broader sense of the video data stored on the hard drive. This video data can include Alarms, Events, Video Loss, and more.

The Disk Analysis screen provides a graphical view of the all video stored on the hard drive for each camera. The scale is determined dynamically. The timeline flows from left (oldest) to right (newest) video. See Figure 26 below.

Figure 26: Disk analysis screen



1. **Time cursor:** Playback will start for all cameras from the time highlighted by this bar.
2. **Time window:** This represents the time period of the selected zoom level. The zoom level in this example is Level 3. Events that occurred during this period are indicated. The type of event is color coded.
3. **Playback date and time:** This is the date and time highlighted by the time cursor.
4. **Change zoom level:** Clicking the Up or Down arrows will zoom the view in and out between zoom levels L1 to L5. Zoom is intended to allow video ranges from 1 year to 10 seconds within five levels of zoom.
 - Zoom In expands the two slices to the left and right of the cursor to the full pane.
 - Zoom Out reduces the current full screen to four slices centered in the middle.
5. **Change time:** The time window is divided into horizontal slices (the number of which depends on the zoom level). Clicking the Left or Right arrows will jump the cursor back and forth to the nearest slice in that direction. Additional behaviors include:
 - Clicking the Left arrow from far left scrolls left a half-screen if more video is available, centering the cursor. However, if no more video is available the cursor remains at the left end of the video.
 - Clicking the Right arrow from far right scrolls right a half-screen if more video is available, centering the cursor. However, if no more video is available the cursor remains at the right end of the video.

To search recorded video using the disk analysis screen

1. In the Main toolbar click the Search icon, or press the Search button on the front panel. If requested, enter your user name and password. The Quick Search screen appears.
2. Click the Advance Search button. The Advance Search screen appears.

3. Click the submenu Disk Analysis. The Disk Analysis screen appears.
4. Use the on-screen Left/Right arrows to move the time cursor backwards or forwards through the available video.
5. Use the on-screen Up arrow to zoom in and the right arrow out.
6. Use the arrow buttons to find the video you want to view.
7. Press ENTER on the front panel, or click the time cursor using the mouse, to start playback of that video. The cameras all playback simultaneously.

Searching video by time or date

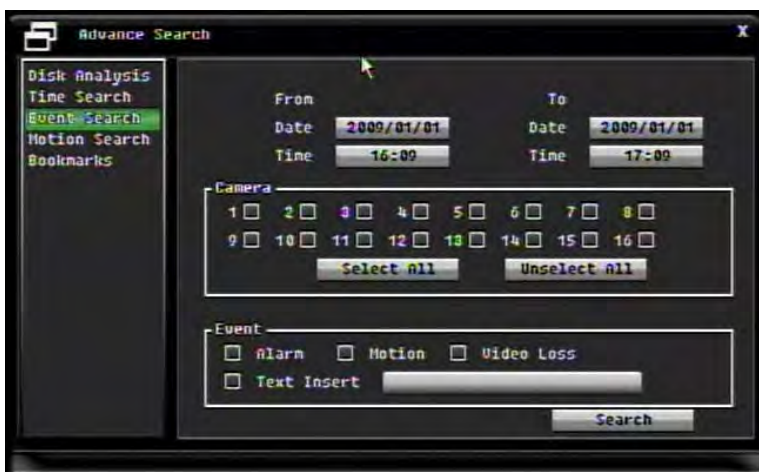
You can search for video from a specific time. In the Advance Search screen select the Time Search submenu and enter the start time from which you want to search. All cameras will appear on-screen in playback from the selected time.

Searching video by events

You can search recorded video for a variety of events. An event is an alarm, motion activity, video loss, or POS text insert.

To search recorded video for events:

1. In the Main toolbar click the Search icon, or press the Search button on the front panel. If requested, enter your user name and password. The Quick Search screen appears.
2. Click Advance Search. The Advance Search screen appears.
3. Click the submenu Event Search. The Event Search screen appears.



4. Enter the start and end times and dates.
5. Select the camera or cameras to search.
6. Select the type of event. There are four event types. More than one can be selected: Alarm, Motion activity, Video Loss, and Text Insert.

7. Click Search. A result screen appears listing all recordings found.
8. In the results screen select a file and press play. Only one file is played at a time.
9. To quit the list screen, click the X in the upper right corner of the screen and return to the Search screen. Click the X in the Search screen to return to live mode.

Searching video by motion activity

You can search recorded video for motion activities. The motion can be for the whole camera viewing area or simply a section of it. For example, you can search a camera's recordings for motion around a particular window included in the camera view. The rest of the camera viewing area that was recorded will be ignored in the search.

Figure 27: Motion Search screen

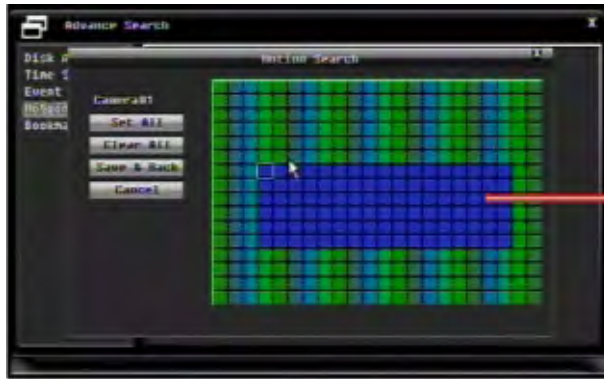


Only want to search for motion activity
that occurred in this area

To search recorded video for motion activity:

1. In the Main toolbar click the Search icon, or press the Search button on the front panel.
2. If requested, enter your user name and password. The Quick Search screen appears.
3. Click Advanced Search. In the left column of the screen select Motion Search. The Motion Search submenu screen appears.
4. Enter the search start and end times and dates.
5. Select the camera whose recordings are to be searched.
6. Click Grid Setting to mark the area of the motion grid to include in the search. The motion grid screen appears. The screen has no grid initially.
7. Click on the motion grid screen for the grid to appear.
8. Drag the mouse cursor over the grid to mark the area to be searched for motion activity:

- Drag the cursor left to right across the grid to select an area to include in the search. The selected area is shaded. Several areas can be selected. Click Select All to select the whole grid area.
- Drag the cursor right to left across the screen to deselect an area from the search. The area is clear. Click Clear All to deselect the whole grid area.



Selected shaded area will be searched for motion activity

- Once all required areas are selected, click Save & Back to return to the Search screen.
- Click Search to start the search.
The list of files found is listed on-screen.
- Check the file or files to play and click the Play button.

Searching video by bookmarks

You can search for video by specific bookmarks. In the Advance Search screen select the Bookmark submenu. The screen will show a list of available bookmarks. Click the one you want to playback and click the on-screen Play button to see it.

Figure 28: Advance Search screen for bookmarks



List of available bookmarks

Details shown about selected bookmark

Playing back archived files on a PC

Use the standard file player software to play back the archived video on your PC. It can be downloaded from the TVR 20 when archiving files onto a backup device.

Manually acknowledging an alarm

When an alarm is activated, the TVR 20 can be set up so that the alarm must be manually acknowledged in order to be silenced. See “Responding to an alarm” on page 73 for information on setting up this type of alarm mode.

To manually acknowledge an alarm:

1. Right-click the mouse. The Main toolbar appears. Click the Alarm icon to acknowledge the alarm. The alarm is then silenced.

— or —

Press the Alarm button on the remote control. The alarm is then silenced.

Logging off from setup mode

To log off from setup mode and return to live mode:

1. In the Main toolbar click the Logout icon. The Logout Confirmation screen appears.
2. Click Yes. The live mode screen appears. All changes made in setup mode are automatically saved.

Turning off the TVR 20

There are two ways to turn off the device:

- On the main menu, click the System icon, and then click Shutdown in the left column. Click Shutdown DVR.

— or —

- When in live mode disconnect the power supply.

Chapter 6

Advanced setup

This chapter covers the advanced setup of your TVR 20. Only users with appropriate access privileges can define and modify advanced configurations.

Overview of the Menu toolbar

The TVR 20 has a menu driven menu structure that allows you to setup the unit's parameters. See Figure 29 below for the icons in the Menu toolbar. They are described in Table 16 below.

In live mode right-click the mouse or press the MENU button on the front panel to get the Menu toolbar on-screen.

Figure 29: Menu toolbar



Table 16: Description of the icons in the Menu toolbar

Item	Menu	Description
1.	Express	Quickly sets up basic DVR configuration across all cameras. Use this menu when first setting up the TVR 20. See Chapter 3 "Express setup" on page 19 for more information.
2.	Camera	Configures individual cameras for basic setup, motion detection, video adjustments, PTZ, and copy settings to other cameras. See "Camera settings" on page 62 for more information.
3.	Alarm & Events	Configures basic alarm options, how the system should notify about different alarms and events, and group alarms. See "Alarm and event settings" on page 72 for more information.

