V700

INSTRUCTION MANUAL

DESIGNED AND MANUFACTURED IN THE UK

V700 DIGITAL VIDEO RECORDER

www.tspace.co.uk

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List of Abbreviations

Abbreviation	Meaning
AUX	Auxiliary
bps	Bits per second
BMP	Bitmap image file
CAN	Controller Area Network
CD	Compact Disk
CE	European Conformity
COM	Communication (port)
COMMS	Communications
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DVR	Digital video recorder
EEC	European Economic Community
EMC	Electro-magnetic compatibility
EMG	Emergency (EMG Splash Screen)
FAT	File Allocation Table
FMS	Fleet Management System
FTP	File Transfer Protocol
FPS	Frames Per Second
GB	Gigabytes
GMT	Greenwich Mean Time
GND	Ground
GPS	Global positioning System
GSM	Global system (or standard) for mobile
HDD	Hard Disk Drive
HR	Hour
HTML	Hypertext mark-up language, system for tagging text files to show colour etc
IP	Internet Protocol
IPS	Images per second

JPEG	A format for compressing image files
kHz	Kilohertz
KPH	Kilometres Per Hour
LAN	Local Area Network
LED	Light-Emitting Diode
MAC	Media Access Control
MB	Megabytes
MBR	Master Boot Record
MED	Medium
mics	Microphones
MIN	Minute
MPEG	An international standard for encoding and compressing video images
MPH	Miles Per Hour
NTSC	The television broadcasting system used in North America and Japan
NVR	Network Video Recorder
ONVIF	Open Network Video Interface Forum
OSD	On-screen display
PAL	Phase Alternating Line
PC	Personal Computer
PCB	Printed Circuit Board
PoE	Power over Ethernet
PTZ	Pan Tilt Zoom (camera)
QUAL	Quality
RH	Relative Humidity
RMS	Root Mean Square
rtsp	Real Time Streaming Protocol
s	Second
SD	Secure Digital (card)
SDHC	Secure Digital High Capacity
SEC	Second
SMART	Self-Monitoring, Analysis and Reporting Technology

SMS	Short Message System
TB	Terabyte
TCP	Transmission Control Protocol
TFL	Transport for London
UK	United Kingdom
URL	Uniform Resource Locator (address of specific website or file on the internet)
USA	United States of America
USB	Universal Series Bus (cable system)
UTC	Co-ordinated Universal Time
V	Volts
VCA	Vehicle Certification Agency (UK)
VOR	Voice Operated Recording
VMS	Video Management System
Vrms	Root-mean-square Voltage
W	Watts
Wifi	Wireless local area network

1. About This Manual

This manual contains the information required for the installation and operation of the Timespace Technology V700 Digital Video Recorder (NVR).

This manual is divided into the following sections:

- About this manual
- System Overview
- User Guide – V700 Menu System
- System Information and Security
- System Interfaces
- Installation Guide
- Service and Maintenance
- Software
- Appendices

Where text in the body of the manual is shown in CAPITALS, this relates to one of the menu choices in the V700 menu system.

Within the V700 User Guide section of the Manual, links from menus to other menus or sub-menus are given as hyperlinks.

Detailed technical information can be found in the Appendices, along with certificates of conformity and type approval.

Recorded files can be viewed using PCLink Suite, Timespace's proprietary reading and archiving software package. Detailed information on viewing the recorded files is found in the manual for PCLink.

2. System Overview

2.1 V700 Digital Video/Audio Recording System

V700 NETWORK VIDEO/AUDIO RECORDER

V700 DIGITAL VIDEO / AUDIO RECORDER

REMOVABLE, SHOCK MOUNTED

HARD DISK CARTRIDGE

LOCKABLE SLOT FOR REMOVABLE SD CARD

X301 REVIEWER / PROGRAMMER

Figure 1 – V700 Video/Audio Recorder

The V700 is a digital network video recorder (NVR) for use in mobile applications. The V700 includes an integrated Power Supply (12-36V) and supports up to 20 HD IP cameras with, built-in Power Over Ethernet (PoE) camera connectors. Subject to power demand, the V700 can also power 2 monitors via the Molex connectors.
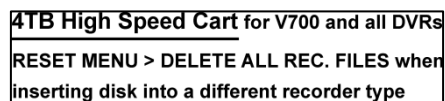
Recordings are made on a removable hard disk cartridge inserted in the V700.

2.1.1   IP camera latency

> **WARNING** – When using IP cameras for live view, there may be appreciable latency (delay between image taking and image being seen on monitor).

2.2   V700 cartridges

The V700 requires specific V700-compatible cartridges. These are clearly identified with a label on the front of the cartridge, see Figure 2 – V700 cartridge label, below .

4TB High Speed Cart for V700 and all DVRs
RESET MENU > DELETE ALL REC. FILES when
inserting disk into a different recorder type

Figure 2 – V700 cartridge label

The V700 has been designed so that only V700-compatible cartridges can be inserted. Any non-V700 cartridges will not connect.

Cartridges are available from Timespace in a range of disk size, hard drive (HDD) or Solid State drives (SSD). The current list of available cartridges can be found on our website www.tspace.co.uk.

A guide to Best Practice in use of the hard disks is at Appendix 4.

The recordings can be accessed by connecting the cartridge to a PC using the USB interface kit (Timespace part number T605) or cartridge station (Timespace part number T705). Timespace PCLink Suite application is a proprietary reading and archiving software package used to review the recordings, and is supplied with both of these parts.

The V700's integral GSensor records the vehicle's movement for X, Y & Z axis.

2.2.1   Programming – X301 Reviewer

The V700 is configured using a tiered menu system. The menu system is accessed using the X301 Reviewer (pictured below).

The X301 Reviewer is used to program/configure the menu settings on the V700, check camera views, playback footage and list the recorded files on the installed Hard Disk Cartridge.

Figure 3 – X301 Reviewer

To enter Menu System press any of the four MENU arrow buttons.

To exit the Menu System or to move back up a level press the MENU EXIT button.

2.2.2 Keyboard

A keyboard is available to facilitate text input, eg for IP camera types, camera streams, camera text, vehicle ID. Use the Reviewer RIGHT navigation button to access the keyboard from the position where text is to be entered.

Use the direction arrow keys on the Reviewer to navigate the keyboard, text edit and displayed options.

The edited text must be saved before exiting, or any changes will be discarded.

If the text entered is longer than the display area, the text will be scrollable. The < > scroll keys will be displayed.

Entering text

Pressing the "0" key with focus on the keyboard will add the selected character to the text edit at the current position (shown by the flashing cursor.

NB: a "space" character exists on the abc/ABC keyboard

Pressing the "0" key with focus on the other selections will provide various functions as described below:

- Select abc/ABC/!@# to toggle the keyboard mode. Pressing the "1" key is a shortcut for toggling the keyboard mode.
- Select "SAVE" to save the changes to the text edit.

- Select INSERT to right-shift the text at the current position and enter a space. NB: the character(s) at the end of the text will be discarded if the maximum length has been reached.
- Select DELETE to delete the current highlighted character.
- Select CLEAR to clear the current text edit.
- Select COPY to copy the text edit to the clipboard.
- Select PASTE to past the clipboard text to the edit. The clipboard text can be copied from one item and pasted to another. NB: the pasted text will be truncated or space-padded to fit within the bounds of the text edit.

See the separate X301 Reviewer manual at http://www.tspace.co.uk/pdf/timespace-reviewer-manual.pdf for detailed information on the Reviewer's functions / controls.

2.2.3   Help Screens

 Each page on the menu system has an associated Help screen which describes the features on that page.

Pressing the HELP key on the Reviewer front panel will display the Help page. Use the UP/DOWN arrow keys to scroll through each help page.

The help pages included on the V700 are intended as a quick reference,

 with more detailed descriptions contained in this V700 Manual.

3. User Guide – V700 Menu System

The V700 is configured using a tiered menu system. There are two top level menus through which all features and settings are configured.

The MAIN MENU relates to the recording functions, files and video output:

The SETTINGS MENU is where the V700 and any connected equipment are configured:

NB: Each menu, feature and setting is detailed in the following pages. Refer to the Table of Contents for reference to specific features, functions and settings.

A help system is included and can be displayed for each menu by pressing the HELP key on the [Reviewer](#).

Navigation of the menu system is by using the arrow keys on the [Reviewer](#).

All menu configuration items are changed instantly with the exception of the following which require a reboot:

- [LANGUAGE FILE](#) – when loading a language file from the hard disk cartridge.
- Selection of VLAN Scheme

3.1   Main Menu

By default all cameras are set to record on power-up (assuming cameras are connected). Cameras can be configured in the IP CAMERA RECORDING menu.

NB: Options to enable or disable recording at power-up are found in the SETTINGS>ADVANCED menu POWER STATE.

3.1.1 IP Camera Recording

> **WARNING** – When using IP cameras for live view, there may be appreciable latency (delay between image taking and image being seen on monitor).

The IP CAMERAS menu configures settings for the IP camera inputs. Additional support for installing IP Cameras can be obtained by contacting support@tspace.co.uk.

IP CAMERA RECORDING sets the normal recording configuration. Recording is activated by pressing the record button on the front of the V700 or the Reviewer. The V700 is also set to default record on power-up.

The V700 supports up to 20 IP cameras in ports 1-20 (see Figure 6 V700 Side Panel Interface/Connections).

IP cameras 1-8 are listed on the first IP CAMERA RECORDING menu screen. Cameras 9-16 and 17-20 are on additional menu pages, accessed via the respective selections at the bottom of the first menu page.

Connected cameras are identified by the relevant camera number being highlighted with either a white background (indicating camera present but not recording) or a red background (indicating camera present and recording).

3.1.1.1   Setting up IP Camera Recording

IP ADDRESS – the IP addresses should be set to match the IP address of each camera (information provided by camera manufacturer). A unique IP address must be set for each IP camera.

The camera IP addresses and the LOCAL IP address (LAN2) must be configured for the same network.

TYPE – identifies which type (A, B, C, D) each numbered camera is allocated to. Types are used to configure the username, password and camera stream URL in order for the V700 to receive data from the IP camera. The camera details for each type are input in the TYPE SETTINGS menu page.

ENABLED – select YES/NO. When set to YES, this allows the IP camera stream(s) to be recorded.

> **NB**: the local IP address and TYPE SETTINGS cannot be changed while recording is in progress – an "IP CAMERA WARNING" will be displayed. Stop recording and amend the IP address and settings as required before recommencing recording.

To test connectivity of the IP cameras, configure the unit so it is not recording, configure the IP camera(s) and set ENABLED to YES.   If the IP camera(s) is/are present, the CAM number(s) will be highlighted with a white background. If recording, the CAM number will be highlighted with a red background.

If the IP camera(s) is/are not present, or there is a fault, the CAM number will remain unhighlighted.

> **NB**: Timespace recommends that IP cameras are configured for a constant rather than variable rate. This can be done within the IP camera's own settings.

3.1.1.2   Type Settings

```
        ┌─────────────────────────┐
        │     TYPE A SETTINGS     │
        │                         │
        │  TYPE:▶                 │
        │        APPLY TYPE       │
        │                         │
        │  CURRENT SETTINGS       │
        │  H264 STREAM1:          │
        │   streaming/channels/101│
        │  JPEG STREAM2:          │
        │   streaming/channels/102│
        │  USER:                  │
        │   admin                 │
        │  PASS:                  │
        │   Password              │
        └─────────────────────────┘
```
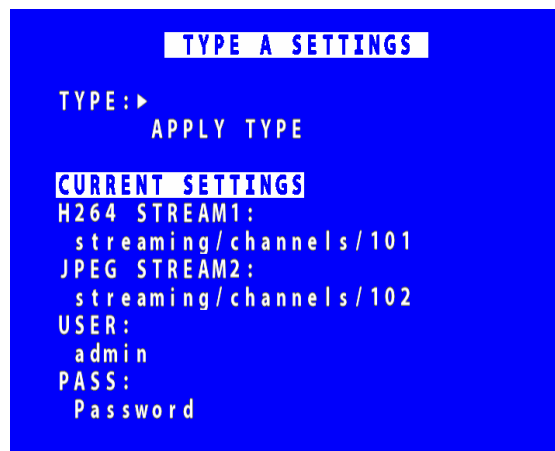
TYPE SETTINGS allocate specific cameras to each type (group) A-D.

TYPE – select from the available camera types/models (using Reviewer right menu button) then select APPLY TYPE.

Stream 1 is the recorded stream (H264)

Stream 2 is the live camera stream (MJPEG or H264)

The correct stream is required for the cameas to operate. The stream will need to be discovered using ONVIF device manager or equivalent third party application or IP camera documentation. The user name and password are set on the camera and are not set by Timespace.

NB: Ensure that IP camera audio is disabled.

USER – the username

PASS – the password

NB: Available camera options will be updated by Timespace and included in subsequent software releases. Users can also obtain an current list of cameras by contacting Timespace at support@tspace.co.uk. The update will be provided as a TCONFIG file which can be uploaded using the LOAD SOFTWARE/SETTINGS option in the ADVANCED MENU.

3.1.2   Recorded Files
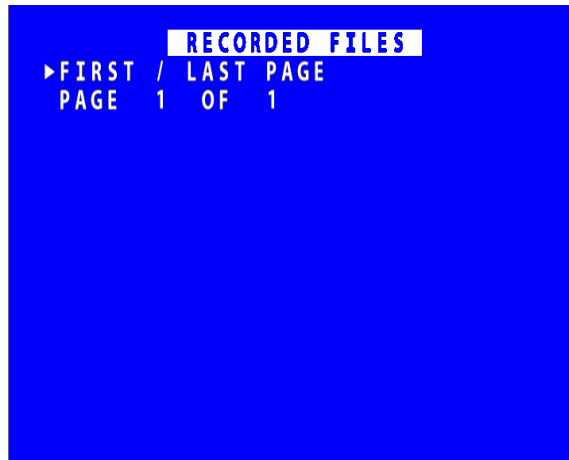
RECORDED FILES menu lists the recorded files on the HDD (most recent first) and allows the user to select a file to play or to change the write-protect state of a file.

Files are shown in chronological order, most recent file first.

HH:MM:SS   DD/MM/YY   SIZE MB

Navigation is using the Menu Navigation keys on the <u>Reviewer</u> as follows:

FIRST / LAST PAGE   – Left key = go to last page; Right key = go to first page.
PAGE   – Left key = go to next page; Right key = go to previous page;
                                       Up/Down keys = move cursor to a file.

3.1.3   Video Output

```
          VIDEO OUTPUT
  ▸MAIN VIDEO SWITCHER
   AUX VIDEO SWITCHER

   MULTI1 CAMERA SETUP...
   MULTI2 CAMERA SETUP...
```

VIDEO OUTPUT menu controls the automatic switching and dwell time of cameras on the four video outputs:

MAIN VIDEO SWITCHER – main video output

AUX VIDEO SWITCHER – the auxiliary (secondary) video output

NB the V700 has four HDMI monitor connectors (see Figure 9 - End panel HDMI connections). these are not four separate outputs – they are one (MAIN), normally used for the driver monitor) and three identical (AUX), normally used for passenger monitors.

MULTI 1 and MULTI 2 CAMERA SETUP – configures which cameras are to be displayed simultaneously in the MULTI 1 AND MULTI 2 camera views.

When in Auto mode (selected by pressing the Auto key on the Reviewer), the video output will switch between the configured cameras for the set period of time.

To view individual cameras on the Reviewer:

For cameras 1-8, press the relevant camera number on the Reviewer.

For cameras 9-16, press the HELP/9-16 button on the Reviewer, followed by the corresponding camera number on the Reviewer.

For cameras 17-20 double click the HELP/9-16 button, this will then flash, and buttons 1-4 can then be used to view Cameras 17-20.

3.1.3.1 Main Video Switcher

```
        MAIN VIDEO SWITCHER
   CAM/SEC (DWELL TIME SECONDS)

   IP1  5  IP2  -  IP3  -  IP4  -
   IP5  -  IP6  -  IP7  -  IP8  -
   IP9  -  IP10 -  IP11 -  IP12 -
   IP13 -  IP14 -  IP15 -  IP16 -
   IP17 -  IP18 -  IP19 -  IP20 -
   MULTI1:▶-
   MULTI2: -

   TIME/DATE POSITION: NO TEXT
   SHOW REC STATUS:    YES
```

MAIN VIDEO SWITCHER menu controls the video output on the Main Switcher.

CAM/SEC – Set the desired camera DWELL time (in seconds) next to each camera that is to be included in the switcher sequence.

NB: the default setting is that the MAIN VIDEO SWITCHER shows camera 1.

MULTI CAMERA allows the simultaneous viewing of a number of cameras. The output is split into tiles per camera. MULTI 1 and/or MULTI 2 CAMERAS can be included in the Auto switching sequence.

MULTI1 and MULTI2 CAMERA (SEC) – set the number of seconds for which the MULTI CAMERA view is displayed on each MULTI CAMERA. Available options are: 5, 7, 10, 15, 20,25, 30 SECS.

TIME/DATE POSITION – sets the position of the time/date text on the MULTI CAMERA view. Select from NO TEXT, BOTTOM HIGH, BOTTOM MIDDLE, BOTTOM LOW, TOP HIGH, TOP MIDDLE, TOP LOW.

SHOW REC STATUS – Select YES/NO to determine whether the recording status is shown on the embedded text in MULTI CAMERA setup and on each individual camera.

3.1.3.2   Multi Camera Setup
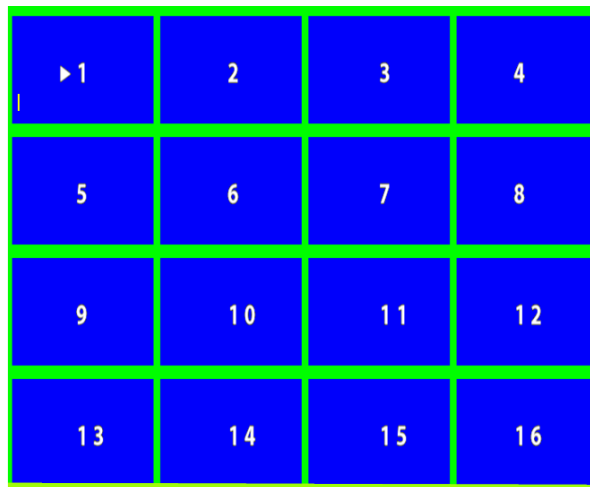
MULTI CAMERA SETUP configures which of the analogue cameras 1-16 are to be displayed simultaneously. Each tile can be set to display a sixteenth view of a camera. If the same camera number is set to four tiles in a square then a quarter view will be shown.

Cameras for each tile are selected using the left/right Menu Navigation keys on the Reviewer to scroll through the camera number options. Move along/up/down the tiles using the up/down Menu Navigation keys.

> **HINT:** Pressing the Auto key on the Reviewer will switch the video output between the configured cameras for the set period of time. Single camera output is selected by pressing the camera number on the Reviewer. See also VIDEO OUTPUT for more information.

3.1.3.3   Auxiliary Video Switcher

```
      AUX VIDEO SWITCHER
   CAM/SEC (DWELL TIME SECONDS)

   IP1 ▶-   IP2  -   IP3  -   IP4  -
   IP5  -   IP6  -   IP7  -   IP8  -
   IP9  -   IP10 -   IP11 -   IP12 -
   IP13 -   IP14 -   IP15 -   IP16 -
   IP17 -   IP18 -   IP19 -   IP20 -
   MULTI1: -
   MULTI2: -

   TIME/DATE POSITION: NO TEXT
   SHOW REC STATUS:    YES
```

AUX VIDEO SWITCHER configures the settings for the auxiliary (secondary) video output

AUX VIDEO SWITCHER settings, e.g. for <u>MULTI CAMERA</u> and TIME/DATE POSITION are configured in the same way as for <u>MAIN VIDEO SWITCHER</u>.

3.2   Settings Menu

3.2.1   System Settings
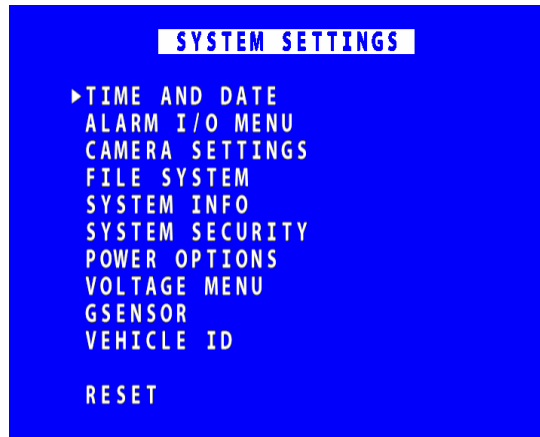
The SYSTEM SETTINGS MENU gives access to configure various system settings and to view system information.

3.2.2   Time And Date

<div style="text-align:center">

TIME AND DATE

TIME:▶11:21:31
DATE: 27/06/23
MODE: DD/MM/YY

SET CLOCK TO THESE SETTINGS...

SUMMERTIME ADJUST: UK

</div>

TIME AND DATE menu displays the current time/date. New times/dates can be set by entering new values using keys 0-9 on the Reviewer.

SET CLOCK TO THESE SETTINGS – confirms and sets the new time/date.

The date display MODE can be switched between DD/MM/YY and MM/DD/YY. The chosen format will be used for date entry and display throughout the system.

NB: date and time settings cannot be changed while the unit is recording.

Summer time adjustment can be selected for UK, EUR USA, NZ and OFF.

Summer time adjust automatically updates the system to daylight saving time, valid for the country selected. Adjustments are applied even if the system was powered off during the time change.

When the clock is put forward, the time is now summer time, which is winter time +1 hour. When the clock is put back, time reverts to winter time.

UK - At 1am on the last Sunday in March, the clock is put forward an hour. At 2am on the last Sunday in October, the clock is put back and hour.

Central Europe - At 2am on the last Sunday in March, the clock is put forward an hour. At 3am on the last Sunday in October the clock is put back an hour.

USA - At 2am on the second Sunday in March, the clock is put forward an hour. At 2am on the first Sunday in November, the clock is put back an hour.

NZ – at 2am on the last Sunday in September, the clock is put forward an hour. At 3am on the first Sunday in April, the clock is put back an hour.

> **NB:** when time or date are changed, a hard disk re-format is recommended in order to reset the meta file.

3.2.3   Alarm Inputs/Outputs menu

```
        ╔═══════════════════════╗
        ║    ALARM I/O MENU     ║
        ╚═══════════════════════╝
        ▸ALARM INPUTS
         ALARM OUTPUT / LEDs
         ALARM CAMERA CYCLER

         ALARM INPUT ALARM FILE
         ALARM INPUT HOLD-OFF
         ALARM INPUT POST DELAY

         ANALOG INPUT HYSTERESIS: 2V
```
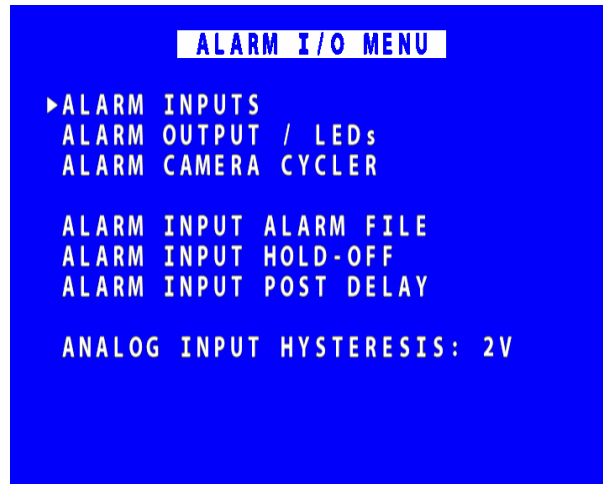
ALARM INPUTS menu sets the active/inactive status of each alarm input and defines the function (action) of the V700 when the selected alarm is active.

ALARM OUTPUTS / LEDs menu sets the conditions for the Alarm Outputs.

ALARM CAMERA CYCLER menu configures the options for the V700 to automatically switch between cameras and the Health Page.

ALARM INPUT HOLD-OFF – controls how long the alarm input needs to be active before it is actioned. Select from 1-60 seconds.

ALARM INPUT POST DELAY – controls the number of seconds for which the alarm state is held once the alarm input has changed state.

ANALOG INPUT HYSTERESIS – specifies the voltage value difference that must occur in order to change the alarm state e.g. if the trigger is set to 14V, when 14V is met the trigger will switch. In order to switch back, a change of 2V must occur i.e. 14-2 = 12V. Available values are 1-8V.

> **NB:** The V700 has 10 alarm inputs and 4 outputs (Figure 8 V700 Molex Connectors).

3.2.3.1   Alarm Inputs

```
        ALARM INPUTS
IN ACTIVE FUNCTION    OPT
1  ▶>  12V   NONE
2   >  12V   NONE
3   >  12V   NONE
4   >  12V   NONE
5   >  12V   NONE
6   >  12V   NONE
7   >  12V   NONE
8   >  12V   NONE
9   >  12V   NONE
10  >  12V   NONE
     EMBED ALARM STATE MENU...
```

ALARM INPUTS menu sets the alarm inputs to be ACTIVE or INACTIVE. If an alarm input number is highlighted with a white background, this indicates its current state is active. No highlight indicates the state is inactive.

Use the left and right menu buttons on the Reviewer to set the active voltage. For a 24V vehicle system, use typically <12V or >12V. For a 12V vehicles system, use typically <6V or >6V.

> **NB**: There is a priority order on the Alarm Inputs. The lower numbered Alarm Inputs take priority over the higher numbers. For example, if Alarm Input One is wired to the Reversing sensor, and is set to trigger recording when the Reversing sensor is activated, this alarm will take priority over any other alarm currently triggered.

FUNCTION lists the available ALARM INPUT FUNCTIONS for selection.

EMBED ALARM STATE menu configures options for adding text to recorded images.
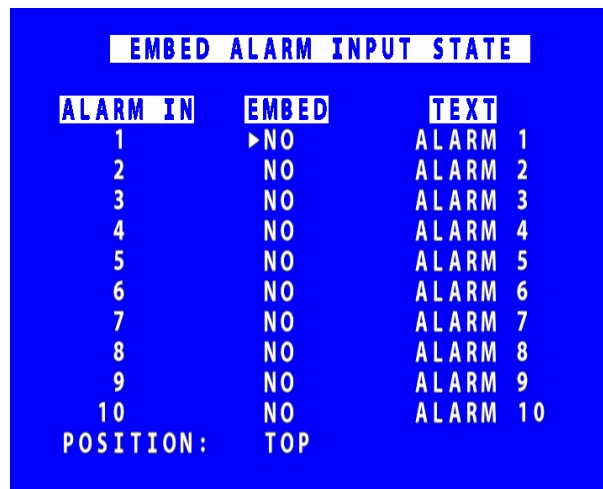
NB: overlays title text will automatically appear on camera images, there is no need to embed text separately.

<u>ALARM INPUT FUNCTIONS</u>

NONE   -   No action.
NORM REC   -   Switches IP CAMERA RECORDING on.
MAIN OUT   -   Sets the Video Switcher (Main Video Out) to the selected camera, multi-
                             camera or EMERGENCY SPLASH SCREEN option.
AUX OUT   -   Sets Auxiliary Video Out to the selected camera(s) or multi-camera option.
HEALTH PAGE   -   Displays the Health Page.
IGNITION   -   Linked to POWER OPTIONS menu to control how the V700 behaves on
                             ignition.
OVERLAYS   -   Lists available selections: INDICATOR L, INDICATOR R, BRAKE, SIDE LIGHTS,
                             HEAD LIGHTS, FOG LIGHTS, HORN, BULL HORN, SIREN, BLUES, HAZARD
                             WARN, DOOR, REVERSE, HANDBRAKE, ACCEL'TION, DOOR 1-3, RAMP
                             NB: overlays text/title will automatically appear on camera images – there
                             is no need to add embedded text separately. The text and associated icons
                             will also appear when recordings are viewed on PCLink.
CAM CYCLER   -   Automatically switches between cameras and the health page as configured
                             in the ALARM CAMERA CYCLER menu from the ALARM I/O menu page.
BEEP TEST   -   This is for Timespace test purposes only and is not required by users.
POWER DOWN   -   Instructs the V700 unit to power down when the alarm is triggered.
PUSHBUTTON1&2   -   tags the alarm inputs as used for additional buttons/triggers specified by
                              the user

Each of the 10 alarm inputs can be set to turn on/off the selected FUNCTION. The FUNCTION defines
the action of the V700 when the selected alarm input is active. The function is active for the duration
of the alarm (plus post trigger time if selected – see ALARM INPUTS/OUTPUTS MENU).

3.2.3.2   Embed Alarm State

```
┌──────────────────────────────────────┐
│        EMBED ALARM INPUT STATE        │
│                                       │
│   ALARM IN      EMBED        TEXT     │
│      1         ▶NO         ALARM  1   │
│      2          NO         ALARM  2   │
│      3          NO         ALARM  3   │
│      4          NO         ALARM  4   │
│      5          NO         ALARM  5   │
│      6          NO         ALARM  6   │
│      7          NO         ALARM  7   │
│      8          NO         ALARM  8   │
│      9          NO         ALARM  9   │
│     10          NO         ALARM  10  │
│   POSITION:     TOP                   │
│                                       │
└──────────────────────────────────────┘
```

The EMBED ALARM INPUT STATE menu configures options for adding text to recorded images.

8 user-defined characters can be entered per input and positioned either top or bottom of the image. The text will display on the footage for the duration of the alarm, plus any post alarm duration.

POSITION – select TOP or BOTTOM

Text is entered using the Text and Number Input keys on the Keyboard.

The text will be embedded on all camera views simultaneously and will appear on all selected cameras during playback in PCLink200.

3.2.3.3   Alarm Outputs

```
          ALARM OUTPUT
     OUT ACTIVE   WHEN...
      1  ▶CLOSED    -
      2   CLOSED    -
      3   CLOSED    -
      4   CLOSED    -




     CURRENT STATE      CLOSED/OPEN
```
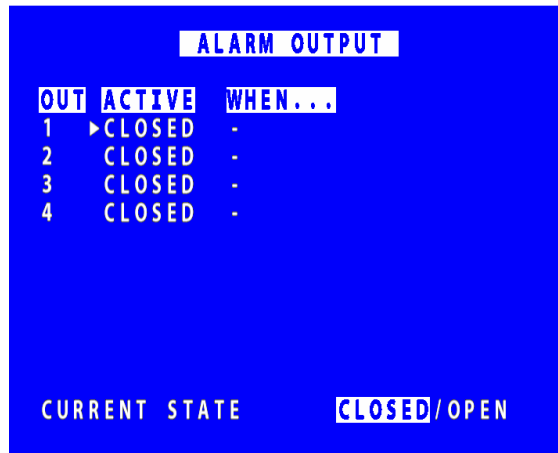
ALARM OUTPUT menu sets the conditions for the Alarm outputs. This determines whether the V700 alarm output goes closed (pull to GND) or open circuit when any of the set conditions are met.

Outputs can be set to duplicate the state of the V700 front panel LEDs (Figure 5 V700 Front Panel).

CLOSED means alarm terminals connected. OPEN means alarm terminals unconnected.

When closed, the alarm output number will be highlighted in white. When open, no highlight is shown.

ALARM OUTPUT CLOSED/OPEN **WHEN…**

TEST OPEN/CLOSED   -   Sets the input to OPEN/CLOSED for testing purposes.
ALARM OCCURRED   -   An ALARM event has occurred.
RECORD LED   -   The front panel record LED is active.
DISK LED   -   The front panel disk LED is active.
CAN LED   -   CAN engineering data is being recorded. .
FAIL LED   -   The front panel fail LED is active.
SERVICE LED   -   The front panel service LED is active.
FRONT LEDS   -   Any of the front panel LEDs are active.
CAM DISCONNECTED   -   Any camera is disconnected.
GSENSOR TRIGGER   -   Any of the GSensor configured thresholds are reached / exceeded.
ON WITH IGNITION   -   Ignition is active.
GPS SPEED ALARM   -   The vehicle speed exceeds the limit selected in the GPS menu (SETTINGS MENU > EXTERNAL EQUIPMENT > GPS > SPEED ALARM).

CURRENT STATE   -   Indicates when each alarm output is CLOSED/OPEN (CLOSED showing alarm terminals connected; OPEN showing alarm terminals not connected).

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3.2.3.4   Alarm Camera Cycler
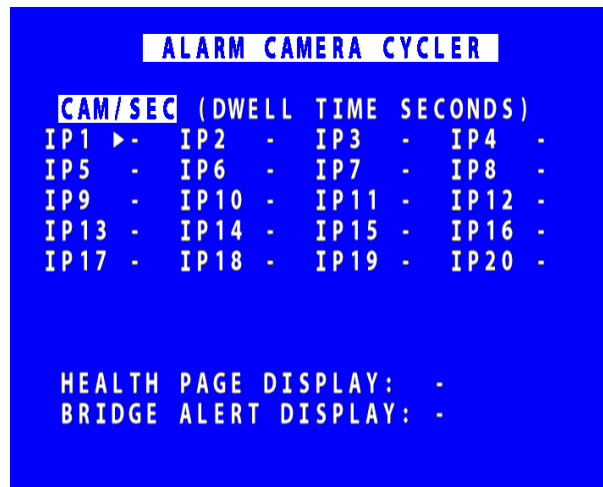
```
        ALARM  CAMERA  CYCLER

   CAM/SEC (DWELL  TIME  SECONDS)
   IP1  ▶-   IP2   -   IP3   -   IP4   -
   IP5   -   IP6   -   IP7   -   IP8   -
   IP9   -   IP10  -   IP11  -   IP12  -
   IP13  -   IP14  -   IP15  -   IP16  -
   IP17  -   IP18  -   IP19  -   IP20  -



   HEALTH  PAGE  DISPLAY:   -
   BRIDGE  ALERT  DISPLAY:  -
```

The ALARM CAMERA CYCLER menu configures the options for the V700 to automatically switch between cameras and the Health Page. When the Cam Cycler is activated, the V700 will display each selected camera, and/or HEALTH PAGE, on the main monitor (MAIN VIDEO SWITCHER) for a specified amount of time. This enables the user to confirm if all selected cameras are working as required.