Item	Menu	Description
4.	Schedule	Configures the DVR recording times, individual camera recording times, and holiday periods. See "Schedule settings" on page 79 for more information.
5.	Network	Configures network parameters such as for LAN, DDNS, email notification of alarms, and remote software. See "Network settings" on page 84 for more information.
6.	Display	Configures how information is displayed on the main and spot monitors, and camera sequencing order. See "Display settings" on page 89 for more information.
7.	User	Configures users, passwords, and access privileges. Defines privilege levels. See "Managing users" on page 91.
8.	System	Configures date/time, serial control, options (such as audio and IR remote ID), bookmarks, disk tools, firmware upgrade, configurations, save log file, and DVR shutdown. See "4. All changes are saved when you move to another screen. System setup" on page 94
9.	Information	Displays the unit's system information such as DVR model, firmware version, IP and DDNS addresses, email setup, remote notification, and disk/fan status. See "System information" on page 102.
10.	Logout	Exits the Menu toolbar and return to live mode. See "Logging off from setup mode" on page 59".

Camera settings

This section describes how to customize camera settings from the Camera setup screen.

All changes made on the Camera setup screen apply only to the selected camera. You can easily copy the camera settings of one camera to another.

Click the Camera icon in the Menu toolbar to call up the camera setup screen (see Figure 30 on page 63). There are five camera submenus that you can configure. You can change their settings in any order. See Table 17 on page 63.

Figure 30: Camera setup screen



Table 17: Camera submenus

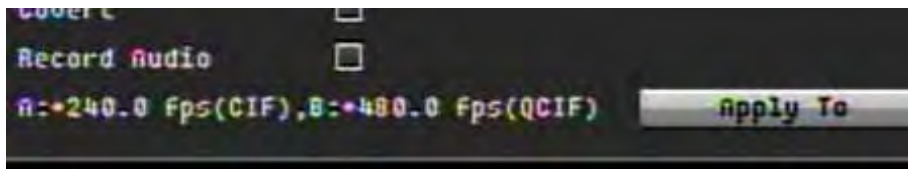
Submenu name	Description
Basic Setting	Set the dual stream, resolution, record quality, frame rate, record mode, covert, and record audio settings. See "Basic camera setup" on page 64.
Motion	Set the motion trigger, sensitivity level, and target size settings. Also edit masking in the motion grid See "Motion detection" on page 66
Video Adjust	Set the on-screen video image brightness, contrast and color settings. See "Adjusting the video image" on page 69.
PTZ Setup	Set the PTZ protocol and ID to a camera as well as presets. See "PTZ setup" on page 70.
Copy Settings	Select the cameras to which to copy these settings. See "Copy camera settings" on page 71. Copy settings do not include the camera title.

Recording capacity

The TVR 20 allows you to view cameras over a network. Dual streaming allows high quality video to be recorded in one stream (Stream A) and lower quality video to be recorded in another stream (Stream B) that can be easily streamed through a narrow bandwidth.

When selecting the frame rates, resolution, and record quality for a camera the remaining recording capacity for the A stream (and B stream, if applicable) is shown at the bottom of the screen. See Figure 31 on page 64.

Figure 31: Recording capacity for A and B streams



When this number is positive it means that there is still recording capacity for that stream. If it is negative, the recording capacity has been exceeded and you must decrease one or more of the values for frame rates, resolution, or record quality.

The recording capacity number must be positive before saving the changes. If not, a pop-up window appears saying that the new settings will be ignored and will return to the previous values.

Basic camera setup

Use this menu to customize the set up of cameras.

Figure 32: Camera setup screen (Example shows dual stream disabled)



To set up basic camera settings:

1. In the Menu toolbar click the Camera icon.
2. Click the Basic Setting submenu. The camera basic setup screen appears.
3. Enter or change the settings, as required:

Option	Description
Camera	Select the camera number.
Title	<p>Assign a title to the selected camera. Every camera must have a unique title. If no title is assigned, the camera is auto-numbered. A title supports up to 16 characters.</p> <p>Using the virtual keyboard, enter the camera title.</p>
Dual stream	Select dual or single stream.
Resolution	<p>Select the recording resolution depending on the video format.</p> <ul style="list-style-type: none"> • PAL: 704 x 576 / 704 x 288 / 352 x 288 / 176 x 144 (QCIF, B stream only) • NTSC: 704 x 480 (4CIF)/ 704 x 240 (2CIF)/ 352 x 240 (CIF) / 176 x 120 (QCIF, B stream only)
Record quality	Select the image quality for the recording from a scale of 1 to 5, where 5 is the highest image quality. A higher image quality uses more HDD space.
Frame rate	<p>Set the frame rate. The frame rate (fps) is determined by the maximum recording rate of the DVR (displayed in the bottom left corner) divided by the number of installed cameras. If you change the resolution value, the frame rate value is automatically adjusted. The frame rate values available are: Full, 25 fps PAL (30 fps NTSC), 20, 16, 12, 10, 8, 6 (default), 4, 2, 1, 1/2, 1/4, 1/8, 1/16. Real time is 25 fps PAL (30 fps NTSC.)</p> <p>Select a value.</p>
Alarm frame rate	<p>Set the frame rate at which the alarm is recorded. See section "Responding to an alarm" on page 73 for more information. The frame rate values available are: Full, 25 fps PAL (30 fps NTSC), 20, 16, 12, 10, 8, 6 (default), 4, 2, 1, 1/2, 1/4, 1/8, 1/16.</p> <p>Select a value.</p>
Event frame rate	<p>Set the frame rate at which the event is recorded. See section "Responding to an alarm" on page 73 for more information. The frame rate values available are: Full, 25 fps PAL (30 fps NTSC), 20, 16, 12, 10, 8, 6 (default), 4, 2, 1, 1/2, 1/4, 1/8, 1/16.</p> <p>Select a value.</p>
Record mode	<p>Set when the camera records. There are five options to choose from:</p> <ul style="list-style-type: none"> • Always: Camera is always recording. • Disabled: No recording • Event: Only records when an event is detected. • Alarm: Only records when an alarm is triggered. • Event+Alarm: Records when either an alarm or event is detected. <p>Select one of the five record modes.</p>
Covert	<p>Use to hide the camera picture in live and sequence modes. However, the image will still be recorded and can be played back by any user who has playback rights.</p> <p>Check the check box to enable.</p>

Option	Description
Record Audio	<p>Audio can be recorded from the selected camera.</p> <p>Check the check box to enable.</p> <p>Note: The Audio In status icon that is displayed on-screen indicated live mode audio only. Record Audio option is not indicated on-screen.</p>

4. Click Apply To. A pop-up screen appears. Select the cameras to which to copy these alarm and events parameters.. Click OK.
5. Changes are automatically saved when you move to another screen.

Motion detection

Motion detection is one of the most important features of a DVR. With it there is no need to manually search through hours of video recordings to find an event. TVR 20 can be set up to trigger an alarm if it detects motion and to record it. You can then search these recorded motion activities for specific incidents (see "Searching video by events" on page 56 and "Searching video by motion " on page 57).

Select the level of sensitivity to motion as well the target size so that only objects that could be of interest can trigger a motion recording. For example, recording is triggered by the movement of a person but not that of a cat.

Mask out any areas of motion on the camera display that you do not want to trigger recording such as a flag on a pole or a moving tree.

Note: For motion detection to work best the light in a camera area should be constant, and the background of the camera image should preferably be high-contrast.

Motion detection can be set up for each camera individually or the settings of one camera can be easily copied to other cameras.

Figure 33: Camera motion screen



To setup motion detection:

1. In the Menu toolbar click the Camera icon.
2. Click the Motion submenu. The camera motion screen appears.
3. Enter or change the settings, as required:

Option	Description
Camera	<p>Select the camera number.</p> <p>The camera title will change automatically depending on the camera selected.</p>
Trigger	<p>There are three options to select how motion detection is handled:</p> <p>Off: Motion activity is not recorded.</p> <p>Event: The event is recorded but does not trigger an alarm.</p> <p>Alarm (x): The number displayed is that of the selected camera. Motion activity is recorded and triggers an alarm.</p> <p>Select one of the options.</p>
Sensitivity	<p>Set the motion sensitivity level. There are nine sensitivity levels: 1 (lowest) to 9 (highest). If level 1 is selected, the unit will not respond to any motion detection.</p> <p>Select the sensitivity level.</p>
Target size	<p>Set the minimum number of zones in a camera image that must be activated simultaneously before it is considered to be valid motion.</p> <p>Select a value between 0 and 352.</p>

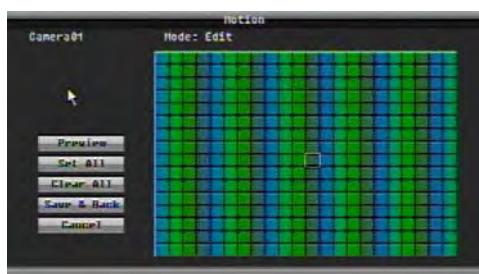
4. Click the Edit Motion Grid button. The Motion screen appears. Change the settings, as required:

Option	Description
Preview	Click to see any pre-existing target areas for movement. Any movement is shown by on-screen grid squares following the movement. This helps you to see where movement is likely to occur on camera, and then to decide where to set up specific areas sensitive to motion detection.
Clear All	Click to delete any preset target areas on-screen. When the grid then appears on-screen, the screen image is clear and nowhere is sensitive to motion detection.
Set All	Click to make the whole screen sensitive to motion detection. When the grid then appears on-screen, the entire screen image is shaded and sensitive to motion detection.
Save & Back	Click to save all changed made and return to the Motion submenu screen.
Cancel	Click to cancel any changes and return to the Motion submenu screen.

5. Select the motion sensitive area.

Using the mouse

Double-click the camera image. A 16 x 22 grid appears.



To select a motion-sensitive area:

Drag the cursor left-to-right across the grid to select an area which is sensitive to motion detection. The motion-sensitive area is shaded. Several motion-sensitive areas can be created. Click the Select All button to select the whole grid area.

To deselect a motion-sensitive area:

Drag the cursor right-to-left across the screen to deselect a motion-sensitive area. The deselected area is clear. Several motion-sensitive areas can be deselected. Click the Clear All button to deselect the whole grid area.

Using the front panel

Select the grid screen by pressing the down arrow button several times until the grid screen is selected, or press the right arrow button once to select it. Press ENTER to get the 16 x 22 grid on-screen (see "Using the mouse" above).

To select a motion-sensitive area:

Using the arrow buttons, position the cursor at a top corner of the area to be selected for motion direction. Press ENTER. The selected grid cell turns red. Using the arrow buttons, continue in a downward direction to select the neighboring squares to mark the area to be selected. All cells are shaded red. Press ENTER to select the marked area. The grid cells become green.

To deselect a motion-sensitive area:

Using the arrow buttons, position the cursor at a bottom corner of the area to be deselected for motion detection. Press ENTER. The

selected grid cell turns red. Using the arrow buttons, continue in an upward direction to highlight the neighboring squares to mark the area to be deselected. All cells are shaded red. Press ENTER to select the marked area. The grid cells become clear.

6. Click Save & Back to save changes and return to the Motion setup screen.
7. Click Apply To to copy these changes to other cameras.

Adjusting the video image

Use this submenu to adjust the selected camera's video image. See Figure 34 below.

It may be necessary to adjust the camera image depending on the camera model or location background.

Figure 34: Video Adjust screen



To adjust video quality:

1. In the Menu toolbar click the Camera icon.
2. Click the Video Adjust submenu. The Video Adjust screen appears.
3. Change the settings, as required:

Option	Description
Camera	Select the camera number. The camera title will change automatically depending on the camera selected.
Brightness	Sets the brightness level in the image. If details in the image are too dark, increase the brightness level. If there is a lot of glare in the picture, or image is saturated, decrease the brightness level. Select a value between 1 to 99.

Option	Description
Contrast	Sets the contrast level in the image. Lower contrast gives richer grey scale details so produces sharper images. Select a value between 1 to 99.
Saturation	Sets the color level in the picture. Select a value between 1 to 99.

- Click Apply To. A pop-up screen appears. Select the cameras to which to copy these alarm and events parameters. Click OK.
- Changes are automatically saved when you move to another screen.

PTZ setup

Use this menu to set the PTZ protocol and presets.

The camera must be able to support PTZ presets.

Figure 35: PTZ Setup screen



To set up a PTZ preset for a camera:

- In the Menu toolbar click the Camera icon.
- Click the PTZ Setup submenu. The PTZ setup screen appears.
- Change the settings, as required:

Option	Description
Setup	<p>Camera: Select the camera for the PTZ setup.</p> <p>Protocol: There are three protocols available: GE, Pelco D, Pelco P. Select one.</p> <p>PTZ ID: Enter the PTZ ID for this camera. There can be up to 255 PTZ IDs.</p>
PTZ Preset	<p>To program a preset:</p> <p>In the Set box, enter the number of a preset. Move the camera to the desired position using the control buttons. Press the Set button to save the movement.</p> <p>To go to a preset:</p> <p>In the Go To box enter the preset value required and click the Go button. The camera moves to that preset position.</p>
Control	Move the camera position using the on-screen arrows and adjust the zoom, focus and iris of the image.

4. Changes are automatically saved when you move to another screen.

Copy camera settings

The settings of one camera can be easily copied to other cameras. You can specify which group of settings you want to copy over to another camera: the basic settings, motion detection settings, and video adjust settings. See Figure 36 below.

The screen also shows the maximum frame rate available as well as that already used for both A and B streams.

Figure 36: Copy camera settings screen



Click the Alarm icon in the main menu to call up the Alarm configuration screen (see Figure 30 on page 63).

Table 18: Categories in the Alarm & Event menu

Submenu name	Description
Setup	Set the alarm input, alarm mode and input type settings, number of alarm outputs, response options to alarms and video loss, recording settings, and trigger PTZ preset. See "Responding to an alarm" below.
System Notify	Set how the system responds to alarms and events such as network loss, HD failure, HD temperature, fan failure, and user lockout. See "Alarm and event notification" on page 75
Group Alarm	Set several cameras to one alarm output. See "Group alarms" on page 76.

Responding to an alarm

Use this menu to setup the rules on how the system will respond to an alarm such as the output mode for an alarm. Click the Setup submenu in the Alarm screen. The Alarm Setup screen appears. See Figure 37 on page 74.

To set up how the system notifies an alarm over the network, see "Notifying an alarm" on page 88. To set up how an alarm is displayed on-screen, see "Information displayed on screen" on page 89.

There are three types of responses when an alarm input is triggered: full screen camera display, buzzer, and alarm output. The default response is full screen camera display. The buzzer and alarm output response are set from this Alarm and Event screen.

Figure 37: Alarm and event setup screen



To set up how to respond to an alarm or event:

- 1. In the Menu toolbar click the Alarm icon.
- 2. Click the Setup submenu. The Alarm & Event Setup screen appears.
- 3. Change the settings, as required:

Option	Description
Alarm Input	Select the external alarm input.
Alarm Mode	<p>Set the output mode for when the alarm is triggered. There are three types to choose from:</p> <p>Timeout: The alarm condition is latched for the amount of time specified in the timeout field displayed alongside. The timeout can be up to a maximum of 99 seconds.</p> <p>Transparent: The alarm is active only while receiving alarm input.</p> <p>Latched: The alarm is activated until it is manually acknowledged. See “Manually acknowledging an alarm” on page 59 for further information.</p> <p>Caution: An alarm can only be acknowledged locally. Do not select the latched option if the TVR 20 is controlled over a network.</p>
Input Type	Depending on the sensor type, select either NO or NC. Default is NO.
Buzzer on Alarm	Check to have an audible alarm when an alarm is triggered.
Buzzer on Video Loss	<p>Video may be lost if the video cable or camera develop a fault.</p> <p>Check to have an audible alarm when the video image is lost.</p>
Protect Video on Alarm	<p>The video recorded during an alarm can be protected from being overwritten.</p> <p>Check to protect video recorded during an alarm.</p>

Option	Description
Trigger Alarm Out	<p>If an alarm input is triggered the TVR 20 can be set up for an alarm output, such as a siren, to trigger in response to the alarm. Up to two alarm outputs can be selected for an alarm input depending on the TVR 20 model.</p> <p>Check one or more of the alarm output boxes.</p>
Alarm Recording	<p>Set how an alarm video is recorded. The pre and post alarm settings are dependent on the resolution, image quality, and alarm frame rate settings.</p> <p>Alarm frame rate: Set the frame rate for both A stream and B stream (if applicable)</p> <p>Pre-alarm recording: This is the time recorded before a motion or external alarm is triggered and is included in the alarm data. Select 20 seconds.</p> <p>Post-alarm recording: This is the time recorded after a motion or external alarm is triggered and is included in the alarm data. Select a time between 0 and 60 seconds.</p>
PTZ Preset	<p>Set which preset is used when an alarm is triggered for a camera.</p> <p>Click the Preset button. In the PTZ screen select the camera number and its preset value. When completed, click Back to return to the Alarm & Event menu. Changes are automatically saved.</p>

4. Click Apply To. A pop-up screen appears to select the cameras to which these alarm and events parameters apply. Click OK.
5. Changes are automatically saved when you move to another screen.

Alarm and event notification

Use this menu to setup how the system responds to different internal system event warnings. See Figure 38 on page 76 and Table 19 on page 76.

Up to four alarm outputs can be selected for each alarm event.

Four of the alarm events cause a system status icon to appear on-screen to alert you to these alarms: Network loss, HD failure, Temperature, and Fan failure. See Chapter 9 "Troubleshooting" on page 113 for information on how to handle these alarms.

Figure 38: System Notify screen



Table 19: System notification

Alarm events	Description
Network loss	If the network connection is lost, this will activate a network failure event.
HD failure	If the hard drive temperature goes above the safety limit, this will activate a HD failure event.
Temperature	If the hard drive temperature is too high, this will activate a temperature failure event.
Fan failure	The internal fans of the DVR are equipped with rotation detectors. Any fault with the fan will activate a fan failure event.
Power up	If the unit loses power, this will activate a Power Up failure event.
User lockout	Three repeated login failures locks the unit for 30 minutes and sends a notification.
Record failure	<p>If the recording unexpectedly stops, this will activate a record failure event.</p> <p>Note: When an alarm output is assigned to Record Failure, any other events assigned to this output will automatically be changed to "None".</p>

To select the alarm event

For each alarm event type select which type of response is required (buzzer, email, and/or remote) and the output alarm to be activated.