Set the number of seconds for each camera to show in the camera cycle. Available values are 5, 7, 10, 15, 20, 25, 30 seconds.

HEALTH PAGE DISPLAY – sets the number of seconds for which the camera cycler shows the Health Page in the Camera Cycler cycle.   Available values are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25 and 30 seconds.

3.2.3.5   Alarm Input Alarm File

```
  ┌──────────────────────────────┐
  │  ALARM INPUT ALARM FILE       │
  │                               │
  │ IN ALARM FILE                 │
  │  1  ▶NO                       │
  │  2   NO                       │
  │  3   NO                       │
  │  4   NO                       │
  │  5   NO                       │
  │  6   NO                       │
  │  7   NO                       │
  │  8   NO                       │
  │  9   NO                       │
  │ 10  NO                        │
  │                               │
  │                               │
  └──────────────────────────────┘
```

The Alarm Input Alarm File feature provides an option for files to be marked as ALARM recordings even if recording in IP CAMERA RECORDING mode.

If any of the numbered ALARM INPUTS have the ALARM FILE setting set to YES, then the current recording file will be marked as an ALARM recording if this alarm is active.

This will make it easier to identify the correct file(s) when looking for alarm-triggered files on the HDD or viewing on PCLink.

3.2.3.6   Alarm Input Hold-Off
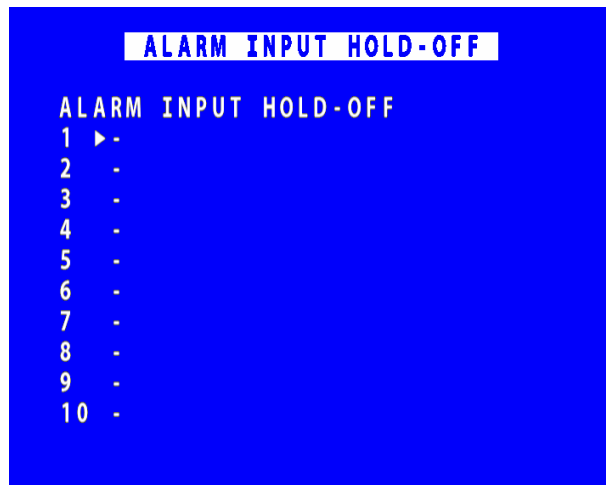
The ALARM INPUT HOLD-OFF controls the number of seconds for which reporting of an active alarm state is delayed after an alarm has triggered to the active state.

For each Alarm Input, select a hold off value. Options are 1SEC, 2, 3, 5, 10, 15, 20, 30, 45, 60 SECS.

This may be useful in scenarios where accidental or very short-term action would otherwise trigger an alarm. In these cases, the user may not wish the alarm to be triggered, or the alarm event to be marked in the RECORDED FILES.

Examples of scenarios where ALARM INPUT HOLD-OFF may be useful:

1. A camera is recording activity at the rear door of a retail premises. The door is alarmed and the V700 configured to begin recording if the door is open. The user may decide to implement an ALARM HOLD-OFF period so that recording does not begin until the door has been open for eg 3 seconds – thus avoiding recording whenever a staff member opens the door accidentally, but ensuring that recording takes place whenever the door is held open for a delivery.
2. A waste disposal truck has a V700 which is configured to trigger recording whenever reverse gear is engaged. This is to ensure that managers can view all reversing footage and check that drivers are complying with the reversing speed limit. The user may choose to set an ALARM INPUT HOLD-OFF for eg 2 seconds in order to avoid triggering ALARM RECORDING when the driver accidentally engages reverse gear without actually moving the vehicle.

3.2.3.7 Alarm Input Post Delay

```
        ALARM INPUT POST DELAY

    IN DELAY
     1  ▶ -
     2    -
     3    -
     4    -
     5    -
     6    -
     7    -
     8    -
     9    -
    10    -
```
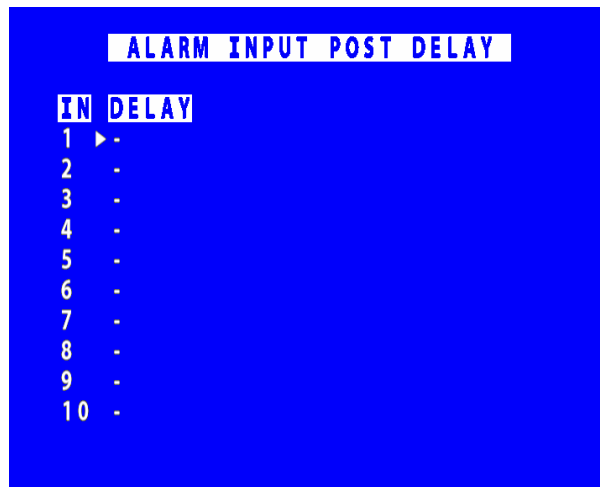
ALARM INPUT POST DELAY menu controls the number of seconds for which the alarm state is held once the alarm input has changed state.

Available values are 0.5SEC, 1, 2, 3, 4, 5, 10, 30SECS, 1MIN, 5MINS, 10, 15, 20MINS.

3.2.4   Camera Settings

```
        ┌─────────────────────────┐
        │    CAMERA SETTINGS      │
        └─────────────────────────┘
        ▶IP CAMERA TEXT...

         TIMESTAMP POS: BOTTOM LOW

         CAMERA DISCONNECT TIME: 4 MINS
```

CAMERA SETTINGS menu configures the CAMERA TEXT labels, timestamp position and camera disconnect reporting.

TIMESTAMP POS - the timestamp can be positioned either below (BOTTOM) or above (TOP) the main area of the recorded image and fine adjustment of position made with LOW/MIDDLE/HIGH settings. The timestamp can also be turned off (select NO TIMESTAMP) and will not be written in to the recorded images.

CAMERA DISCONNECT TIME – this option allows disconnected cameras to be reported as connected for a set time period. This is useful in cases where a camera can take a while to boot and send its signal. If there is no signal after the timeout, the camera is treated as disconnected and is flagged in the service log.   Available options are: OFF, 1, 2, 3, 4,, 5, 6, 7, 8, 9, 10MINS. After the selected time period has expired, any camera disconnected from the V700 will be flagged as "Camera Disconnected" in the service log.

3.2.4.1   Camera Text

```
                    CAMERA  TEXT
     IP1    ▶              IP2
     IP3                   IP4
     IP5                   IP6
     IP7                   IP8
     IP9                   IP10
     IP11                  IP12
     IP13                  IP14
     IP15                  IP16
     IP17                  IP18
     IP19                  IP20


     DUPLICATE  TEXT  FROM  CAM  1
```
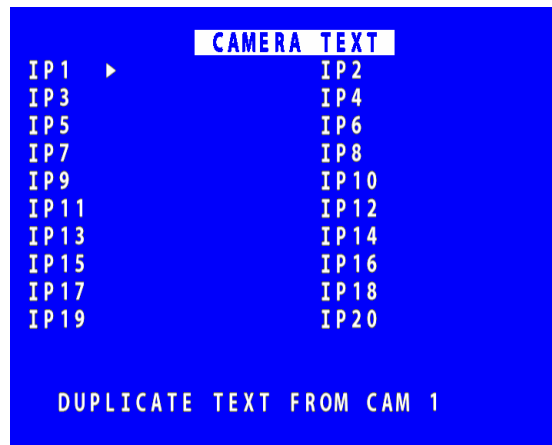
Individual text for each camera can be inserted above the timestamp. This text, along with timestamp, will be shown on recorded images.

12 user-defined characters can be input per camera. Enter text using the keyboard.

DUPLICATE TEXT – feature is available for copying down text from camera 1 to all remaining cameras.

3.2.5   File System

```
      ██ FILE SYSTEM ██

  RECORDING MODE:  LOOP RECORD

  FILE LENGTH:     10 MINUTES
  FILE RETENTION:  ALL FILES
  FILENAME TEXT:   ▶
```

FILE SYSTEM MENU Sets the parameters of the file system and how files are laid to disk.

RECORDING MODE sets either:

- LOOP RECORD (oldest files will be overwritten first when the hard disk cartridge is full) or
- SINGLE PASS recording (recording will stop when the hard disk cartridge is full).

FILE LENGTH – controls how often a new file is created. A new file is created each time recording starts. The file will be named with the date/time when the recording started. If continuous recording, the next file will be started as per the file length settings or when next time boundary is met. For example when using 10min files, if recording starts at 10:03, the first file will contain 7 minutes of video and the second file will be started at 10:10. New files will then be created every 10 minutes, i.e.10:20, 10:30 etc.   Files can be configured for: 1 min, 5 min, or 10 min.

NB: File size is limited to 4GB. After this limit is reached, a new file will be created.

FILE RETENTION – sets the number of days for which footage is retained on the disk. Older footage will be deleted. Select from 10-60 days or ALL FOOTAGE

FILENAME TEXT – prefixes the recording files with up to 12 user defined characters (0-9, A-Z, space). Text and numbers are entered using the Keyboard.

3.2.6   System Info

```
                    SYSTEM INFO

  1.7.4.576.28     OPERATING SYSTEM

          0.00     SIZE IN GIGABYTES
        0.00 %     USED
        0.00 %     WRITE PROTECTED
             0     FILES
      00/00/00     START DATE
      00/00/00     END   DATE
           0.0     DAYS RECORDING
      40 DEG C     TEMP
       V700-20     H/W VERSION
             0     SERIAL NUMBER
```

SYSTEM INFO menu displays information about the system;

OPERATING SYSTEM – Currently installed/running software version.

I/F BOARD FW – Currently installed/running firmware version on the interface board

SIZE IN GIGABYTES - Total size of installed hard disk cartridge.

USED - Percentage of hard disk cartridge used by any files.

WRITE PROTECTED – Percentage of cartridge used by write protected files.

FILES – Number of XBA files on the hard disk cartridge.

START DATE - The date of the first (oldest) file on the cartridge.

END DATE - The date of the last (newest) file on the cartridge.

DAYS RECORDING - The number of days between the start/end date. **NB:** there may not be continuous recording files between the start/end dates.

TEMP – temperature of the unit during operation.

HARDWARE VERSION - The model number of the V700.

SERIAL NUMBER - Displays the V700 serial number.

3.2.7   System Security

```
          ┌─────────────────────┐
          │  SYSTEM SECURITY     │
          └─────────────────────┘

           SYSTEM PIN REQUIRED FOR:

           RECORD:       ▶NO
           MENU:          NO
           SWITCHER:      NO
           PLAY:          NO
           READ ONLY:     NO

           CHANGE SYSTEM PIN...


           FTP/TELNET USERS
```

SYSTEM SECURITY menu sets a pincode to restrict user access to five key areas of the system. A read-only access can be set that allows files to be viewed and limited features to be used.   For each area, select YES/NO.

RECORD - If set to YES, the record button on the front panel and the Reviewer are pincode protected.

MENU - If set to YES, access to the menu system is pincode protected.

SWITCHER - If set to YES, the button to activate auto switcher mode is pincode protected.

PLAY – If set to YES, the controls to review recorded footage are pincode protected.

READ ONLY - If set to YES, the user cannot change any setting on the V700. The menu system can be browsed but no settings changed. If a setting change is attempted, the element will flash in RED for 2 seconds and not be changed. To exit read only mode, change read only to NO, at which point you will be prompted for the pincode.

If access to a pincode protected function is attempted, the user is prompted with the enter pincode screen. On correct pincode entry the pincode protection is temporarily disabled while that function is being used.

CHANGE SYSTEM PIN – provides options for changing the pincode.

FTP/TELNET USERS – gives options to access the DVR by FTP/Telnet.

3.2.7.1   Change System PIN

CHANGE PIN menu provides options for changing the pincode.

pincode can be changed by first entering the current pincode, followed by the new one (entered twice for verification). pincode format is four digits only 0-9.   Enter numbers using the Reviewer.

Default pincode is **0000** (four zeros).

In the event of a complete pincode lockout, contact your installer or Timespace for a master unlock code; email support@tspace.co.uk
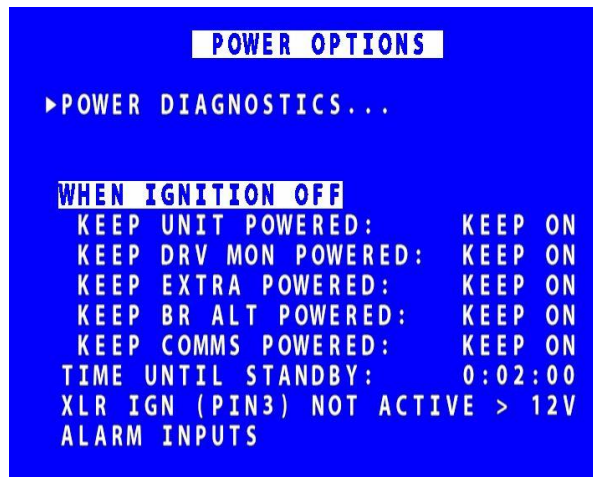
3.2.8   FTP /TELNET Users

FTP/TELNET USERS menu gives the option to have three different passwords to access the DVR via FTP/TELNET.

The usernames and passwords are currently fixed and cannot be changed by users.

3.2.9   Power Options

```
              POWER OPTIONS
    ▶POWER DIAGNOSTICS...


    WHEN IGNITION OFF
     KEEP UNIT POWERED:      KEEP ON
     KEEP DRV MON POWERED:   KEEP ON
     KEEP EXTRA POWERED:     KEEP ON
     KEEP BR ALT POWERED:    KEEP ON
     KEEP COMMS POWERED:     KEEP ON
     TIME UNTIL STANDBY:     0:02:00
     XLR IGN (PIN3) NOT ACTIVE > 12V
     ALARM INPUTS
```

POWER OPTIONS menu configures the behaviour of the V700 when power is applied, when power is removed and when an input trigger is detected.

The V700 can be configured for different power scenarios, eg:

- to stay powered for a period of time when the ignition is turned off, and
- to then wake upon ignition;

POWER DIAGNOSTICS menu displays the current power consumption, broken down into components.

WHEN IGNITION OFF – sets the behaviour of the V700 when ignition is turned off.

NB: In order for the V700 to operate on ignition, the ignition feed should be connected to one of the V700's ALARM INPUTS and the ALARM INPUT FUNCTION set to IGNITION with the active voltage set accordingly.

If this has not been done, the POWER OPTIONS menu will display either:

-   XLR IGN (PIN 3) NOT ASSIGNED
-   XLR IGN (PIN 3)NOT ACTIVE
-   XLR IGN (PIN 3) ACTIVE

The XLR IGN is located on pin 3 of the 5-pin power-in XLR (see Figure).

Options for the V700's behaviour:

KEEP UNIT POWERED – provides options for powering the V700. Select from KEEP ON, 10 SECS, 1MIN, 5, 10, 15, 20, 30, 35, 40, 45, 50MINS, 1HOUR, 2HOURS, 3HOURS, 4HOURS.

KEEP DRV MON POWERED – provides options for powering the driver monitor (MAIN VIDEO OUT). Select from KEEP ON, 10 SECS, 1 MIN, 5MINS, 10, 15, 20, 30, 35, 40, 45, 50MINS, 1HOUR, 2HOURS, 3HOURS, 4HOURS.
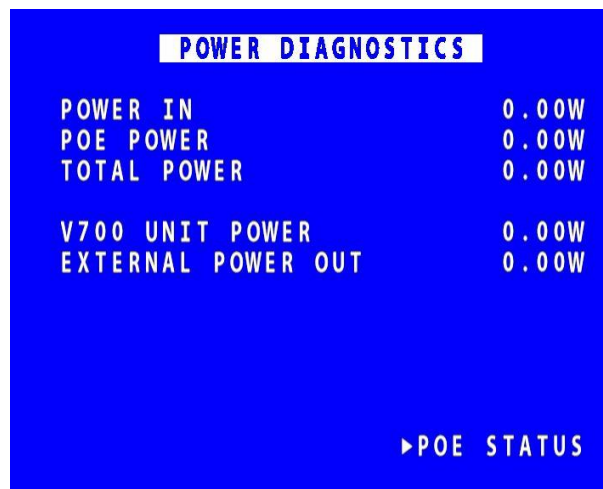
KEEP EXTRA POWERED and KEEP BR ALT POWERED – provide options for powering items connected to the 12V power output, eg the passenger monitor(s) and/or Bridge Alert. Select from KEEP ON, 10 SECS, 1 MIN, 5MINS, 10, 15, 20, 30, 35, 40, 45, 50MINS, 1HOUR, 2HOURS, 3HOURS, 4HOURS.

KEEP COMMS POWERED – provides options for powering the COMMS port. Select from KEEP ON, 10 SECS, 1 MIN, 5MINS, 10, 15, 20, 30, 35, 40, 45, 50MINS, 1HOUR, 2HOURS, 3HOURS, 4HOURS.