Group alarms

Use this menu to associate several cameras to one alarm output. When one camera in the group is triggered by an alarm, all the other cameras in the group are then also triggered to record the alarm.

Video recorded in a group alarm can be protected against being overwritten. You can configure up to three group alarms. See Figure 39 below.

Figure 39: Group Alarm screen



To setup a group alarm:

1. In the Menu toolbar click the Alarm and Events icon and select the Group Alarm submenu.
2. In the Alarm & Events screen click the Group Alarm1 Setting button. The setup screen appears. Change the settings, as required:



Option	Description
Group alarm	Select the group alarm number. There can be up to three group alarms.
Alarm mode	<p>Set the alarm mode when the alarm is triggered. There are three types to choose from:</p> <p>Timeout: The alarm condition is latched for the amount of time specified in the timeout field displayed alongside. The timeout can be up to a maximum of 99 seconds.</p> <p>Transparent: The alarm is active only while receiving alarm input.</p> <p>Latched: The alarm is activated until it is manually acknowledged. See "Manually acknowledging an alarm" on page 59 for further information.</p>
Input type	Select NO or NC.
Buzzer on alarm	Check to have an audible alarm when an alarm is triggered.
Buzzer on video loss	<p>Video may be lost if the video cable or camera develop a fault.</p> <p>Check to have an audible alarm when the video image is lost.</p>
Protect video on alarm	<p>If an alarm is triggered, the recorded video can be protected from being overwritten.</p> <p>Check to protect recorded video triggered during an alarm.</p>
Alarm Recording	<p>Set how an alarm video is recorded. The pre and post alarm settings are dependent on the resolution, image quality, and alarm frame rate settings.</p> <p>Alarm frame rate: Set the frame rate for both A stream and B stream (if applicable)</p> <p>Pre-alarm recording: This is the time recorded before a motion or external alarm is triggered and is included in the alarm data. Select a time between 0 and 60 seconds.</p> <p>Post-alarm recording: This is the time recorded after a motion or external alarm is triggered and is included in the alarm data. Select a time between 0 and 60 seconds.</p>
PTZ preset	<p>Set which preset is used when an alarm is triggered for a camera.</p> <p>Click the Preset button. In the PTZ screen select the camera number and its preset value. When completed, click Back to return to the Alarm & Event menu. Changes are automatically saved.</p>

- Click Back to Group Alarm to return to the first Group Alarm screen. All changes are saved automatically.
- Set up other group alarms, if required.

Schedule settings

This section describes how to set the recording times from the Schedule screen.

Click the Schedule icon in the Configuration menu bar on the top of the screen to call up the Schedule configuration screen (see Figure 30 on page 63). In the left column click the required Schedule screen. There are three Schedule screens:

- **Express setup:** Sets up schedules for all cameras.
- **Schedule map:** Customizes schedules.
- **Holidays:** Sets up holiday periods.

You can change the settings in the screens in any order. They are described in the following sections.

Express setup schedule

Use this menu to setup the schedules for all cameras. See Figure 40 below. Once this global schedule is set up, schedules for individual cameras can be customized using the “Daily schedules” on page 81.

Figure 40: Express schedule setup menu



To setup the express schedule:

1. In the Menu toolbar click the Schedule icon.
2. Click the Express Setup submenu. The Schedule setup screen appears.
3. Change the settings, as required:

Option	Description
Schedule record	Check to Disable or Enable.
Daytime start	Set the time at which the day starts. The night time schedule ends when the daytime begins. Select the daytime start time.
Daytime end	Set the time at which the day ends. The night time schedule begins when the daytime ends. Select the day and time. Note: To change date and time formats see "System time and date" on page 95.
Weekend start	Select the day and time when the weekend starts.
Weekend end	Select the day and time when the weekend ends.
Record mode	Set the record mode for weekends, weekday daytime, weekday nighttime, and holiday. There are five options: Disable: No recording during this period. Always: Always records. Event: Records only events Alarm: Record only alarms Alarm + Event: Record all alarms and events. Select the recording mode for each of the four time schedules (daytime, nighttime, weekend, and holiday).
Resolution	Set the resolution of the video recording. A high image resolution requires that a high bit rate. QCIF is the lowest resolution value and 4CIF the highest. If you change this option, you must reboot the TVR 20 to implement the change. Select one of the values listed: 4 CIF, 2 CIF, CIF, QCIF (B stream only) for each of the four time schedules (daytime, nighttime, weekend, and holiday).
Alarm	Set the recording frame rate for alarms for each of the four time schedules (daytime, nighttime, weekend, and holiday). Select one of the frame rate values from the list: 25 fps PAL (30 fps NTSC), 15 fps, 10 fps, 7.5 fps (default), 5 fps, or 1 fps.
Event	Set the recording frame rate for events for each of the four time schedules (daytime, nighttime, weekend, and holiday). Select one of the frame rate values from the list: 25 fps PAL (30 fps NTSC), 15 fps, 10 fps, 7.5 fps (default), 5 fps, or 1 fps.
Audio	Check to enable or disable audio recording for each of the four time schedules (daytime, nighttime, weekend, and holiday).

- Click Apply to save the schedules.

Daily schedules

Each camera can be configured to have its own recording schedule. The camera schedules can be copied to other cameras as well as other schedule types.

The schedules are visually presented on a map for easy reference. See Figure 41 below for an example.

Figure 41: Description of Schedule screen



1. **Camera.** Each number represents a camera that can have its recording schedule configured.
2. **Schedule time.** Each hour in the 24-hour clock is represented by a block that can be selected when setting a schedule. Up to six separate schedules can be set during a 24-hour period.
3. **Time window.** There is a 24-hour time window for each schedule type. Up to six recording modes can be scheduled during the 24-hour period.
4. **Recording type.** There are five recording types to select, which are color-coded:
 - Grey (Disable): No recording during this period.
 - Orange (Always): Always records. This is the default setting.
 - Blue (Event): Records only events.
 - Green (Alarm): Record only alarms
 - Pink (Alarm + Event): Record all alarms and events.
5. **Schedule day.** There are eight days to select:

Holiday (Hol), Sunday (Sun), Monday (Mon), Tuesday (Tue), Wednesday (Wed), Thursday (Thu), Friday (Fri), and Saturday (Sat).

The Holiday option applies to all holiday periods created.

To set a recording schedule using the mouse:

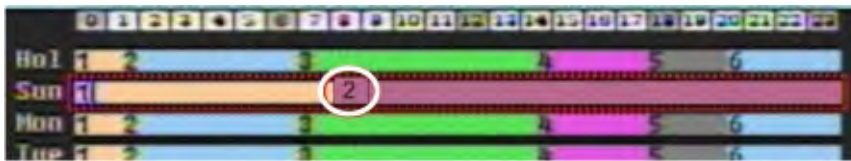
1. In the Menu toolbar click the Schedule icon.
2. Click the Schedule Map submenu. The Schedule setup screen appears.
3. Select the number of the camera to be scheduled.
4. Click the time window of the day to be set up. The window is then highlighted.

Note: To schedule a holiday period, see "Holiday schedules" on page 83.

- Click the start time of the first schedule you want to set up. In the example shown below, midnight (0) on Sunday (Sun) has been selected. The number "1" appears in the square as this is the first schedule for that day.



- Continue clicking the schedule number until the color of the required recording mode appears. In the example above it is orange (Always).
- Double-click the hour where you want the next schedule to start. The color of the bar to the right changes to the next recording mode color, and the number 2 appears to indicate that this is the second schedule in the day.



- Continue marking the daily schedules required. You can do up to six schedules in a day.
- To copy the schedule to other days click the Apply To Days button. In the popup screen select the days required and click OK.

To copy the schedule to other cameras click the Apply To Cameras button. In the popup screen select the cameras required and click OK.

- All changes are saved when you move to another screen.

To change the recording resolution and frame rates for a schedule:

- In the Schedule Map screen select the required schedules for the cameras, as described above.
- Click the time window of the day you want to modify. It becomes highlighted.
- Click the Edit Times button. The Edit Times screen appears.



- Change the resolution of each schedule period, as required.

5. Change the frame rates of the schedule's recording type.

Note: Although the frame rates for all the recording types can be modified, only those which apply to the selected schedule actually apply. If the recording type for the selected schedule is Event, then only changes to the Event frame rates will apply.

6. When all changes are completed, click the Apply button to save the changes and return to the Schedule Map screen.

Holiday schedules

As well as being able to schedule when recordings occur during the week, you can also schedule them for specific holidays in the year such as the first of January, or the second Wednesday of every month. You can schedule up to 30 holiday periods. See Figure 42 below.

Figure 42: Holiday setup screen



The holiday period can only be scheduled for each individual day. It is not possible to schedule a block of days as a single holiday period. If you want to schedule a week as a holiday period, for example, each day must be individually setup as a holiday period.