XLR IGN (PIN3) – is an alarm input from the ignition. The Active state can be set the same way as the ALARM INPUTS. The XLR IGN is located on pin 3 of the 5-pin power-in XLR (see diagram).

ALARM INPUTS – provides a quick link to the ALARM INPUTS page.

3.2.9.1   Power Diagnostics

POWER DIAGNOSTICS page displays the current power consumption, broken down into various sections e.g. POE (cameras), GPS. It also displays current temperature and GSensor readings.

PoE STATUS – displays the current status of all the PoE (Power over Ethernet) channels.

When a camera is present, a voltage reading, approx 54-58V, will show against the camera channel as well as the exact current draw and power in Watts for each camera

If a camera is disconnected or faulty, the PoE SETTINGS menu page will be helpful in showing the status of each camera.

3.2.10 Voltage Menu

```
              VOLTAGE MENU

  ALM  1   0.00V   VIN FILT     0.00V
  ALM  2   0.00V   ALM IGN      0.00V
  ALM  3   0.00V   PD TIME      0.00V
  ALM  4   0.00V   VERSION 1    0.00V
  ALM  5   0.00V   VERSION 2    0.00V
  ALM  6   0.00V   12V REG      0.00V
  ALM  7   0.00V   24V TO 12V   0.00V
  ALM  8   0.00V   EXT 5V       0.00V
  ALM  9   0.00V   12V TOTAL    0.00A
  ALM 10   0.00V   EXT 12V      0.00A
                   24V TO 12V   0.00A
                   24V TO POE   0.00A
```

VOLTAGE MENU page displays the current Voltage supply, broken down into various sections e.g., Alarm Inputs, 5V and 12V power out etc.

3.2.11 GSensor
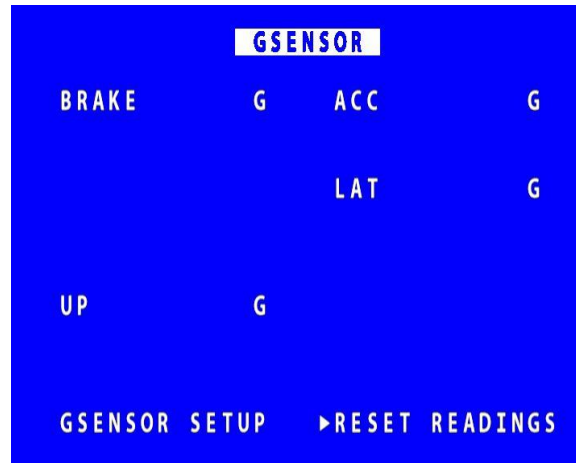
GSENSOR menu configures settings for the DVR's built-in accelerometer.

The GSensor is a device that provides X, Y and Z axes data internally to the DVR. Data is displayed and recorded into each image along with optional GPS data.

GSensor readings are displayed for;

BRAKE - Measurement of decreasing forward motion.

ACC - Measurement of increasing forward motion.

LAT - Measurement of lateral movement.

UP - Measurement of upwards motion.

GSENSOR SETUP - sets up the GSensor positioning.

RESET READINGS - Clears all current readings within this hour. RESET ALARM - Clears the alarm condition.

3.2.11.1 GSensor setup

```
            GSENSOR SETUP
  FRONT PANEL DIR:       BACKWARDS
  CONNECTOR PANEL DIR: UP
  ZERO THE ACCELEROMETER...

  MONITOR THRESHOLD
    BRAKING:         2.0
    ACCELERATING:▶2.0
    LATERAL:         2.0
    UP:              2.0

  ALARM OUTPUT MENU...
  RESET ALARM CONDITION
  X:CAL!       Y:CAL!        Z:CAL!
```

GSENSOR SETUP menu displays the GSensor configuration. The GSensor is calibrated as part of the manufacturing process in a controlled environment and should not require calibration during the installation process.

However once the DVR is installed in a vehicle, the direction of the front panel and connector panel must be set in order to orientate the GSensor .

Set the FRONT PANEL DIRECTION, e.g. front panel set to FORWARDS means the DVR front panel is facing the front of the vehicle.

The CONNECTOR PANEL DIRECTION must then be set to LEFT, RIGHT, UP, DOWN, FORWARDS or BACKWARDS depending on the mounting position.

ZERO THE ACCELEROMETER– Once the panel directions are set, the GSensor orientation must be confirmed. Select ZERO THE ACCELEROMETER and follow the instructions on the screen.

GSensor threshold triggers (for BRAKING, ACCELERATING, LATERAL and UP) can be configured from 0.1 - 2.0. If the set value is exceeded an alarm can be raised (used in conjunction with alarm outputs). A link to the ALARM OUTPUT menus gives quick access to configure the required action.

RESET ALARM CONDITION – clears the alarm condition.

3.2.11.2   Zero the accelerometer
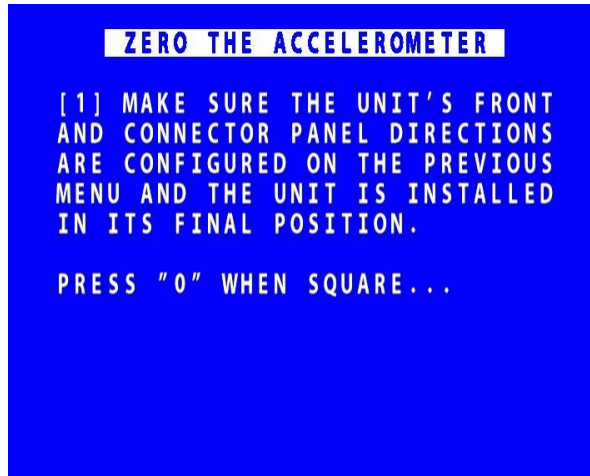
Once the DVR is installed in its final operating position, the GSensor readings must be zeroed by entering "0" when on the ZERO THE ACCELEROMETER screen.

A second screen will confirm that this has been done.

3.2.12 Vehicle ID
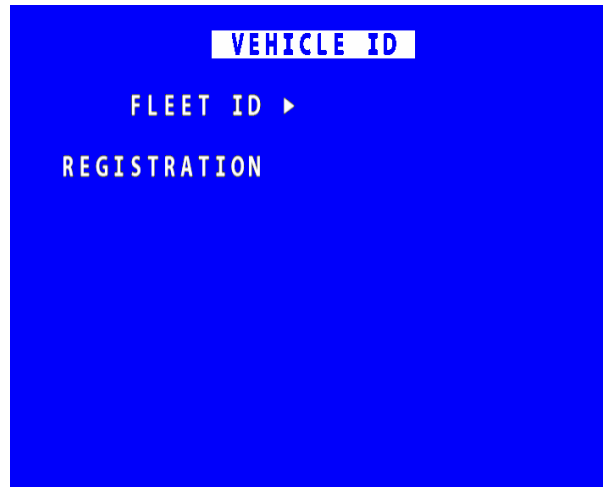
This menu page allows entry of the vehicle's fleet ID number and registration number. This is recorded in system and health logs and makes it easier when using LANLink to identify the vehicle in which the recorder is fitted.

Vehicle ID and registration number details can be entered using the Text and Number Input keys on the Reviewer.

3.2.13 Reset

The RESET menu provides options for resetting the system and/or deleting files. The following options are available.

<u>DELETE ALL RECORDING FILES</u>
RESTORE TIMESPACE DEFAULTS

> **WARNING**: THERE IS NO "UNDO" FUNCTION IF THESE OPTIONS ARE SELECTED.

3.2.13.1 Delete All Recording Files

```
 ┌──────────────────────────────────────┐
 │   DELETE ALL RECORDING FILES         │
 │                                      │
 │  WARNING:                            │
 │  THIS OPERATION DELETES              │
 │  ALL FILES ON DISK!                  │
 │                                      │
 │  PRESS EXIT TO ABORT AT ANY TIME     │
 │  AND RETURN TO PREVIOUS MENU OR      │
 │  PRESS RIGHT MENU ARROW TO           │
 │  DELETE ALL FILES ON DISK: ▶         │
 │                                      │
 │                                      │
 │                                      │
 └──────────────────────────────────────┘
```

DELETE ALL RECORDING FILES – will remove all recordings from the hard disk, including write-protected files.

Only select this option if you want to completely remove all recordings – there is NO undo option. Press the right menu button to go to a warning screening, press right again to carry out this action. Pressing Menu Exit will abort this procedure.

WARNING: THERE IS NO "UNDO" OPTION. SELECTING "DELETE ALL FILES ON DISK" WILL COMPLETELY REMOVE ALL RECORDINGS.

3.3   External Equipment Menu
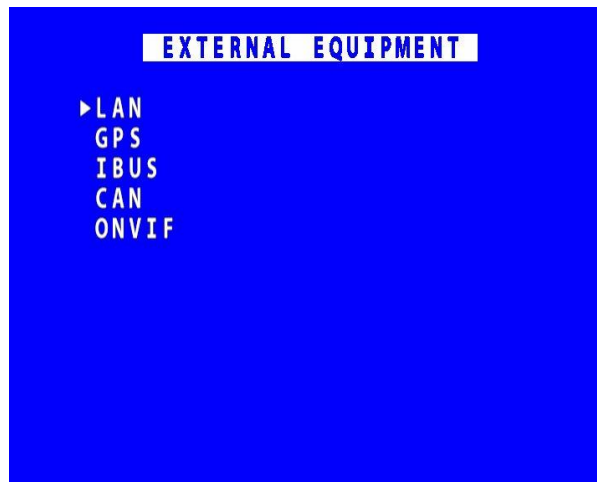
The V700 provides some common interfaces so that external equipment can be connected and configured for use with the V700.

Connections for external equipment are shown on the diagrams for the <u>V700 Front Panel</u>, the <u>V700 Side Panel</u> and the <u>Molex End Panel Connectors</u>.

3.3.1   LAN connections and VLAN SCHEME

The VLAN SCHEME separates the three LAN connections. It is automatically enabled..

LAN1 is the COMMS connection

LAN 2 is for the IP Cameras

LAN 3 is for IBUS

3.3.2 LAN 1 (COMMS)
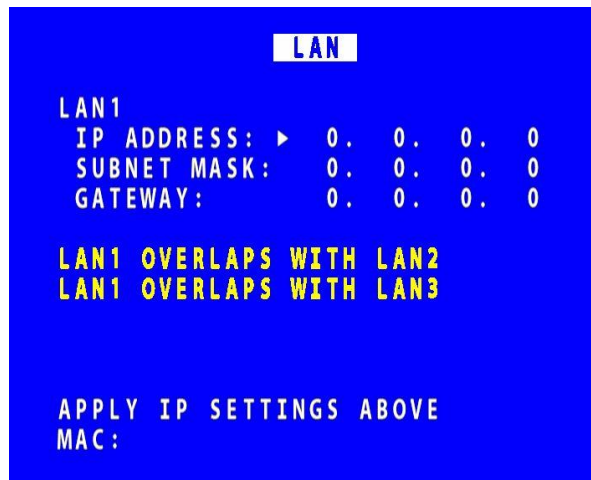
The LAN 1 menu allows the user to change the parameters of the LAN 1 system. The LAN 1 connection is a single-port connection which is assigned to COMMS.   The COMMS connection must be connected to port 24 on the side panel (see diagram for <u>V700 side panel</u>).

LAN STATUS indicates whether the V700 is currently connected to a LAN or not.

IP ADDRESS - Enter the static (fixed) IP address that the V700 is to be assigned on the local area network. The default IP address is 192.168.**10.200**

SUBNET MASK - Enter the subnet mask as applicable for the LAN the V700 is connected to. The defaults is 255.255.255.192

GATEWAY - Enter the gateway IP address of the default gateway the V700 will communicate with on the LAN.

APPLY IP SETTINGS ABOVE – select to confirm and apply configurations set above.

MAC is the unique hardware identifier for the network interface on the V700.

3.3.3   LAN 2 (IP CAMERAS)

The LAN 2 menu allows the user to change the IP address of the VLAN2 port. LAN2 port is assigned to the IP CAMERAS.

IP ADDRESS – enter the static (fixed) address that the V700 is to be assigned to on the secondary local area network. The default IP address is 192.168.10.64.

SUBNET MASK - Enter the subnet mask as applicable for the LAN the V700 is connected to. The defaults is 255.255.255.192

MAC is the unique hardware identifier for the network interface on the V700.

3.3.4   LAN 3 (IBUS)

```
                    ┌─────────────┐
                    │    LAN3     │
                    └─────────────┘
         LAN3
          IP ADDRESS: ▶192.168. 10. 30
          SUBNET MASK:   0.  0.  0.  0


         LAN3 OVERLAPS WITH LAN1
         LAN3 OVERLAPS WITH LAN2



         APPLY IP SETTINGS ABOVE
         MAC:
```
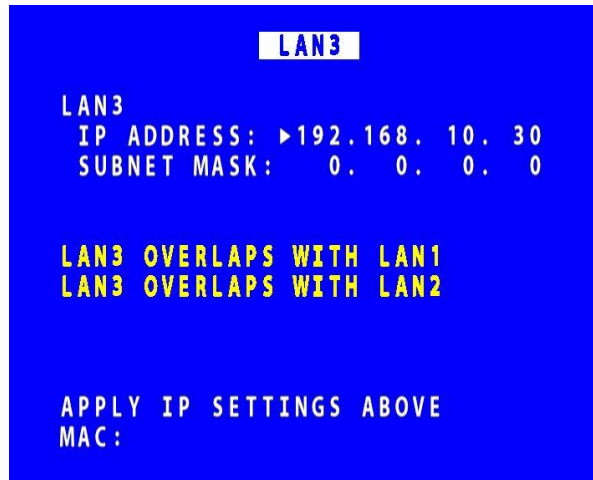
The LAN3 menu allows the user to change the IP address of the VLAN3 port.

The LAN3 connection is a single-port connection which is assigned to IBUS.

IP ADDRESS – enter the static (fixed) address that the V700 is to be assigned to on the tertiary local area network. The default IP address is 192.168.10.30.
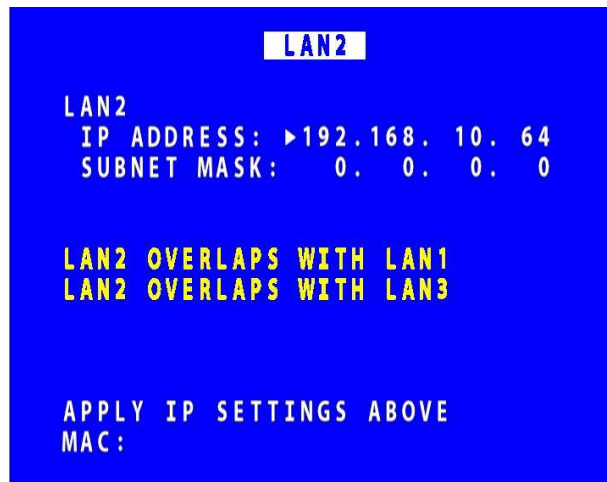
SUBNET MASK - Enter the subnet mask as applicable for the LAN the V700 is connected to. The defaults is 255.255.255.192

NB: the LAN3 IBUS connection must be plugged into port 23 on the V700 side panel (see Figure 6 V700 Side Panel Interface/Connections)

3.3.5   GPS

```
                    ┌──────────┐
                    │   GPS    │
                    └──────────┘

        EMBED GPS POSITION:   ▶NO
        EMBED GPS SPEED:       NO
        SPEED UNITS:          MPH
        SYNC CLOCK WITH GPS:   NO
        GPS BAUD:            4800 bps
        SPEED ALARM:          -  MPH



        STATUS: DISCONNECTED
```
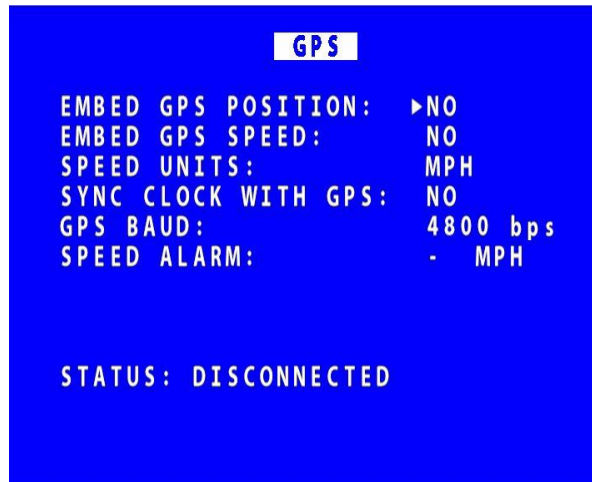
The GPS menu is the setup menu for the Global Positioning System serial connection.

The V700 can receive GPS data through the 18-way Molex connectors (see Connectors and embed the data into recorded images. GPS data includes positioning and speed, and users can optionally turn these on or off. When turned on, the data will be recorded with each image.

If the user decides not to embed GPS data then it will not appear on the screen during playback in PCLink. However the data is still included in the XBA files, therefore the speed dials will still operate in PCLink.

The V700 is compatible with the standard NMEA-0183 GPS protocol. A suitable GPS serial unit can be wired to specific pins on the V700 serial port.

EMBED GPS POSITION – When set to YES will embed the position information in recorded images.