To select a day as a holiday:

1. In the Menu toolbar click the Schedule icon.
2. Click the Schedule Map submenu. The Schedule setup screen appears.
3. Select the number of the camera to be scheduled.
4. Click the Holiday submenu. The List of Holidays window appears.
5. Enter the holiday periods, as described below:

Option	Description
Recurrent type	<p>Set how often each data type should be recorded. There are four options available:</p> <p>Disable: Recording is disabled. Select for unused holiday periods.</p> <p>One time: The scheduled day for this date is only recorded once. It is a unique scheduled day.</p> <p>Month/date: The recording is repeated on this date. It is a recurrent scheduled day such as the first of January every year.</p> <p>Month/weekday: The recording is repeated on a specific day of the month or week such as the first Wednesday of every month.</p> <p>Select one of the options.</p>
Details	<p>Specifies the date for the recording.</p> <p>Enter the date of the holiday period.</p>
Prev	Click to show the previous page.
Next	Click to show the next page.

6. Changes are automatically saved when you move to another screen.

Network settings

Accessing the TVR 20 remotely through a network requires that you define certain network settings. Use the Network screen (shown in Figure 43 on page 85) to define the network settings of the TVR 20, including:

- Network settings
- DDNS settings (Dynamic Domain Name Service)
- E-mail notification settings
- Remote software setup

Note: As every network configuration may differ, please contact your Network Administrator or ISP to see if your DVR requires specific IP addresses or port numbers.

The TVR 20 automatically reboots when any network settings are changed.

Network setup

Use the Network menu to configure standard network settings. The LAN submenu screen appears. See Figure 43 on page 85.

Figure 43: Network setup screen (LAN submenu shown)



To define network settings:

1. In the Menu toolbar click the Network icon. The LAN submenu screen appears.
2. Enter the following information:

Option	Description
Network Type	Select one of the four options: DHCP: The DHCP (Dynamic Host Configuration Protocol) server in the LAN will automatically assign an IP for network connection. Static: Select if using a fixed IP address for network connection. PPPoE: Only select this option if using a direct connection to the DSL. Verify with your ISP if they use PPPoE. Off: Select if not using a network connection.
IP	This field shows the DVR's current IP address. If using a static IP address, enter the IP value. If DHCP or PPPoE is selected as network type, this value will be assigned automatically.
Subnet Mask	This field shows the subnet mask for your network so the DVR will be recognized within the network. If using a static IP address, enter the subnet mask value. If DHCP or PPPoE is selected as network type, this value will be assigned automatically.
Gateway	This field shows the gateway for your network so the DVR will be recognized within the network. If using a static IP address, enter the gateway value. If DHCP or PPPoE is selected as network type, this value will be assigned automatically.
DNS Server 1	This field shows the primary DNS server for your network. If DHCP is selected as network type and an internet connection is available, this value will be assigned automatically. The DNS server must have a valid DNS address in order to use the DDNS feature (see Chapter 8 "eZ DDNS" on page 111).

Option	Description
DNS Server 2	Set the secondary DNS server for your network. Enter the secondary DNS value.
HTTP Port	Set the port number for the HTTP/WEB communication. Enter a port value.
Bandwidth Cutoff	You can limit the network bandwidth used by a DVR in order to maintain resources on the network. Enable or disable the option.

3. All changes are saved when you move to another screen.

DDNS settings

Use the DDNS screen to select the DDNS service.

To define DDNS settings:

1. In the Menu toolbar click the Network icon to display the Network screen.
2. Click the DDNS submenu. The DDNS submenu screen appears.
3. Select one of the three options listed:

Ezddns.org	Select as DDNS provider. Enter the name you have given to the TVR 20 unit. Click the Register/Update button to submit and register your name on the server.
www.dyndns.org	Select as DDNS provider. The following options then appear on-screen: Host name: Enter the host name created through the DynDNS account. User name: Enter the user name of the DynDNS account. Password: Enter the DynDNS account password. Confirm: Re-enter the password. Note: For more information on DDNS setup, see "DDNS settings" above.
Disable	If DDNS is not used, select Disable.

4. Click the Register/Update button.
5. All changes are saved when you move to another screen.

E-mail settings

The TVR 20 has the option to send e-mail notifications of alarm events through the network. E-mails can be sent to up to three different addresses. Use the Email Setting screen (shown in Figure 44 on page 87) to configure the e-mail settings.

Figure 44: Email setup screen



To define e-mail settings:

1. In the Menu toolbar click the Network icon to display the Network screen.
2. Click the Email submenu. The Email submenu screen appears.
3. Enter the following information:

Option	Description
SMTP Server	Enter the SMTP (e-mail) server's address. Note: For a more reliable e-mail service, enter the IP address.
SMTP Port	Enter the port number used by the SMTP server.
Authentication	Check this box if the SMTP server requires authentication (user name and password).
SSL	Check this box if the mail server must be encrypted.
User name	Enter the user name if the SMTP server requires authentication.
Password	Enter the password if the SMTP server requires authentication.
Confirm	Re-enter the password if the SMTP server requires authentication.
Sending email	Enter the e-mail address of the sender (DVR 20).
Receiver email #1	Enter the first e-mail address to whom the notification is sent.
Receiver email #2	Enter the second e-mail address to whom the notification is sent.
Receiver email #3	Enter the third e-mail address to whom the notification is sent.
Email subject	Enter the e-mail subject.

4. All changes are saved when you move to another screen.

Remote software settings

TVR 20 must be configured in order to be able to send real-time notification of events to GE Nav. GE Nav can then be used to collect and evaluate all the event notifications from the devices (such as DVRs) connected to it.

Use the Remote Software setup screen to configure the remote software settings.

To define remote software settings:

1. In the Menu toolbar click the Network icon to display the Network screen.
2. Click the Remote SW Setup submenu. The remote software setup submenu screen appears.



3. Enter the information requested.
4. All changes are saved when you move to another screen.

Notifying an alarm

Use this menu to select the method of notification (email or remote) for the following alarm events:

- Notify on Alarm
- Notify on Motion
- Notify on Video Loss

To define e-mail settings:

1. In the Menu toolbar click the Network icon to display the Network screen.
2. Click the Notify submenu. The notification setup submenu screen appears.



Note: See “E-mail settings” on page 86 for setting up the sender and receiver e-mail addresses.

3. Select a checkmark in either box to enable.
4. All changes are saved when you move to another screen.

Display settings

Use the Display screen to configure how information is displayed on the main and spot monitors. There are three Display screens:

- Setup
- Main SEQ setup
- Spot SEQ setup

You can change the settings in the screens in any order. They are described in the following sections.

Click the Display icon in the Configuration menu bar on the top of the screen to call up the Display configuration screen. Click the required Display submenu.

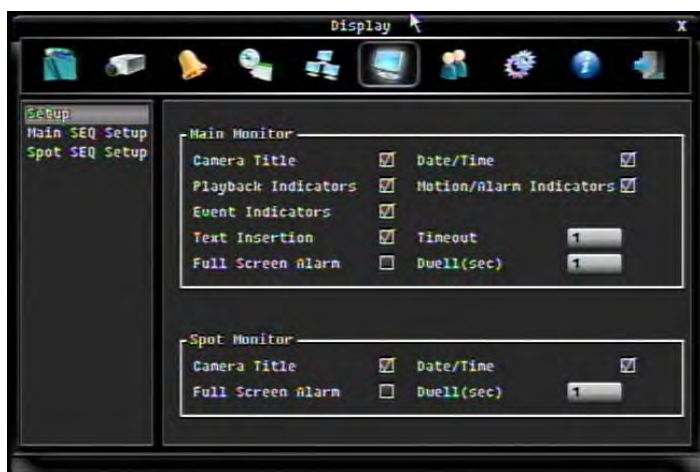
Information displayed on screen

Use this screen to configure what information appears on screen as well as the time out time and dwell time. The TVR 20 lets you display text information from a point-of-sale (POS) device linked through a network or serial port. The text can be overlaid on live video, recorded and played back.

You can select what information appears on both the main and sport monitor screens. There are more options available for the main monitor.

To set up the information displayed on screen:

1. In the Menu toolbar click the Display icon to display the Display screen.
2. Click the Setup submenu. The Setup submenu screen appears.



3. Enter the following information for each main and spot monitor:

Option	Description
Camera Title	Check the check box to have the camera title appear on screen. See "Basic camera setup" on page 64 for information on setting up the camera title.
Date/Time	Check the check box to have the current date and time appear on screen. See "Basic camera setup" on page 64 for information on setting up the current time and date.
Playback indicators	Check the check box to have the playback status icon appear on-screen. Only available for the main monitor.
Motion/alarm indicators	Check the check box to have motion/alarm status icon appear on screen. Only available for the main monitor.
Event indicators	Check the check box to have the event status icon appear on screen. Only available for main monitor.
Text insertion	Check the check box to have POS text to appear on screen. Only available for the main monitor.
Timeout	Set the length of time the POS text is displayed. Only available for main monitor. Timeout can be between 0 and 99 seconds. Enter the timeout in seconds.
Full screen alarm	Set the camera view mode so that when an alarm is triggered, the alarm camera appears as full screen. Check the check box to enable full screen alarm.
Dwell time	Set the length of time for which the alarm camera appears on-screen before moving to the next camera during sequencing. Dwell time can be between 0 and 99 seconds. Enter the dwell time in seconds.
Main monitor	Set the monitor format Select VGA, BNC, or Auto.

4. All changes are saved when you move to another screen.

Sequencing main and spot monitors

The cameras are sequenced in numeric order by default. However, you can change the sequence order of the cameras on the main and spot monitors.

The setup screens for the main and spot monitors are identical.

To set up camera sequencing

1. In the Menu toolbar click the Display icon to display the Display screen.
2. Click the Main SEQ Setup or Spot SEQ Setup submenu. The sequencing setup screen appears.



3. Enter the following information:

Option	Description
Step	This is the sequence order. It cannot be changed.
Camera	Set the camera order for the sequence. Select which camera appears for the selected step.
Dwell (sec)	Set the dwell time in seconds for each step. The sequence dwell time can be between 0 to 99 seconds. Enter a dwell time for the selected camera.

Note: The changes are automatically saved when you move to another screen.

4. All changes are saved when you move to another screen.

Managing users

The TVR 20 is shipped with one predefined user for the system administrator. The default system administrator logon uses admin as the account name with a default password of 1234. You can modify the admin password but not the admin user name.

The TVR 20 has three user levels:

- **Admin:** Administrators have full access to all menus. There can be more than one administrator. The default password is 1234.
- **Manager:** Managers have limited access to the menus. They can change their passwords, as well as access the Display and Info menus. They can be given the right to add new users. There can be more than one manager. The default password is 2222.
- **Operator:** Operators have limited access to the menus. They can only change their passwords, and access the Info menu. There can be more than one operator. The default password is 3333.

Up to five users can be logged on to a TVR 20 at one time. The TVR 20 can have a total of 16 users including the administrator.

Use the User menu screen to manage users. See Figure 45 below.

Figure 45: User screen



Caution: When you have completed the installation of the TVR 20 you must change the admin password. Only authorized users should be able to modify menu settings.

Changing a user password

All TVR 20 users can change their passwords.

To change a password:

1. In the Menu toolbar click the User icon to display the User setup screen. All the users at the same and lower access levels are listed.
2. Click your user name to select it and click Edit. The Edit screen appears.
3. Enter your new user's name and password. The name cannot be longer than 12 characters with no spaces. The password cannot be longer than eight characters with no spaces.

4. Click the Save button.

Adding a new user

Only a system administrator can create a user. However, the administrator can assign access rights to managers to create new users.

To create a new user:

1. In the Menu toolbar click the User icon to display the User setup screen.
2. Click the Add User submenu. The Add User setup screen appears.



3. Enter the user's name and password. The name cannot be longer than 12 characters with no spaces. The password cannot be longer than 8 characters with no spaces.
4. Select the user's privilege level: Admin, Manager, or Operator.
Changes are saved when you leave the screen.

Allocating user privileges

The Privilege screen lets you allocate access privileges to user groups. Only a system administrator can allocate access privileges.

To allocate user privileges:

1. In the Menu toolbar click the User icon to display the User setup screen.
2. Click the Privilege submenu. The Privilege setup screen appears.



3. Select which privileges can be accessed by which user group.

Privilege	Description
Creating User	Create new users
Front Panel	Access the front panel controls.
Playback	Playback recorded video.
Search	Search recorded video.
Archive	Archive recorded video.
Covert	Display covert video.

4. All changes are saved when you move to another screen.

System setup

Use the System screen to configure the following system settings:

- System date and time
- RS-232 and PTZ bus setting
- Audio output, remote control ID, language, and playback replay
- Bookmarks list
- Hard drive and auto delete setting
- Firmware upgrade
- Storing and uploading configuration settings
- Shutting down the device

Click the System icon on the Menu toolbar to access the System screen.

Figure 46: System screen



System time and date

Configure the TVR 20 system date and time in the Date/Time screen. This screen also lets you enable Daylight Savings Time (DST) and format the date and time displayed on-screen.

To configure the system date and time:

1. In the Menu toolbar click the System icon to display the System setup screen.
2. Select the Date/Time subscreen.
3. Enter the current date in the Date box.
4. Enter the current time in the Time box.
5. Select a date format in the Date Format box.
6. Select a time format in the Time Format box.
7. Enable or disable the network time protocol (NTP). NTP is a protocol to synchronize the clocks of computers over a network.
8. If NTP option is enabled, enter an NTP server address such as:
server 0.europe.pool.ntp.org
9. Select your time zone in the Time Zone box.
10. Select an NTP update interval in the NTP Update Interval box.
11. Check the Daylight Saving Time and enter the start date, time, and day of the month, and the end date, time, and day of the month.
12. Changes are saved when you leave the screen.

RS-232 and RS-485 port settings

Use the Serial Control screen to define settings for the serial port. The RS-232 port is used to connect CBR-PB3-POS (point-of-sale) and ATM devices to the TVR 20. The RS-485 port is used to set up the PTZ dome cameras. To access the serial ports setup screen, click Serial Control in the System screen. See Figure 47 below.

Note: Please contact your local supplier for information on the order number of the CBR-PB3-POS (point-of-sale) and ATM devices.

Figure 47: Serial Control screen



See “RS-485 port” on page 9 and “RS-232 port” on page 10 for more information on these ports.

To set up the RS-232 and RS-485 ports

1. Click the System icon on the Menu toolbar to display the System screen.
2. Select the Serial Control subscreen.
3. To set up the RS-232 port for CBR-PB3-POS and ATM devices change the settings as required: PTZ protocol, baud rate, data bit, stop bit, parity, and flow control.
4. To set up the RS-485 port for PTZ dome cameras change the settings as required: Bus type 1, PTZ address (up to 127), and baud rate.
5. Changes are saved when you leave the screen.

Audio, remote control, language settings and playback replay time

Use the Option screen to define the following options:

- **Bi-directional audio:** Specify bi-directional audio. This option allows you to speak with someone over the network. A pre-amplified microphone is required.

- **IR remote ID:** Specify the ID for an IR remote device, such as the remote control. Up to four devices can be used.
- **Language:** Select the system language from the drop-down list. Change is immediately implemented.
- **Playback replay time:** Specify the playback start time for instant playback. Maximum time is 300 seconds. See “Instant replay of recorded video” on page 48 for more information.

To access the Option screen, click Option on the System screen. See Figure 6 on page 14.

The last language used on the TVR 20 will be the unit’s language when rebooted. The default language is English.

Figure 48: System options screen



Listing bookmarks

Use the Bookmark menu to obtain a list of all the bookmarks saved on the system. See Figure 49 below

Figure 49: Bookmark screen



Check the check box of a bookmark to select it. Click one of the following buttons:

- **Delete:** Delete the selected bookmark.
- **Copy:** Copy the selected bookmark to an archiving device such as a USB.
- **Play:** Immediately playback the selected bookmark.

Disk tools

Use this menu to do the following options:

- **Hard drive:** This menu displays information on the hard drive temperature, disk size, and disk usage
- **Automated tasks:** This menu prevents the unit from displaying or archiving any data that is more than the selected number of days old. The TVR 20 always starts recording at the end of the last recording unless the overwrite option is selected. This feature may be required by law in some jurisdictions, please consult with your local authorities.
- **Manual tasks:** Use this menu to manually manage how data is deleted. There are three options:
 - Make all protected, including bookmarks, data unprotected.
 - Delete all unprotected data.
 - Erase all data from the TVR 20.

See Figure 50 on page 99 for the Disk Tools screen.

Figure 50: Disk tools screen

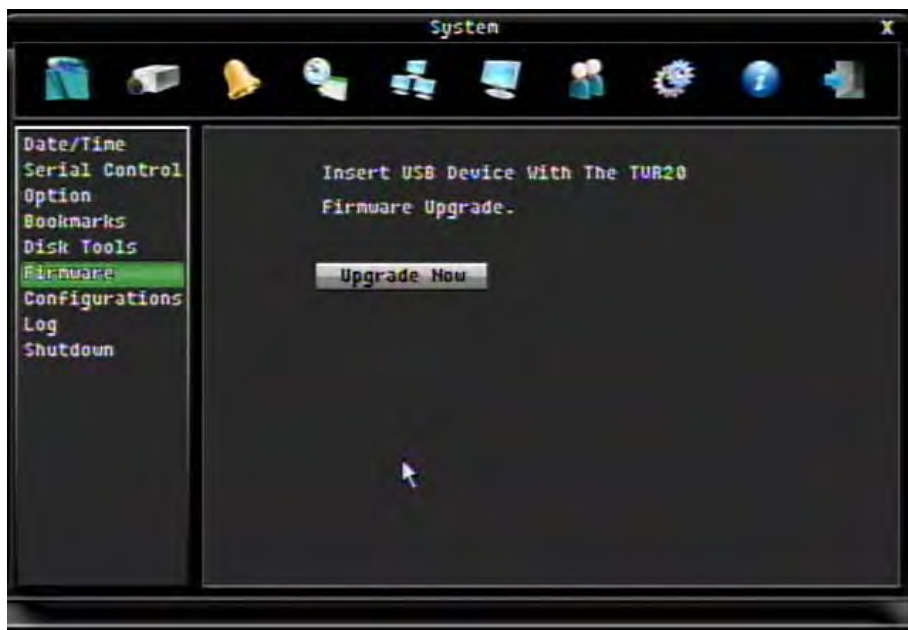


To change disk tools setup

1. Click the System icon on the Menu toolbar to display the System screen.
2. Select the Disk Tools subscreen.

Option	Description
Information	<p>This provides information about the selected hard drive.</p> <p>Select the hard drive. Information on it is the displayed below.</p>
Auto Task	<p>Enter the number of days after which all unprotected data is deleted or overwritten (Auto Delete Mode). This feature may be required by law in some jurisdictions. Please consult with the local authorities.</p> <p>Enable or disable Auto Delete Mode by selecting On or Off.</p> <p>Enable or disable whether data is overwritten rather than deleted after the specified number of Auto Delete Mode days.</p>
Manual	<p>Do one or more of the following options:</p> <ul style="list-style-type: none"> - Click the Unprotect button and press OK to unprotect all protected data. - Click the Delete button and press OK to delete all unprotected data. - Click the Erase button and press OK to erase all data stored on the TVR 20.