EMBED GPS SPEED – When set to YES will embed the speed information in recorded images.

SPEED UNITS – can be set for miles per hour (MPH) or kilometres per hour (KPH).

SYNC CLOCK WITH GPS – The V700 can be configured to synchronize the clock with the data and time information received from the GPS unit. When set to YES the V700 will synchronize the clock on power up.

GPS BAUD – sets the baud rate at which the V700 will communicate with the GPS. Setting this selection to PORT 22222 allows a LAN connected device to forward NMEA GPS sentences.

> **NB**: When the baud rate is changed, it may be necessary to reboot the V700 in order that it can detect the GPS unit.

SPEED ALARM – selects the speed limit threshold at which the GPS speed alarm is triggered (see [ALARM OUTPUTS](#)).

STATUS – indicates whether or not a GPS unit has been detected. The status will be DISCONNECTED if not unit is detected or TRACKING SATELLITES if connected but no GPS lock has been established yet. If CONNECTED, GPS data/coordinates will appear.

3.3.6   IBUS
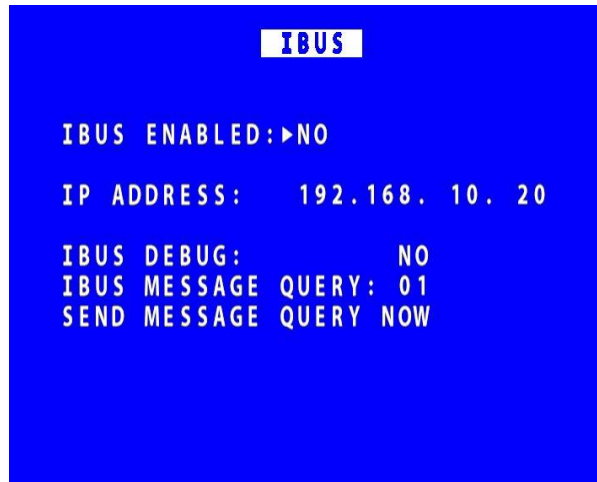
Timespace has developed a diagnostic interface in conjunction with Transport for London (TFL) to monitor the status, performance and health of Timespace digital video recorders on London Buses.

IBUS menu details are found in <u>Appendix 7 – IBUS Interface</u>

The IBUS debug etc shown on this menu screen are for Timespace investigation only, and do not need to be selected/configured by users.

> **NB**: IP address settings cannot be changed while recording is in progress – a warning will be displayed. Stop recording and amend settings as required before recommencing recording.

3.3.7   CAN
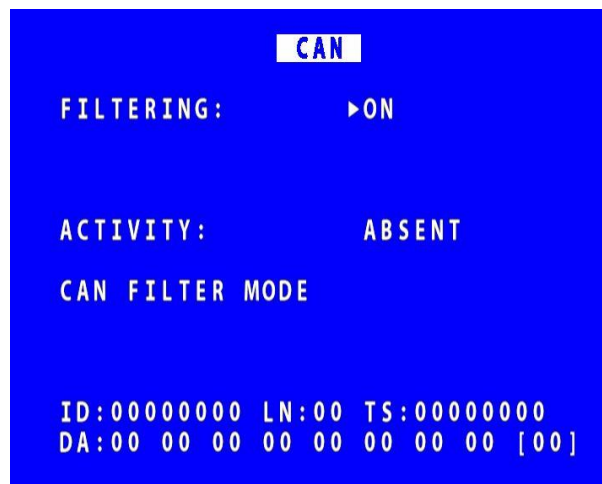
Timespace has developed vehicle CAN (Controller Area Network) reporting system in the form of the Timespace CANLink device. A secure CAN interface enables the V700 to record CAN data and download vehicle CAN information via the vehicle depot's Wifi/LANLink system.

The V700 NVR contains CANLink incorporated within the unit.

CAN FILTERING can be selected to be OFF or ON. When filtering is turned ON, only a subset of messages is recorded. These are mainly FMS, bus, truck and other J1939* messages. With filtering OFF, all CAN messages are recorded.   NB filtering is always enabled at power up.

The CAN menu screen shows CAN activity as either ABSENT or DETECTED. This is useful for diagnosing connection issues.

The CAN LED on the V700's front panel will be orange when CAN data is being received.

*Society of Automotive Engineers standard **SAE J1939** is the vehicle bus recommended practice used for communication and diagnostics among vehicle components.

3.3.8   ONVIF

```
                    ONVIF

       DESTINATION:▶HD

       LOAD ONVIF CONFIG
       SAVE ONVIF CONFIG
       RESET ONVIF CONFIG
```

ONVIF (Open Network Video Interface Forum) provides a standard interface between IP-based physical security devices. The standardised ONVIF specifications (profiles) are a common "language" that devices can use to communicate.

The V700 is ONVIF-conformant (Profiles G and S). #Functionality is continually being developed. Contact Timespace for details.

ONVIF menu:

DESTINATION – configuration can be saved to or loaded from the hard disk (HD) or SD card.

LOAD ONVIF CONFIG – loads from the selected DESTINATION

SAVE ONVIF CONFIG – saves to the selected destination

RESET ONVIF CONFIG – resets to Timespace ONVIF defaults

3.4   Advanced Menu

```
              ADVANCED

     POWER STATE: ▶RECORD
     ENABLE RECORD BUTTON: YES
     LIVE VIEW:            NO
     SPLASH SCREEN:        OFF
     HEALTH PAGE DISPLAY:  OFF
     FAIL QUOTA/DAY:       10/DAY
     VIEW SERVICE LOG...

     LOAD SOFTWARE/SETTINGS...
     SAVE SOFTWARE/SETTINGS...
```

ADVANCED menu contains advanced options that normally do not need to be edited after installation.

POWER STATE – Set if the V700 will RECORD, DO NOT RECORD or USE LAST STATE. If USE LAST STATE is selected the unit will record on power up if it was recording when power was disconnected. If it was not recording when power was disconnected, it will return to this state on power up.

ENABLE RECORD BUTTON – controls whether the record button on the front panel of the V700 can be used to start and stop recording (enable/disable). Select YES/NO.

LIVE VIEW – if set to YES, live view of camera will be displayed even if the disk cartridge is removed. If set to NO and the cartridge is not present, the initialisation screen is shown and a reboot will follow..

SPLASH SCREEN controls the length of time an operator logo will be displayed. Available options are OFF, 5 SECS, 10, 30, 60 SECS. A .bmp file can be loaded / displayed on boot up. The .bmp must be in a specific format and copied onto the cartridge. See APPENDIX 6– Splash Screen for further details.

HEALTH PAGE DISPLAY – controls the length of time the unit health status will be displayed for on boot up.

FAIL QUOTA/DAY – sets how many fail messages that must occur for any given day before the FAIL LED is lit. During normal operation it may be acceptable to receive a certain number of fail events before action is required. Set as applicable. Available options are NEVER, 1/DAY, 2, 5, 10, 20/DAY.

VIEW SERVICE LOG – displays any service messages that have been logged by the system.

LOAD SOFTWARE/SETTINGS and SAVE SOFTWARE/SETTINGS – click link to see details.

3.4.1   Health Page Display

HEALTH PAGE DISPLAY controls the length of time the unit health status will be displayed for on boot up.

The health page includes a simple traffic light status and may include service/fail code conditions as well as the current recording state. The health page can also be activated via an alarm input.

3.4.2   Service Log

VIEW SERVICE LOG – displays any service messages that have been logged by the system.

Messages can be scrolled through and reviewed. Details of date/time and service/fail codes are shown.

A full list of Service Codes is in Service And Maintenance.

RESET SERVICE LOG – clears the service log.

WRITE LOG TO – select from HD or SD. The screen will show DONE when this is complete.

NB: when saved to the HD/SD, the log files are encrypted but can be sent to Timespace for analysis if required. Contact support@tspace.co.uk for further information.

3.4.2.1   Reset Service Log
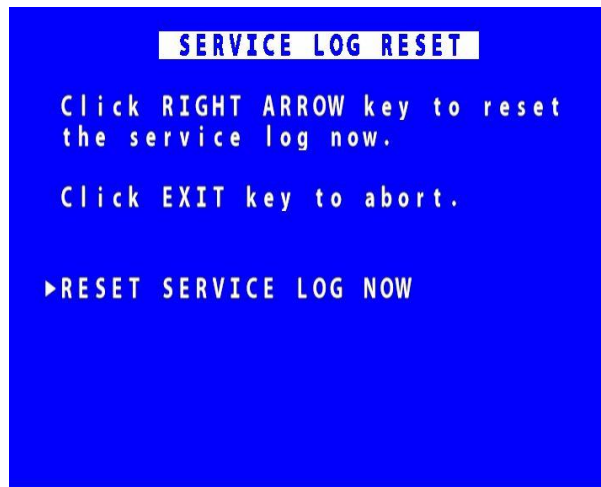
SERVICE LOG RESET menu – clears any service log messages.

Press the right arrow key, and then again to confirm.

> **HINT:** Clearing the service log will clear the front panel service/fail LEDs. If the fault condition still
> exists, the LEDs will illuminate again.

3.4.3   Load Software/Settings
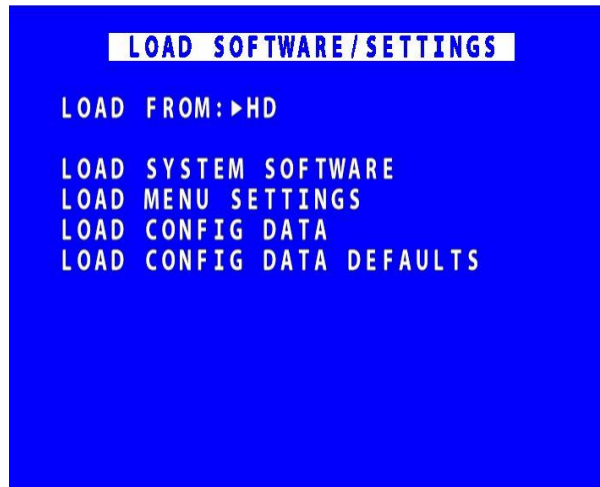
LOAD SOFTWARE/SETTINGS menu provides options for loading new/upgraded software and/or settings. An .XOS file should be copied onto the cartridge or SD card using a PC then inserted into the V700.

LOAD FROM – select either HD (to load from the Hard Disk cartridge) or SD (to load settings from the SD card)

LOAD SYSTEM SOFTWARE – load XOS file for V700 system software

LOAD MENU SETTINGS – used to copy menu settings from another V700 unit and replicate these on the second V700.

LOAD CONFIG DATA – load eg settings for a new IP Camera via a TSCONFIG file. See IP Camera TYPE SETTINGS menu for more information.

LOAD CONFIG DATA DEFAULTS – loads the Timespace defaults for IP Cameras.

WARNING: Caution should be taken to ensure that power is not lost during an upgrade.

3.4.4   Save Software/Settings

SAVE SOFTWARE/SETTINGS provides options for saving the current settings. The current software and settings will be written to the HD cartridge or SD card.

SAVE TO – select either HD (to save to the Hard Disk cartridge) or SD (to save settings to the SD card).

SAVE MENU SETTINGS   – save menu settings to transfer to another unit.   NB: it is possible to save the menu settings and remove parts not required, retaining only the small section which includes the required settings.

SAVE CONFIG DATA   – save the CONFIG data on to either the selected HD or SD card.

4. System Information And Security

4.1   Language Selection

By default the V700 menu system is displayed in the English language.

Timespace Technology can provide a language template file which the user can translate and return to Timespace Technology for incorporation into the V700 software. This will allow all text displayed on the Reviewer to be in the user's preferred language.

Language is selected in the SYSTEM SETTINGS > RESET menu. The V700 requires a power cycle before the new language settings will take effect.

4.2   File System

The V700 uses a proprietary file type with the file extension .XBA. Images from multiple cameras along with audio, GPS and other meta data are stored in these files. The V700 stores XBA files on the cartridge in a loop over the physical disk and does not use a fragmented file structure. The V700 uses a linking mechanism (FAT area) for PC compatibility. This compatibility conforms to the Microsoft standard FAT32 file system that is compatible on all PCs and many other systems.

Two types of File System behaviour are available on the V700; Loop and Single Pass.

Loop Recording
The V700 will automatically delete the oldest recordings first when the Hard Disk Cartridge is full (with the exception of write-protected files).

Single Pass Recording
The V700 records until the Hard Disk Cartridge is full and then stops.

Recordings may be deleted in the SETTINGS > SYSTEM SETTINGS > RESET menu or loop recording enabled so that the oldest files will be overwritten first. The File System Recording Mode is set in the SETTINGS > SYSTEM SETTINGS > FILE SYSTEM menu.

4.3   Video Compression

The V700 records images, audio, GPS and other meta data into 1 Minute, 5 minute or 10 minute proprietary format files ending with the .XBA file extension. For security and optimisation reasons .xba files can only be viewed on a PC using the proprietary PCLink200 software or authorised Timespace partner software.

The images are compressed using **H264** video compression giving best of class quality and lowest image size. The V700 can uses a constant or variable bit-rate. This is configurable within the IP cameras, see camera manufacturer's documentation for details.

4.4   PC Access Precautions

The V700 file system uses a standard FAT32 file system so that a PC can read the contents. The PC will access the cartridges in a different way to the V700. The V700 will not be able to read every FAT32 file system written by the PC and it is therefore important to restrict what the PC does to the file system.

Permitted on a PC

- Reading the .xba files
- Modifying the write-protect status of files
- Performing disk utilities that read the disk (e.g. Scandisk) but do not modify disk

Not Permitted on a PC

All write accesses to the disk if it is to be reused in an V700. These include:

- Formatting the disk on PC (including any Disk Manager MBR checks/fixes)
- Defragmenting the disk
- Deleting files
- Renaming files
- Generating new files
- Creating a recycle bin on the disk

NB: if any of the above non permitted actions are used, the cartridge will need to be reformatted on the V700 using the [Reviewer](). This will erase all data on the cartridge and format it correctly for further use in the V700.

4.5   PC Network Access

The V700 can be accessed through a number of PCLink Suite Applications, included in the USB Kit. Files can be downloaded, images viewed, V700 controlled and settings adjusted over LAN.

Each feature runs over the LAN using a specific protocol and on a specific network port.

Security measures on a network such as Firewalls, encryption and MAC address filtering may need to be adjusted in order to achieve this. Security applications such as Norton and Symantec on the PC may need to be configured to allow the PCLink Suite applications to operate correctly. Any installed network or local PC firewalls (including Windows Firewall) may have to be instructed to allow the use of these ports to communication between the PC and the V700.

Ports:

Port	Protocol	Function	Used By	DVR/NVR	Description
7	UDP	Echo	LANLink / PCLink	All	Unit discovery
21	TCP	FTP	LANLink	All except X200	File download
23	TCP	Telnet	PCLink	All	Unit commands
69	UDP	TFTP	LANLink / PCLink	X200 only	File download
554	TCP/UDP	RTSP	LANLink / PCLink / ONVIF clients	V700 only	Video streaming
2055-2058	TCP	Custom	PCLink	All except X200	Live video and menu
3702	TCP	SOAP	ONVIF clients	V700 only	ONVIF discovery
5465-5468	UDP	Custom	PCLink/RemoteLink	X200 only	Live video and menu
8000	TCP	ONVIF	PCLink/ONVIF clients	V700 only	ONVIF

Figure 4 - PC network access ports

5. System Interfaces

5.1 GPS

The GPS menu screen is covered in Chapter 3 – V700 Menu System.

The Global Positioning System (GPS) is a worldwide radio-navigation system able to calculate position using triangulation based upon satellite signals. The GPS must be positioned so its antennae have a clear line of sight of the sky – obstructions such as foliage and reflected signals in built-up areas can reduce the accuracy.

The V700 can be fed GPS data and embed coordinates into images for location identification and real-time mapping playback in PCLink200.

The V700 uses the NMEA-0183 Interface Standard. GPS data is received into the V700 GPS port using a single serial data line.

Connection

The GPS receiver is connected to V700 through the 18 way Molex connector (see diagram). Pin 17 is used by the V700 to receive GPS data. The V700 can provide +5V or 12V power to the GPS mouse on the 18 way Molex connector.

Options

The V700 GPS menu options allow the embedding of GPS position and speed, assuming a valid GPS signal is being received and the data passed correctly to the V700.

If a GPS receiver is connected but satellite lock has been lost then it is still possible to record the data but it will not indicate position, speed, date or time and the actual content may vary according to the type of GPS receiver employed.

The V700 Digital Video Recorder includes a clock which is used to timestamp recording files and overlay the date and time on recorded images. Although accurate, the V700 can be configured to synchronize the clock with the date and time information received from the GPS receiver.

When a GPS unit is plugged into the V700, and it has locked onto the satellites it then sends GPS time and position and other data every second. If after 10 seconds the V700's internal clock is consistently +/- 2 seconds compared to the GPS unit then the time error is noted. On the next power cycle the time error is corrected.

Local Standard Time - The time received from the GPS receiver is always UTC (Coordinated Universal Time) which is the same as GMT (Greenwich Mean Time). In order to correctly work out the error between the local standard time (used by the V700's internal clock) and that received from the GPS receiver, the system must be set with the correct time zone offset.