Upgrading the firmware



To upgrade the firmware:

1. Download on to a USB the latest firmware from our web site at:
www.gesecurityproducts.eu/videoupgrades
2. Insert the USB into the TVR 20
3. Click the System icon on the Menu toolbar to display the System screen.
4. Click the Firmware submenu. The Firmware submenu screen appears.
5. Click Upgrade Now to begin the upgrade process. When completed, the TVR 20 will automatically reboot.

Configurations

Use this menu to restore factory defaults settings, as well as load and save settings to a USB.



Saving the system log

You can save the system log file to a USB.

To save the system log:

1. Insert a USB into the TVR 20.
2. Click the System icon on the Menu toolbar to display the system screen.
3. Click Export Log to USB.
4. Click Close when completed.

System shutdown

Use this menu to shutdown the TVR 20.

To shutdown the system:

1. Click the System icon on the Menu toolbar to display the system screen.
2. Click Restart DVR or Shutdown DVR.

System information

This menu displays important system information about the TVR 20.

Figure 51: Information menu



The following information is listed:

Table 20: System information

System	Model: Displays the model number of the DVR. FW version: Displays the firmware version number Codec version:
Network	IP: Displays the current IP address of the TVR 20. MAC: This is the unique address of the TVR 20's internal address card. It cannot be changed. DDNS: Email setup: Displays the e-mail address used by the unit. Remote notify:
Status	Disk: Displays the status of the hard disk temperature. Fans: Displays the fan status.

Chapter 7

Web browser

This chapter describes how you can use the Web browser interface to configure the device, play back recorded video, search through event logs, and control a PTZ camera. You can also specify settings on the Web browser interface to optimize video playback and recording performance when operating in a low or limited bandwidth environment.

Accessing the Web browser

To access the TVR 20, open a Web browser and enter the IP address assigned to the TVR 20, as a Web address. On the logon screen, enter the default user ID and password.

Note: Only one DVR can be viewed per browser.

User ID: admin

Password: 1234

The Web browser uses the following ports.



- IP address - 192.168.1.82
- Subnet mask - 255.255.255.0
- Gateway address - 192.168.1.1
- Video Port: 1600
- HTTP Port: 80

Web browser overview

The TVR 20 Web browser lets you view, record, and play back videos as well as manage all aspects of the system from any PC with Internet access. The browser’s easy-to-use controls give you quick access to all TVR 20 functions. See Figure 52 below for a description of the Web browser screen.

Figure 52: Web browser screen (Live mode)



Item	Name	Description
1.	Streaming controller	Control live and recorded remote video streams through streaming. Click the Main or Sub buttons to select the stream.
2.	Menu toolbar	The icons have identical functions to that of the menu toolbar on the DVR (see “Overview of the Menu toolbar” on page 61). However, there are two extra icons:  Live mode icon: Click to view the selected camera or cameras in live mode.  Search icon: Click to open the Quick Search screen. This screen allows you to search recorded videos, do playback, and archive files.
3.	Display layout	Change the multiscreen display layout by clicking on one of the icons listed.
4.	PTZ controller	Control the operation of PTZ cameras using this control interface. Select a camera by clicking on its cameo. See “Controlling a PTZ camera” on page 42 for further information on controlling a PTZ camera.
5.	Audio and snapshots	Click the icons to do the following functions: <ul style="list-style-type: none">Record the live mode recordings from the currently selected cameras to the location specified on the PC.

		<ul style="list-style-type: none"> • Take a snapshot of the live mode recordings from the currently selected cameras to the location specified on the PC. • Enable/disable bi-directional audio. • Enable/disable audio. <p>Use the volume bar to adjust the volume level.</p>
6.	Camera controller	<p>Click to select a camera. Camera cameo is displayed full screen.</p> <p>The status of each camera is indicated by different colors.</p>
7.	Camera	<p>Click to select a camera cameo. Double-click for full screen display. The selected camera cameo is highlighted in a green frame.</p>

Searching recorded video

To search and playback recorded video remotely, click the Search icon on the browser menu toolbar. The Search screen appears. See Figure 53 on page 106.

There are three ways to search for videos remotely:

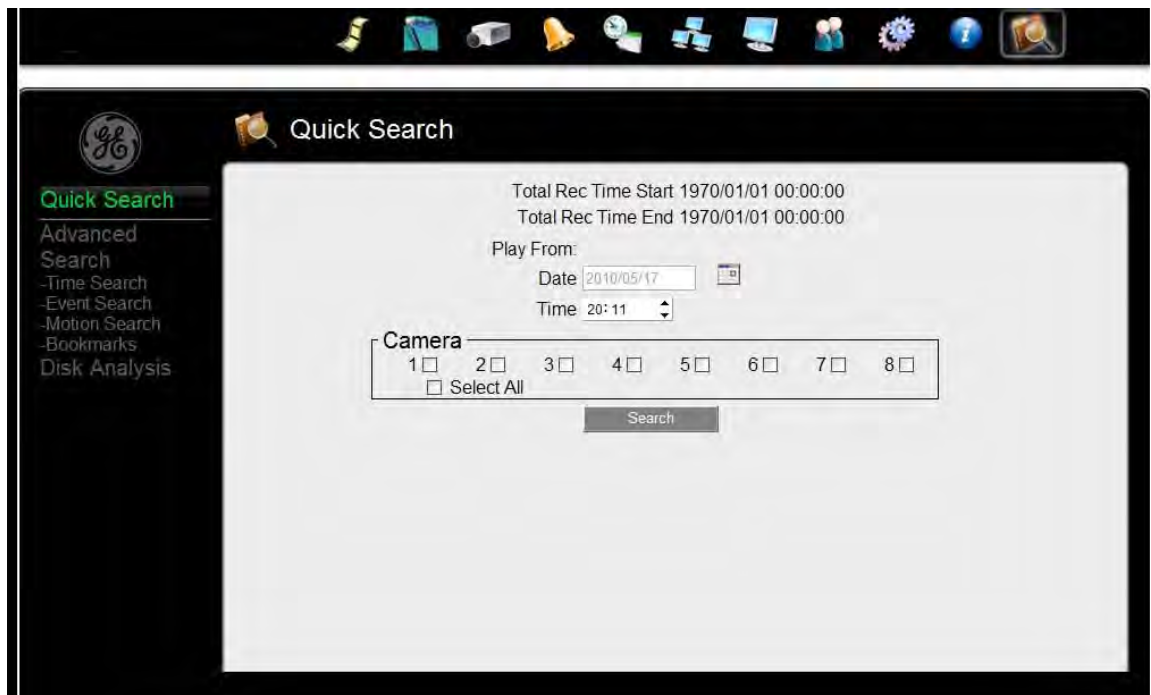
Quick Search: Videos can be searched by start date and time of recording as well as by camera. Enter the start date and time and select which camera or cameras to search.

Advanced Search: Videos can be searched by several criteria from submenus in the Quick Search screen:

- Start and end time of recording
- Events: Search for alarm, motion, video loss or text inserts in a video. See “Searching video by events” on page 56 for further information.
- Motion detection: Search for motion in a specific area of a video. See “Searching video by motion activity” on page 57 for further information.
- Bookmarks

Disk analysis: This allows you to get a broader sense of the video data stored on the DVR hard drive. The functions available are the same as those in the Main toolbar. See “Searching video using disk analysis” on page 55 for further information on using this function.

Figure 53: Search screen (Quick Search shown)









Playing back and archiving recorded video

A search will usually produce a list of video files. The most recent file is listed first.

In the Search Results screen select the files for playback and click Play. The playback and archive screen appears. See Figure 54 on page 107 for a description of the playback and archive screen.

Figure 54: Browser playback and archive screen



Item	Name	Description
1.	Start and end date and time	Enter the start and end date and times of the video files to be archived.
2.	Camera	Select the cameras from which the videos will be archived.
3.	Archive	Click to start archiving.
4.	Player	Click to include the Player tool as part of the files being archived.
5.	Time Search	Click to select another date and time for playback. Click the Playback key to start playback.
6.	Bookmarks	Click to open the Bookmark screen, which will list all available bookmarks. Select the bookmarks required and click the Playback key to start playback. For more information on bookmarks, see "Searching video by bookmarks" on page 58.
7.	Playback control keys	<div>  Fast rewind the video. The speed level is between 1 and 16. It is shown alongside the playback control panel.  Play Reverse the video.  Stop playback.  Pause.  Playback the video.  Fast forward the video. The speed level is between 1 and 16. It is shown alongside the playback control panel. </div>

To playback recorded files:

1. In the Search results screen select the files you want to playback.
2. Click Play. All selected cameras will playback simultaneously in the browser playback and archive screen.
3. Control playback by using the playback control keys.
4. If new a new date or time search is required, click Time Search and enter a new date or time.
5. To return to live mode, click the Live icon.