GPS Baud Rate - Set the V700 data rate according to the GPS mouse you are using. Rates configurable include; 2400, 4800, 9600 and 19200, 38400 bps. Setting this selection to Port 22222 allows a LAN connected device to forward NMEA GPS sentences.

NB: It may be necessary to change the baud rate on the GPS mouse and set it to a specific rate in line with the V700 setting. Reference the GPS mouse product instructions to configure the baud rate then power off/on the V700 (whilst connected to the GPS).

5.2   Remote Operation PCLink/LANLink/FTP/Telnet/ONVIF

The V700 system provides a number of interfaces to remotely control and configure the recorder as well as reviewing recorded footage and displaying live camera views.

The V700 supports **FTP** over TCP/IP using the Ethernet (LAN) socket. The [FTP/Telnet User Password](#) menu screen is also covered in Chapter 4 – V700 Menu System.

The V700 FTP server allows video files to be downloaded using either a hard-wired, wireless or mobile network connections.   An FTP client can be used to FTP onto the V700 by typing the following in the address bar:

ftp://user01@10.0.0.200/ (default IP). This will prompt for the password.

ftp://user01:PASS01@10.0.0.200/ (default IP). This will log straight in.

Supported browsers are: Microsoft Edge, Mozilla **FireFox** and Google **Chrome**. A third party FTP client can also be used, for example **FileZilla**.

PCLink and LANLink remote features include; *Live View, Playback, Configuration***.** A brief overview of the applications included in PCLink Suite can be found on the PCLink Suite page of this manual. For detailed application instructions, see the separate PCLink Suite manual available here at www.tspace.co.uk. Details of LANLink are [here](#).

The V700 is ONVIF-conformant (see [ONVIF](#) menu section for more details). The V700 can be discovered using ONVIF Device Manager, and can also be used with ONVIF-conformant Video Management Systems, eg Milestone. The V700's ONVIF functionality is continually developing; contact Timespace for further details.

5.3   USB Interface Kit

The purchase of USB Kit T605-USB includes the necessary licence for use of PCLink Suite software including free of charge updates on a single PC (reasonable use policy allows installation on a secondary portable PC; laptop). Timespace Technology does not authorise the unlicensed usage of PCLink Suite software.

The USB Kit provides all hardware and software necessary to review and archive recordings on a PC from a Hard Disk Cartridge when it has been removed from the V700 Digital Recorder. No additional device drivers are required for the USB Interface Kit when using Windows 7, 10 or 11.

Kit Contents:

- 1x USB / IDE Interface Lead
- 1x PCLink200 Software CD

Connecting to a PC using the USB Interface Kit

1. Remove the Hard Disk Cartridge from the V700.
2. Plug the multi-pin D shaped IDE USB lead into the rear of the cartridge and then plug the smaller USB connector into an available USB port on the PC.

Once the disk has been connected, the PC should take a few seconds to detect the disk and Windows should automatically assign a drive letter to it. The drive should be viewable in Windows Explorer with .XBA files visible with their associated icon (assuming PCLink Suite is installed);

Recording files can now be viewed using PCLink200;

- Individual files can be opened directly from Windows Explorer by double clicking.
- Up to 15 files can be opened by selecting them and using RIGHT CLICK > OPEN WITH PCLINK200.
- .XBA files can be dragged from a Windows Explorer window and dropped onto the main area of the PCLink200 window.
- The entire cartridge can be loaded by opening PCLink200 and selecting the AUTOLOAD option.

A specific folder can be loaded from within PCLink200; FILE menu, LOAD FOLDER

6. Installation Guide

6.1 Safety

The V700 meets the requirements of BS EN60950 (Safety Requirements of Information Technology Equipment).

The V700 is designed to be powered from an external power source which complies with the Low Voltage Directive (2014/35/EU).

The V700 has approval under UN ECE R118 fire safety regulations (burning behaviour of materials).

The V700 is designed for indoor use in the temperature range -10° to +50°C, and up to 90% RH (non-condensing).

> **WARNING** – When using IP cameras for live view, there may be appreciable latency (delay between image taking and image being seen on monitor).

6.2 Environmental

The V700 may be operated in ambient temperatures from -10°C to +50°C. This specification applies in still air and ambient temperature measured 15cms above the centre of V700.

If the V700 is to be mounted in an enclosure is important that the internal temperature inside the enclosure does not exceed the specification above and any new enclosure design should be tested.

6.2.1 Shock And Vibration

Consideration should be paid to the mounting position so that the levels of shock and vibration that may be encountered are minimized.

6.2.2 EMC

The V700 meets the requirements of the relevant regulations relating to EMC emissions.

6.2.3 Recycling

When the product has reached its end of life and requires disposal, recycling instructions are available upon request.

6.3 Conformity

Conformity certificates and approvals are in Appendix 5.

6.4   Warnings

- **The use of hard disk cartridges other than those supplied by Timespace Technology will invalidate the warranty of the V700 recorder and will constitute a breach of the V700 operating software copyright.**

- **The purchase of USB kit T605-USB includes the necessary license for use of PCLink Suite software on one PC, including free of charge updates. Reasonable use allows a second installation on a portable computer provided both installations are not used simultaneously. Timespace Technology does not authorise the unlicensed usage of PCLink Suite software.**

- **The V700 recorder must always be mounted so that there is a free flow of air around it. If it is mounted in an enclosure, it is essential that adequate ventilation is provided, and it is recommended that a fan is incorporated in the enclosure design.**

- **Hard disk cartridges are sensitive to shock, vibration and humidity and must be used within operating temperature range as detailed in the V700 specification in the Appendices.**

- **It is highly recommended that recording is stopped before power is removed from the V700 to avoid loss of data. It is also recommended to stop recording before the cartridge or SD card is removed.**

- **Cartridges should be safely removed from windows operating system environment prior to removing power/USB cable. Data loss or corruption may occur if this is not followed.**

- **Do not wet the product when cleaning.**

- **This product contains a lithium battery. Do not recharge, open, heat or dispose of in fire. Dispose of according to local regulations.**

- **V700 may become unusable if power to the unit is lost during a software upgrade.**

6.5   V700 Connections

6.5.1   V700 Front Panel

Figure 5 V700 Front Panel

REC (RECORD) BUTTON
Turns configured recording mode on and off. Button can be disabled within menu settings.

LEDs:

Power   -   Illuminated when the DVR is powered (green LED)

Rec   -   Illuminated red when the DVR is recording

Disk   -   Pulses green/red when the DVR is reading/writing to/from the Cartridge. Solid red indicates no disk is present / detected.

CAN   -   Orange when CAN data is being received.

Fail   -   Illuminated red when any of the Fail conditions are met (refer to Service / Fail page).

Service   -   Illuminated orange when any of the Service conditions are met (refer to Service / Fail page)

At Power On   -   All LEDs will illuminate whilst the DVR initialises and will remain lit during system check (menu disabled) until the unit is operational. Once operational only the Power LED will remain illuminated unless recording is taking place.

CARTRIDGE LOCK

Locked   - Securely locks the removable cartridge in place and enables it for use.
Unlocked   - Turns off the cartridge lock, releasing the cartridge lock for removal.

6.5.2   Reviewer Connector

Connect the Reviewer to V700 Reviewer socket using a RJ45 Ethernet cable with a ferrite

Signals for this connector are as follows:

1   Video out
2   Video ground
3   Audio ground
4   RS232 Rx
5   RS232 Tx
6   Audio out (line level)
7   Power ground
8   12V

12V is supplied (regulated) to the Reviewer from the V700.

6.5.3   V700 Side Panel Interface / Connections
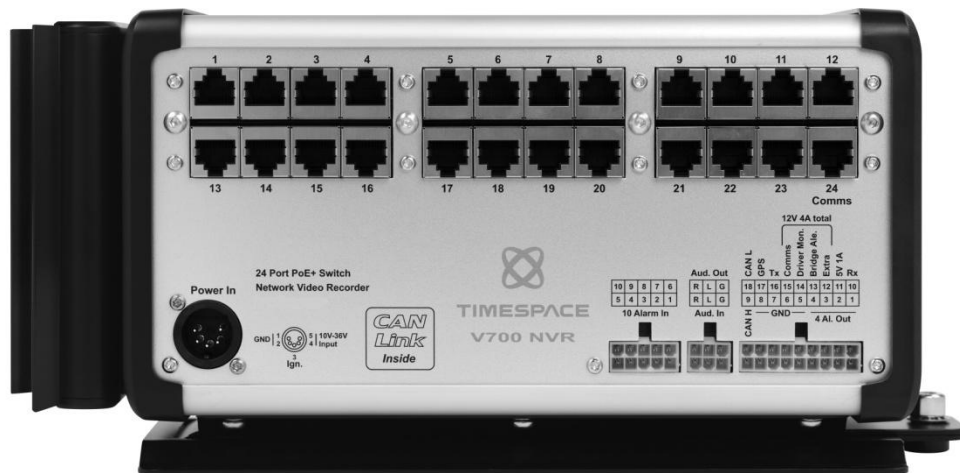
Figure 6 V700 Side Panel Interface/Connections

6.5.3.1   Power connections

POWER IN

POWER OUTPUTS

▪ 5V on Molex – 2A resettable fuse, 4A trip

▪ 12V on Molex 4A software fuse, 4.5A trip (48W global across the four 12V outputs on the Molex).

▪ 20 Camera outputs – PoE

Figure 7 Power inputs and outputs

It is recommended to power the V700 via the two power input pins on the 5 pin-XLR connector. For maximum reliability, Timespace recommends that the power feed should be split and wired to both pins. In addition, it is recommended the ignition feed is wired to pin 3 of the 5-pin XLR connector.

6.5.4 RJ 45 Camera Connections

The V700 supports up to 20* HD IP cameras with, built-in Power Over Ethernet (PoE) camera connectors (labelled 1-20 on the V700 side panel).

Timespace recommends the use of shielded CAT6 cables for camera installation.

The V700 is supplied with the Timespace "Ethergrip" to provide camera cable strain relief and reduce the likelihood of intermittent camera disconnects. Camera cables must be clamped into position using this Ethergrip.

The Ethergrip and cameras should be installed as per Figure 10 V700 Mechanical Data / Fixing Specification diagram.

*up to 20 IP cameras currently supported. Therefore Ports 21 and 22 are currently unused.

6.5.5 Molex Connections

For users familiar with the Timespace V400 digital video recorder, many of the Molex connections on the V700 are the same as the V400.

However, there are important differences between the V700 and the V400 Molex, so please read this section carefully before installations and refer to the Molex diagram below:
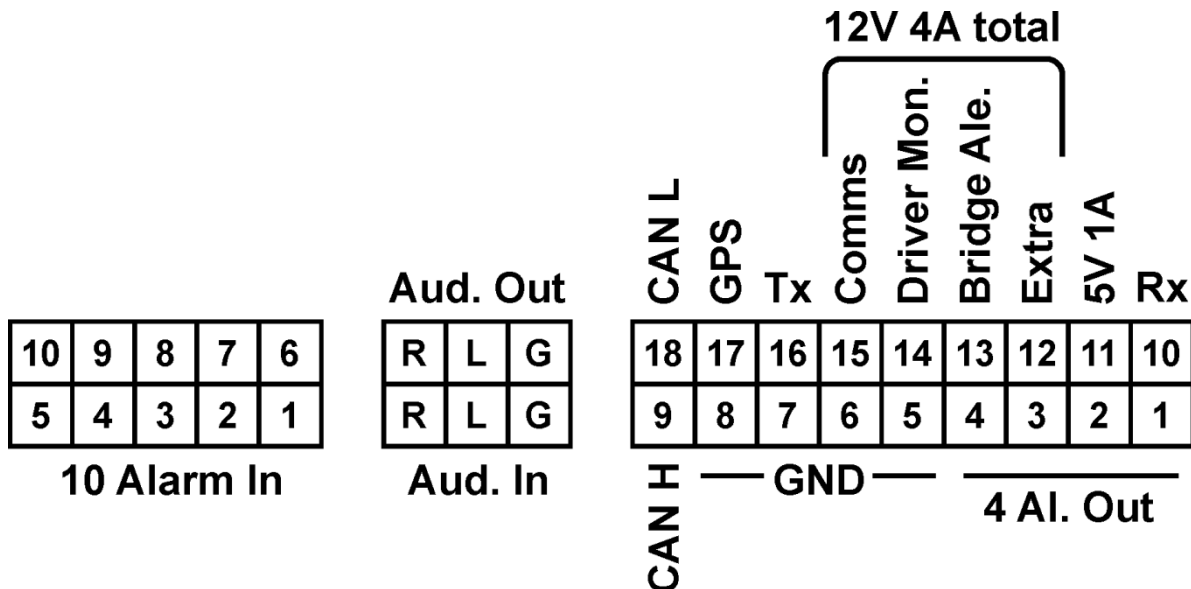
Figure 8 V700 Molex Connectors

10-way Molex connector – same as V400

6-way Molex connector – same as V400

18-way Molex connector – some differences from the V400. See Figure 8 V700 Molex Connectors.

5V out is on pin 11 on the V700 – this differs from the V400 where it was on pin 10/11/12.

Pin 12 is now 12V

CAN_H and CAN_L are on the 18-way Molex, pins 9 and 18.

Molex part numbers can be found in the <u>Installation Spare Parts</u> list.

6.5.6   End panel HDMI connections

Figure 9 - End panel HDMI connections

The V700 provides 4 video out connections – normally used as 1 driver monitor and up to 3 passenger monitors (NB these are only two separate video outputs).

If only one passenger monitor is in connected to the V700, the top of the 3 passenger monitor connectors must be selected, ie the one closest to the driver monitor connector.

Timespace recommends that high-quality HDMI cable should be used.

All HDMI cables must be tie-wrapped to the HDMI holder (Figure 10 V700 Mechanical Data / Fixing Specification.

NB: Any HDMI cables connected to the V700 must have the following ferrite installed near the V700:

Wurth 74271622   Farnell part no. 3517080

NB: if using the Reviewer, the passengers monitors will temporarily go off while the resolution is adjusted to be compatible with the Reviewer. When the Reviewer is removed, the monitor will return to normal.

6.6   Installation Instructions

The V700 is designed to be mounted on its base plate; horizontally or vertically in any axis, but on a strict perpendicular angle. For wall mounting with the V700 horizontal, the right angle plate accessory must be used (see diagram).
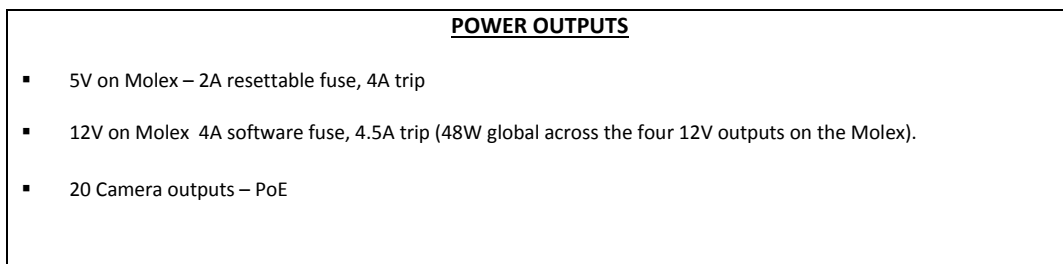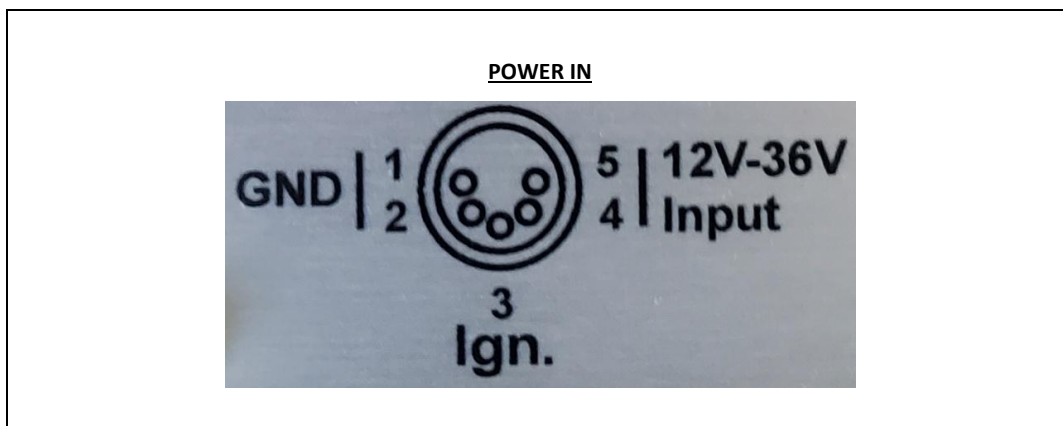
It is recommended to power the V700 via the two power input pins on the 5 pin XLR connector. For maximum reliability, Timespace recommends that the power feed should be split and wired to both pins. In addition, it is recommended to wire an ignition feed to ALARM1 on the Molex connector.

6.6.1   Proximity of other electrical equipment

Any electrical equipment located close to the V700 should be EMC-tested and comply with the relevant standards. Timespace recommends that aerials, mobile devices or high-powered electrical equipment should be located away from the V700.

6.6.2   Grounding

The V700 is grounded via the 5-pin Neutrik power connector.

6.6.3   Camera connections

Timespace recommends the use of shielded CAT6 cables for camera installation.

6.6.4   "Ethergrip" camera strain relief

The V700 is supplied with the Timespace "Ethergrip" to provide camera cable strain relief and reduce the likelihood of intermittent camera disconnects (See Figure 11 V700 Ethergrip (Camera cable strain relief)).   Camera cables must be clamped into position using this Ethergrip.

6.6.5   HDMI connections

Timespace recommends that high-quality HDMI cable should be used.   Any HDMI cables connected to the V700 require a ferrite, see End Panel HDMI Connections and diagram for details. All HDMI cables must be tie-wrapped to the HDMI holder (Figure 10 V700 Mechanical Data / Fixing Specification).

6.6.6   Cartridges

The V700 requires specific V700-compatible cartridges. These are clearly identified with a label on the front of the cartridge.

The V700 has been designed so that only V700-compatible cartridges can be inserted. Any non-V700 cartridges will not connect.

For new installs, Timespace recommends that that the disk is formatted using the "DELETE ALL RECORDINGS" function in the menu system: SYSTEM SETTINGS > RESET > DELETE ALL RECORDING FILES.

6.6.7   CANLink

The V700 contains built-in CANLink for CAN data recording. The CAN output on the Molex connectors (see [diagram](#)) needs to be connected to the vehicle's FMS connector.   For further details see https://www.tspace.co.uk/pdf/timespace-canlink-datasheet.pdf or contact Timespace.

If CANLink is connected, CAN data will be recorded – no further configuration is required.

6.6.8   Installation Check List (Example)

REQUIRED/RECOMMENDED

Mount the V700 in position on the base plate or right angle bracket

Install Timespace Ethergrip for camera cable strain relief

Tie-wrap all HDMI cables securely to the HDMI bracket provided.

Configure and enable IP Cameras.

Set up the ALARM INPUTS for ignition, indicator L/R, brake, reverse, other…

Set the POWER OPTION to desired KEEP ON time

Set POWER STATE to RECORD

Connect CAN from V700 to the vehicle

Connect HDMI driver and/or passenger monitor(s) to V700

OPTIONAL

Set up additional ALARM INPUTS .

Set up the VIDEO OUTPUT for MAIN and AUX to display camera output

Add vehicle ID / Registration number to the Camera text

Enable GPS (and set correct BAUD rate)

Enable IBUS (Transport for London diagnostic reporting)

Connect WiFi module for LANLink

Set ENABLE RECORD button to NO

6.6.9   Mechanical Data / Fixing Specification
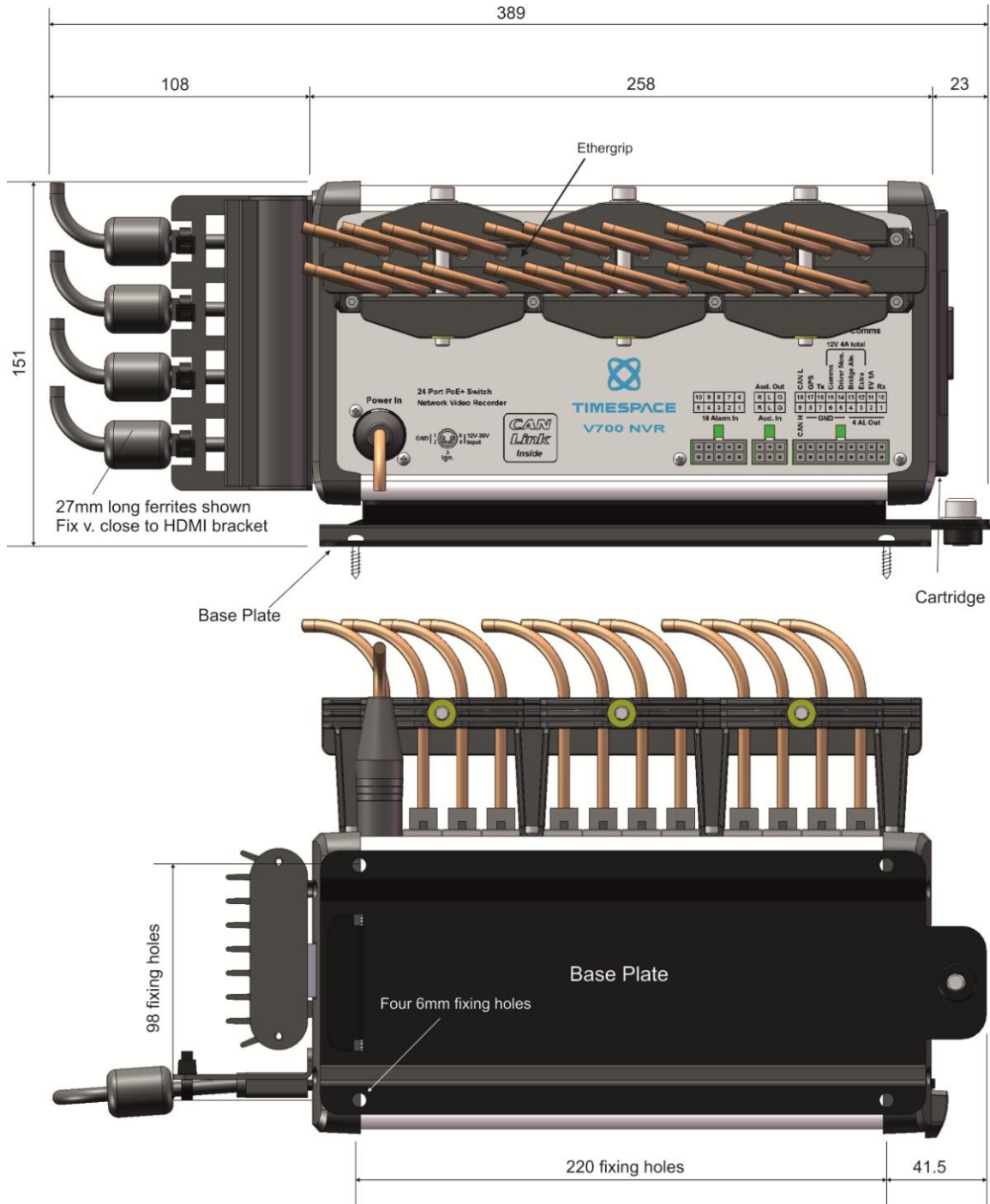
Figure 10 V700 Mechanical Data / Fixing Specification
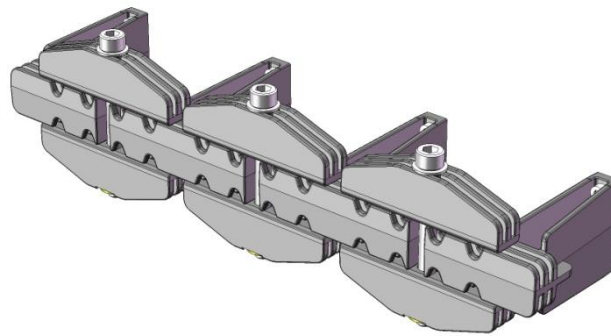
Figure 11 V700 Ethergrip (Camera cable strain relief)
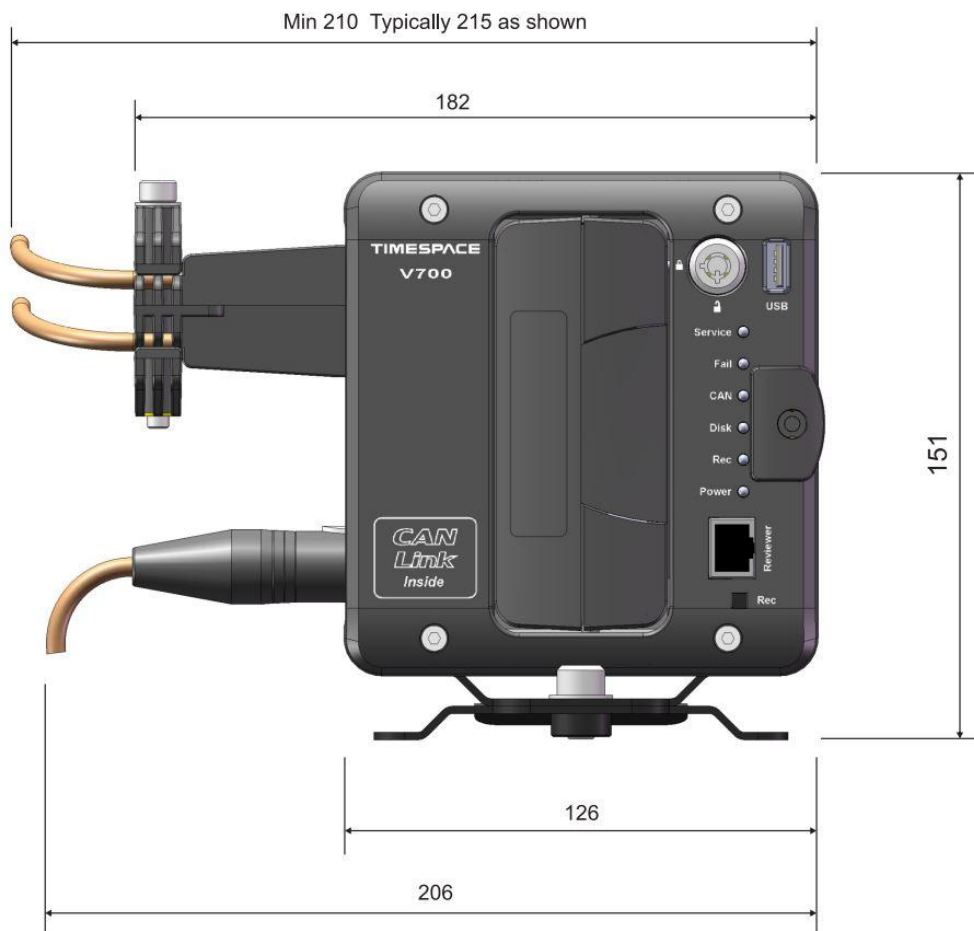
Figure 12 V700 Front Panel Measurement Data

6.6.10 Mounting Plates and clearances

The V700 has a wide metal peg at the rear which slots in to the base plate. The front of the V700 can then be screwed down to the base plate using an **M8 bolt** (provided). A 6mm Allen key will be required.
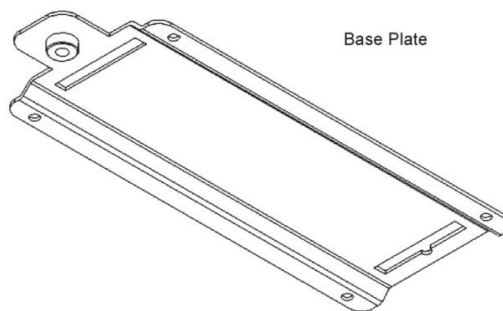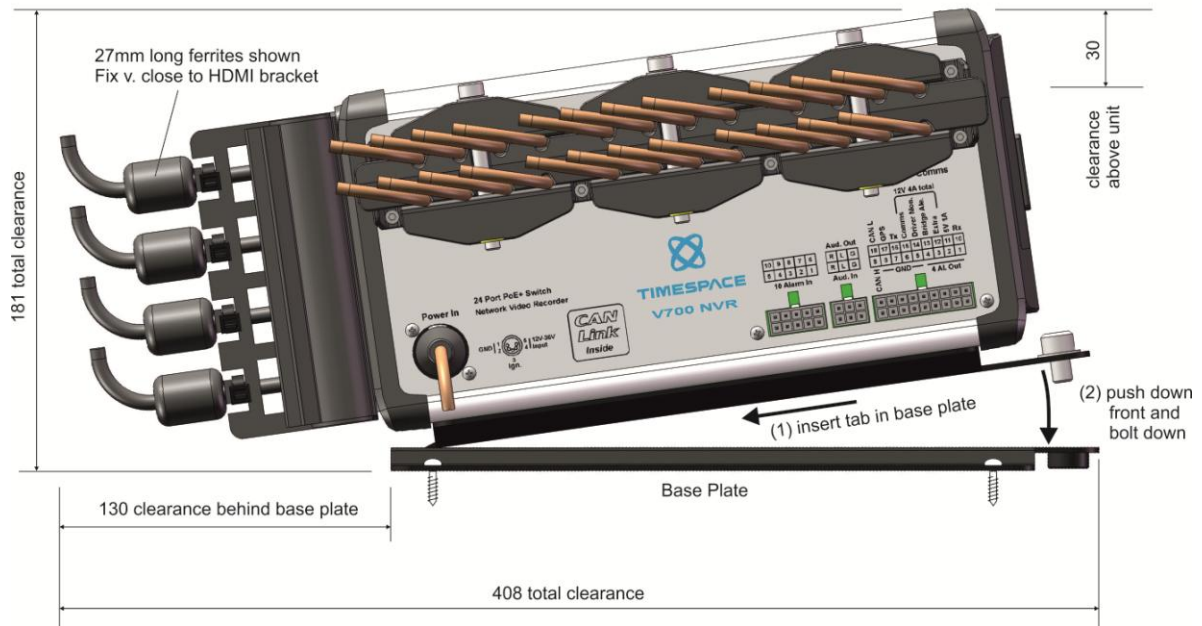
Figure 13 Mounting Plates and Clearances

Min 200 Typically 205 as shown   13

note A

98

153

29

4 x M5 screws
provided with
right angle plate

These attach
existing base plate
to right angle plate

V700 Right Angle Plate (Accessory)

note A

4 x 6mm dia holes
to attach right angle plate
to wall
220 x 98mm centres
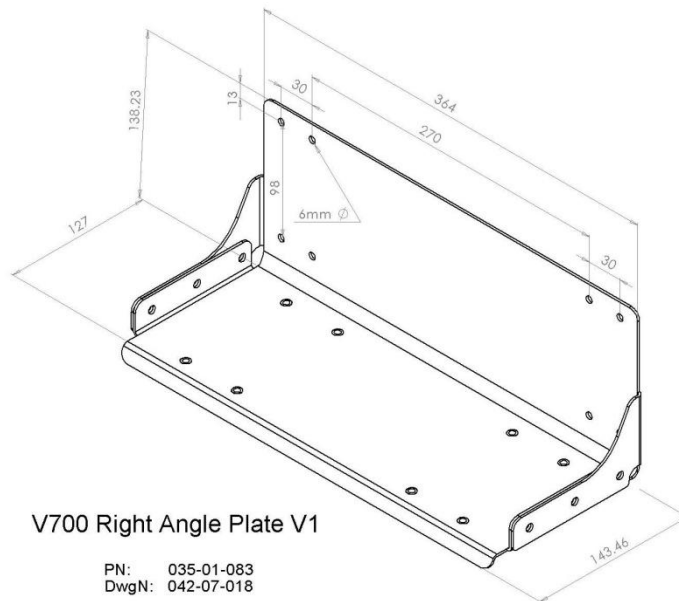
V700 Right Angle Plate V1

PN: 035-01-083
DwgN: 042-07-018

138.23

13

30

364

270

98

6mm ∅

30

127

143.46

Figure 14 V700 Right-angle plate accessory

83

6.6.11 Installation Spare Parts List

POWER CONNECTOR

Neutrik NC5FXX-B (solder bucket)

VIDEO OUTPUT

Ferrites for HDMI cables:

Wurth 74271622

Farnell part no. 3517080

	Molex PN	**Farnell PN**	**RS PN**
MOLEX CONNECTOR			
10 Way Molex Mini-Fit Jr Plug	39-01-2100	151-870	484-1798
6 Way Molex Mini-Fit Jr Plug	39-01-2060	151-868	484-1760
18 Way Molex Mini-Fit Jr Plug	39-01-2180	996-3251	172-9027
Crimp Sockets for the above Molex (for wire size 18-24AWG)	39-00-0039	973-2195	172-9134
Extraction Tool	11-03-0044	525-080	215-5900

7. Service and Maintenance

7.1   Maintenance

There is no requirement for regular maintenance or returning the V700 to Timespace Technology. There are no user-changeable parts in the V700. The battery in the V700 is designed for a life in excess of 15 years.

7.2   Service and Fail LED

The Service and Fail LEDs on the V700 front panel give a positive indication that a system fault has occurred.

If the Service LED is lit then the system will most likely be functional but may not be performing as intended. An example may be one of the cameras has failed.

If the Fail LED is lit then the system will not be functioning and requires immediately attention. An example may be that the hard disk cartridge has failed.

The Service/Fail conditions are stored on the V700 for review. Each condition has an identifiable code and associated description. The service log can be viewed here; SETTINGS MENU > ADVANCED > VIEW SERVICE LOG menu.

The LED will remain lit and the problem which caused the Service LED to light will be listed in the log until the log is reset by selecting RESET SERVICE LOG.

A full list of <u>Service Codes</u> is in the table on the next page.