Archiving recorded video

Recorded files can be archived on to a device such as a PC or USB stick. See Figure 54 on page 107 for information on the archiving on-screen functions.

The tool Player is supplied with the TVR 20 to play recorded files on your PC. It can be also downloaded with the recorded video files on to the device used for archiving such as a PC or USB stick.

Windows Vista and 7 users

Internet Explorer for Windows Vista and Windows 7 operating systems have increased security measures to protect your PC from any malicious software being installed. When using the TVR 20 Web browser interface, you can install ActiveX controls to connect and view video using Internet Explorer. However, you cannot download data, such as video, images, and the DVR tool "Player" due to the increased security measure.

To have complete functionality of the Web browser interface and the DVR player with Windows Vista and Windows 7, do the following:

- Run the Browser interface and the DVR player application as an administrator in your workstation
- Add the DVR's IP address to your browser's list of trusted sites

To add the DVR's IP address to Internet Explorer's list of trusted sites:

1. Open Internet Explorer.
2. Click Tools, and then Internet Options.
3. Click the Security tab, and then select the Trusted Sites icon.
4. Click Sites.
5. Clear the "Require server verification (https:) for all sites in this zone" box.
6. Enter the IP address or DDNS name in the "Add this website to the zone" field.
7. Click Add, and then click Close.

8. Click OK in the Internet Options dialog screen.
9. Connect to the TVR 20 for full browser functionality.

Chapter 8

eZ DDNS

To set up DDNS connection:

1. Set up the Network menu according to the instructions detailed in the Networking section ("Network settings" on page 84.) Make sure that DNS Server 1 is set correctly or DDNS will not work.
2. Go to the website <http://eZddns.com> and check for an available name.
Note: This step is optional as it is only used to check the availability of the host name. If the name is available, proceed to step 3 for DDNS setup.
3. In TVR 20's Network menu, go to DDNS. Choose "eZDDNS" for the server and enter your chosen name for DVR Name.
4. Click the "Submit/Update" button to confirm.
5. You should now be able to connect by typing the name you created into the address bar.


Example: <http://hostname.eZddns.com>





Chapter 9

Troubleshooting

Place the TVR 20 in well-ventilated space so that it operates within the allowed range of temperature and humidity as in specification.

If the circuit board is wet, dust on circuit board can cause a short circuit. The circuit board, plug and socket, housing fan and housing should be cleaned by brushing regularly.

Failure	Possible reasons and actions to take
After plugging in -the unit, the POWER LED on the front panel does not turn on.	Unit is not connected to the power supply unit. (PSU). <i>Check the connections.</i> Power supply is not functioning. <i>Check whether the LED on the PSU is lit. If not, please contact your local supplier.</i>
There are no images in the monitor connected to Mon A after TVR 20 is started.	Mon A (BNC) monitor has been connected but VGA monitor connection is default. <i>Activate the Mon A (BCN) connection by pressing the EXPORT button on the front panel for several seconds.</i> The cable connected with the monitor has failed. <i>Check the cables.</i>
Cannot find the hard drive during the reboot process.	Hard drive failure. <i>Please contact your local supplier.</i>
Cannot retrieve data on playback.	Hard drive failure. <i>Please contact your local supplier.</i>
TVR 20 cannot control PTZ cameras through the PTZ port.	Connection cable is not connected properly or not functioning. <i>Check the cables.</i> PTZ parameters error. <i>Check the settings.</i> PTZ port failure. <i>Please contact your local supplier.</i>
Cannot control the TVR 20 with a keypad.	Connection cable is not connected properly or not functioning. <i>Check the cables.</i> PTZ parameters error. <i>Check the settings.</i> PTZ port failure. <i>Please contact your local supplier.</i>
Browser cannot view the TVR 20 live image.	Connected using wrong DVR parameters (IP address, port number, username or password, etc). <i>Check the settings.</i> No network connection. See  <i>network information below.</i>

Failure	Possible reasons and actions to take
The  system status icon appears on-screen.	The fan is not working. <i>Unplug the unit to prevent overheating and please contact your local supplier.</i>
The  system status icon appears on-screen.	The hard drive has failed. <i>Please contact your local supplier.</i>
The  system status icon appears on-screen.	The hard drive temperature is too high. <i>Check TVR 20 has good ventilation. If the problem persists, please contact your local supplier.</i>
The  system status icon appears on-screen.	No network connection. <i>First check network and cable connections.</i> <i>Then check that the Ethernet port LEDs are flickering to indicate data throughput. If they are not, please contact your local supplier.</i>

Appendix A

Specifications

Video	
Video format	PAL /NTSC (auto detected)
Conditioning	AGC, 0.7 to 1.4 Vp-p video accepted
Resolution (H × V)	PAL: 704 × 576, 704 × 288, 352 × 288 NTSC: 704 × 480, 704 × 240, 352 × 240
Video compression	H.264
Video input	4, 8 or 16 channels, 1.0 Vp-p FBAS, BNC at 75 Ω
Monitor A composite	Full and multi-screen output, BNC connector, VGA connector (Res. 800 × 600 @ 60 Hz), PAL/CCIR or NTSC/EIA compatible
Monitor B composite	Full and multi-screen output, BNC connector, PAL/CCIR or NTSC/EIA compatible
Multi-screen display TVR 2004	Full screen, Picture In Picture, quad
Multi-screen display TVR 2008	Full screen, Picture In Picture, quad, 6, 8, 9
Multi-screen display TVR 2016	Full screen, Picture In Picture, quad, 9, 10, 13, 16
Support dual stream	Yes
Support V-stream	Live and playback
Recording	
Hard drive	1-HDD SATA
Resolution	PAL: 4CIF (704 × 576), 2CIF (704 × 288), CIF (352 × 288) and QCIF (176 × 144) NTSC: 4CIF (704 × 480), 2CIF (704 × 240), CIF (352 × 240) and QCIF (176 × 120)
TVR 2004	100 fps CIF, 50 fps 2CIF, 25 fps 4CIF
TVR 2008	200 fps CIF, 100 fps 2CIF, 50 fps 4CIF
TVR 2016	400 fps CIF, 200 fps 2CIF, 100 fps 4CIF
Mode	Manual, Schedule, Motion, Alarm
Audio	
Compression	G.723
TVR 2004 input/output	2 channel, RCA/1 channel, RCA

Video	
TVR 2008 input/output	2 channel, RCA/2 channel, RCA
TVR 2016 input/output	4 channel, RCA/2 channel, RCA
Video motion detection	
Zones per camera	352 (22 × 16 grid)
Operation	
Operating system	Embedded Linux
Languages	EN, CS, DA, DE, EL, ES, FI, FR, HU, IT, LT, NL, NO, PT, RU, SK, SV
User level	3 : Admin, Manager, Operator
Network	
Type	10/100/1000 base-T, RJ-45
Protocol	TCP, IP, ARP, RARP, PPPoE, DNCP, SNCP
Others	eZ-DDNS support
Archive	
Audio and video	Via built-in CD/DVD burner, USB2.0 or e-SATA
Connectors	
RS-232 serial port	1 DB-9
RS-485 PTZ control port	1
USB	2 (one at front and one at back)
e-SATA	1
Alarm handling	
Alarm input	4, 8, or 16 programmable NO/NC
Alarm output	Form C alarm relay 1, 2 or 4
Event log	Min. 50,000 events, Max. 175,000 events
Event alarm	Fan failure, hard disk failure, hard disk temperature over, hard disk full, hard drive failure, power up, record stop, network loss
Miscellaneous	
Input voltage	100 to 240 VAC, 47 to 63 Hz (external PSU)
Power consumption	150 W max @ 230 VAC
Operating temperature	0 to 40°C
Relative humidity	10% to 90%
Dimensions (W x H x D)	362 x 81 x 338 mm
Weight	4.53 kg
Mounting	Rack mount kit (optional)
Operation	Via front panel, USB optical mouse, or remote control RS-485 operation from KTD-405 keypad

Appendix B

Warranty and support

Warranty information

The warranty period for the TVR 20 is three years from the date of delivery.

Contacting support

For help installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, contact us during business hours (Monday through Friday, excluding holidays).

Table 21: Technical support

Europe, Middle East, and Africa	
W	Select Customer Support at www.gesecurity.eu
North America	
T	888.437.3287 Toll-free in the US, Puerto Rico, and Canada. 503.885.5700 outside of the toll-free area.
F	888.329.0332 (Tualatin tech support) 561.998.6232 (Boca Raton tech support)
E	nstechsrv@ge.com gesecurity.customerservice@ge.com
Australia	
E	techsupport@gesecurity.com.au
Latin America	
T	1 305.593.4301
Latin America	
F	1 305.593.4300
E	InfraSec.TechnicalServicesLatinAmerica@ge.com InfraSecCustomerService.LatinAmerica@ge.com

China, India, Singapore, Taiwan, Southeast Asia

E ges.asiatechservice@ge.com

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