7.3   Service Codes

SERV_CAMOPEN	1**	No current on power input to camera ** and no camera signal.
SERV_CAMSHORT	2**	Over-current on power input to camera ** and no camera signal.
SERV_CAMSIGNAL	3**	Camera disconnected for cameras 1-16 => codes 301-316.
SERV_CAMTYPE	4**	Check camera 1-16 => codes 401-416.
SERV_CAMDISC	811	Camera disconnected for camera.
SERV_HDDSMART	812	S.M.A.R.T Info.
SERV_LOWFPS	813	FPS lower than threshold.
SERV_TIMEERROR	815	Time error.
SERV_RTC_ERROR	816	RTC battery fail.
SERV_CHECKSIM	817	Modem send error - check simcard.
SERV_DIAL_OUT_FAIL	818	Modem error - dial out failed (image over gsm).
SERV_MAIN_VOUT	820	Incorrect voltage on Main video output.
SERV_AUX1_VOUT	821	Incorrect voltage on Aux1 video output.
SERV_EXT_LOG	835	External control log (ext command).
SERV_CAMDISC_REPEAT	840	Intermittent camera connection.
SERV_USR_RESET	863	Log reset by user.
SERV_HDD_DELETE_FILES	864	Operation to delete all recording files on HDD did not complete.
SERV_HDD_SECURE_WIPE	865	Secure disk wipe on HDD did not complete.
SERV_SD_DELETE_FILES	866	Operation to delete all recording files on SD did not complete.
SERV_SD_SECURE_WIPE	867	Secure disk wipe on SD did not complete.
SERV_BRIDGE_ALERT_NC	868	Bridge Alert controller is not connected.
SERV_UNSAFE_SHUTDOWN	870	Unit was not shutdown gracefully.
SERV_ACC_NO_CALIBRATION	898	Accelerometer not calibrated.
SERV_NOTRECORDING	899	special for IBUS - not recording
SERV_FAIL_HDD_PACKET_WRITE	900	HDD packet write fail.
SERV_FAIL_HDD_PACKET_READ	901	HDD packet read fail.
SERV_FAIL_HDD_SECTOR_WRITE	902	HDD sector write fail.
SERV_FAIL_HDD_SECTOR_READ	903	HDD sector read fail.
SERV_FAIL_SD_READ_WRITE	904	SD card read/write fail.
SERV_FAIL_SD_FAIL	905	SD card failure (replace and format SD card.)
SERV_FAIL_SD_ERROR	906	SD card error (replace SD card.)
SERV_FAIL_H264_CODEC_0	907	H264 Codec (0) Error (rebooting).
SERV_FAIL_H264_CODEC_1	908	H264 Codec (1) Error (rebooting).
SERV_FAIL_LOW_BATTERY	909	Low battery - recorder stopped.
SERV_FAIL_HDD_DIR_FULL	910	HDD full, failure to create file on Hard Disc.
SERV_FAIL_SD_DIR_FULL	911	SD card full, failure to create file SD Card.
SERV_FAIL_IPCAM_IPERR	912	IP Camera address incorrectly configured, doesn't match VLAN2 subnet.
SERV_FAIL_QUOTA_TEST	998	In-house fail quota testing.

8. Software

8.1   V700 Software and Updates

Timespace recorders use proprietary embedded software in the form of **.XOS** files. Software updates for Timespace DVRs/ NVRs and PCLink Suite are available through authorised distributors or by contacting Timespace support; support@tspace.co.uk.

There are a number of ways to upload a new version of software onto Timespace DVRs/NVRs :

1. Software can be uploaded via Timespace's LANLink fleet management platform – "XOS jobs" can be created on LANLink to upload software to individual or multiple DVRs/NVRs .
2. Software can be uploaded manually via the removable cartridge or SD card – both requiring a Timespace Reviewer to access the DVRs/NVR's menu system.
3. Software can be uploaded onto a V700 via an SD card without requiring a Timespace Reviewer to access the V700's menu system.

At the time of writing, V700 XOS updates are not currently available via PCLink.

8.1.1   Software upload via LANLink

Timespace's LANLink fleet management platform is a vehicle CCTV health status and footage download system. Installed on a server, the LANLink engine communicates with Timespace vehicle DVRs/NVRs via depot WiFi or mobile networks. When the vehicle is in WiFi or mobile network range, LANLink periodically downloads CCTV health status, file system; camera snapshot, GPS and vehicle CAN engineering information from the DVRs/NVRs, displaying it in a series of web pages. Live camera views can also be streamed via mobile networks.

LANLink can create "jobs" to upload new software to individual or multiple DVRs/NVRs , automating the process and avoiding the need for staff to visit the vehicle to manually upload new software.

Contact Timespace for further details of LANLink, including an outline specification for a LANLink server.

8.1.2   Software upload via ONVIF

ONIVIF functionality on the V700 is continually being developed. Contact Timespace for details of feature availability.

8.1.3   Manual Software Upload

Software can be uploaded to the V700 by copying an XOS file onto the removable cartridge or SD card using the PC/<u>USB interface</u>, then inserting the cartridge/SD card into the recorder and navigating to the relevant menu (see below) using the Timespace <u>Reviewer</u>. An example of the .XOS file name is **V700 V1.1.0.xos**

1. Using the <u>USB interface kit</u>, copy the .XOS file from the PC to the cartridge/SD card, ensuring that no other XOS files already exist on the disk.
2. Insert the cartridge into the V700 and turn the key lock to the locked position.
3. Once the V700 has initialised, use the <u>Reviewer</u> to navigate to the V700's SETTINGS MENU > ADVANCED > and select <u>LOAD SOFTWARE/SETTINGS</u>.
4. Select LOAD FROM: > HD or SD as required
    Select LOAD SYSTEM SOFTWARE. When the V700 reboots, the current software version is displayed on screen. It can also be checked in the SETTINGS MENU > SYSTEM SETTINGS > SYSTEM INFO menu.

WARNING – V700 MAY BECOME UNUSABLE IF POWER TO THE UNIT IS LOST DURING A SOFTWARE UPGRADE.

8.1.4   Software Download

Software can be downloaded from the V700 to the cartridge/SD card. This feature can be used to replicate settings from one V700 to another when setting up multiple units.

1. With the cartridge locked in place in the V700, go to the SETTINGS MENU > ADVANCED and select the <u>SAVE SOFTWARE/SETTINGS</u> option.
2. Select SAVE TO: > SD or HD as required
3. Select from SAVE options:
    - SAVE MENU SETTINGS
    - SAVE CONFIG DATA – saves the <u>TSConfig</u> file for IP Camera settings.

This will save the current V700 Menu Settings or Config data to the file on the HD cartridge/SD card. The cartridge/SD card could then be used in another V700 to load the Software and Settings (using the LOAD WITH MENU SETTINGS option). Also, the current.xos file could be copied from the cartridge onto a PC using the <u>USB kit</u> and kept as a master settings file.

8.1.4.1   Software download via PCLINK

PCLink Suite V7.2 onwards includes a software download feature for acquiring the current and future software release for PCLink Suite and Timespace Digital Video recorders.

At the date of this manual, this option is not yet available for V700 software updates. This feature will be available in future, please contact Timespace for more information.

8.2 PCLink Suite

Timespace PCLink Suite consists of applications that allow Playback, Live View, Configuration and Download of recorded files from the X, K and V series range of DVRs/NVRs.

NB: PCLink V8.4.0 or later is required in order to playback footage from the V700.

Detailed instructions of each application within PCLink Suite can be found in the PCLink Suite manual, available on our website www.tspace.co.uk

Application overview;

PCLink200   - Review recorded footage via USB cable connected to removable cartridge.

                        - Review recorded footage over IP connection to the DVR/V700.

                        - Live view of cameras (multi channel support).

                        - Remote configuration of DVR/V700 menu settings.

                        - Download file remotely (separate FTP client can also be used to download files).

RemoteLink   - Review recorded footage over GSM / IP connection to the X200.

                        - Live view of cameras (single channel support).

                        - Remote configuration of X200 menu settings.

LANLink   - Automatic Health checking over IP connection.

                        - Automatic and scheduled downloading of footage.

                        - Remote view of live camera streams, remote footage preview and download

XCommunicate - Download X200 files remotely (single file download support).

8.3   LANLink
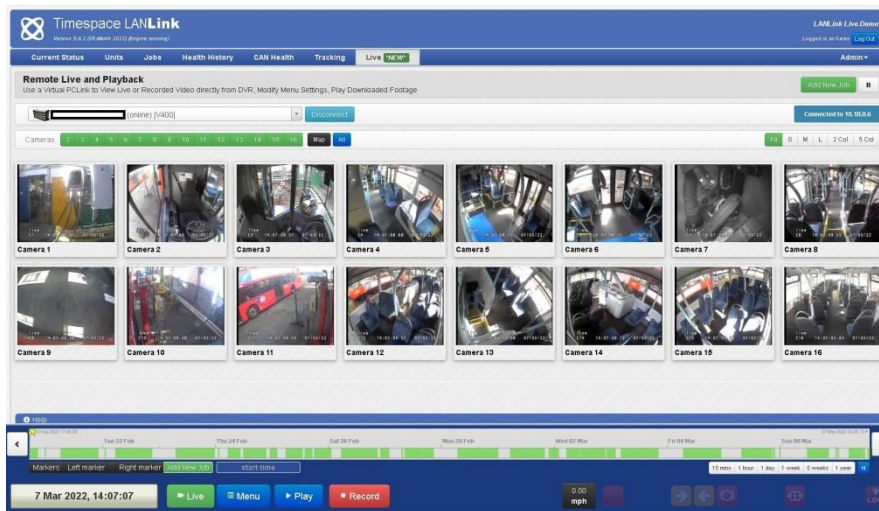
Timespace's proprietary LANLink fleet management platform is a vehicle CCTV health status and footage download system. Installed on a server, the LANLink engine communicates with vehicle V700s via depot WiFi or mobile networks. When the vehicle is in WiFi or mobile network range, LANLink periodically downloads CCTV health status, file system; camera snapshot, GPS and vehicle CAN engineering information from the V700, displaying it in a series of web pages. Live camera streams can also be viewed over mobile networks, and recorded footage can be previewed and downloaded remotely.

LANLink V5.7.3 or later is required for fleets which include V700s.

Contact Timespace for further details of LANLink, including an outline specification for a LANLink server.

Final page of main manual

9. Appendices

9.1 Appendix 2 – V700 Data Sheet

Timespace V700 NVR
DRIVING SECURITY

Full-IP Network Video Recorder

Local live view using Reviewer or video out to monitor

Review recordings directly from a removable cartridge

WiFi / 4G connection

Multi-channel live view and download via LANLink Live

Bridge Alert System

Performance

IP Cameras

Image bit rate – quality setting	Typically 1-6Mb/s (camera-dependent)
IP video inputs	Up to 20
IP Camera Resolution	720P, 1080P, max 3840 x 2160
Image rate Min – Max	Up to 25 IPS per camera (camera- dependent)

Audio

Audio microphone input	2, selectable line or mic-level
Audio recording on IP cameras	Yes (not at launch)

Other

Video out	4 HDMI
Video Streaming Live view – multi channel	25 IPS
Hard disk capacity options	1TB, 2TB, 4TB
Solid state disk capacity options	1TB, 2TB
SD card capability	Up to 2TB
G Sensor	3 axis
Alarm input	10
Alarm output	4

General Features

- Onvif-conformant
- H264 (MPEG-4 Part 10) compression
- Simultaneous record, live view and file download
- Built-in vehicle CAN engineering data recording
- Auto record on power-up or single button start/stop recording
- Recorder status indicators (LEDs)
- Timer shutdown for power saving
- Optional embedded GPS position & speed
- Local set-up and configuration using Timespace Reviewer
- Short circuit protection
- Multi ranging PSU with power monitoring diagnostics
- Removable, lockable hard disk cartridge
- Simple, intuitive menu system with help screens

Optional Features

- Bridge Alert low bridge warning device
- LAN / Wi-Fi / 4G / 5G

Connections / Interfacing

IP Cameras	POE RJ45 connectors
Video out	4 x HDMI connectors
Audio microphone in	2 on the 6-way Molex
Timespace Reviewer	1 x RJ45
LAN / WiFi / 3G / 4G (Comms)	1 x RJ45
IBUS	1 x RJ45
GPS	On the 18-way Molex
RS232	Tx / Rx on the 18-way Molex
Alarm inputs	10 on the 10-way Molex
Alarm output	4 on the 18-way Molex
Power input	5-pin XLR connector
Power output	5V and 4 x 12V on the 18-way Molex

Physical Characteristics

Enclosure	Extruded Aluminium, with moulded end caps
Dimensions (mm) (including mounting plate)	327(l) x 126(w) x 151(h)
IP rating	IP50
Operating temperature range	-10 to 50 °C
Humidity	10 – 90% r.h., non condensing
Mounting plate hardware (included)	Screw-mounted
Power supply input	12 - 36V DC polarity protected
Continuous power – No Cameras, No reviewer, No monitors	15W
Continuous power – with cameras (typical*)	80W
Continuous power – Sleep mode, no Reviewer	0.6W
Max current on start up	3.6A
Maximum POE power	80W at 24V input, 40W at 12V input
Maximum 12V Molex power	80W
External power output	5V power output 10W (2 Amps, fused)
Weight- including removable cartridge and base plate, with strain relief	3.9Kg
Weight - including removable cartridge and base plate, without strain relief	3.7Kg

Regulatory Approvals

CE
E Mark
R118 (Fire Retardancy)
RoHS
WEEE

*20 cameras, driver monitor, passenger monitor, no Reviewer.

Timespace Technology Ltd reserves the right to amend product specifications without notice and without incurring obligation.

TIMESPACE

ISO 9001:2015 Quality Management
FM 525394

9.2   Appendix 3 – Cartridge Range

Timespace Cartridge Range

Description	X100 DVR	X200 DVR	X300/X500/R500 DVRs	V400/V500 V600/V700 DVRs
	Part No.	Part No.	Part No.	Part No.
500GB Hard Disk Cartridge	-	T401-500	T601-500	T701-500
1TB Hard Disk Cartridge	-	-	T601-1000	T701-1000
2TB Hard Disk Cartridge	-	-	T601-2000	T701-2000
4TB Hard Disk Cartridge	-	-	T601-4000	T701-4000
120GB Solid State Cartridge	T403-120	T403-120	T603-120	-
240GB Solid State Cartridge	-	-	T603-240	-
500GB Solid State Cartridge	-	-	T603-500	T703-500
1TB Solid State Cartridge	-	-	T603-1000	T703-1000
2TB Solid State Cartridge	-	-	T603-2000	T703-2000

Please note:
- All cartridges are covered by 30 month warranty

TT0713 Issue 7, 27th July 2023.

9.3   Appendix 4 – Hard Disk Best Practice Guide

Best Practice Guide

TIMESPACE

Hard Disk Cartridges

This Best Practice Guide has been produced by Timespace Technology to advise users of Timespace digital video recorders (DVRs). It details Timespace's recommended best practice for use and management of the DVRs' Hard Disk Cartridges – "disks". For further advice contact: support@tspace.co.uk .

All Timespace DVRs and disks

1. *DVR software* – Timespace recommends that DVRs should always use the latest release of DVR software. Details of current software versions can be found at www.tspace.co.uk . DVR software updates are available from your installer, from Timespace at support@tspace.co.uk and via Timespace's proprietary PCLink and LANLink software.

2. *Deleting recordings* - never delete recordings or format the disk on a PC – always perform this operation on the DVR unit.

3. *USB connectors* – if using a Timespace Cartridge Station with a disk, plug in both leads of the cartridge station. For best performance, plug into the rear USB port of a PC.

4. *Files not visible?* - if files can be seen on the DVR unit but not on a PC, perform "Check And Correct" on the DVR (found in Settings Menu > System Settings > File System > File System Check Menu). This should correct the error, and footage will then be viewable on a PC.

5. *Time and date issues* – Check that the time and date set on the DVR unit is correct (found in Settings Menu > System Settings > Time and Date). If time and date is showing 00:00:00 or is significantly out, then the DVR will need attention – contact your installer for service information.

6. *Disk refurbishment* - to ensure system reliability, it may be prudent to consider refurbishment of older disks. It may also be possible to upgrade disks to larger capacities – contact your installer for details.

X100 and X200 DVRs and disks only

7. *Swapping disks* - if a disk is swapped between an X100 and an X200 unit, delete all recordings prior to use. This prevents confusion with footage and different X100/X200 file types.

X100 DVRs and disks only

8. *X100 disk capacity* – the X100 only supports disks 240GB or smaller.

..//END

www.tspace.co.uk   page 1 of 1   TT0918 Issue 1, June 2019

9.4   Appendix 5 – Certificates of conformity and type approval

9.4.1   CE Declaration of Conformity

EC Declaration of Conformity (CE)

We   Timespace Technology Ltd

Lakeview Court
Ermine Business Park
Huntingdon
PE29 6UA
United Kingdom

declare that the

V700 Network Video Recorder

meets the requirements of the intent of the European Union Directive 2014/30/EU referred to as the
Electromagnetic Compatibility (EMC) Directive. The product conforms to the following standards
which have been listed in the official journal of the European Union:

EN55032:2015 (+A11) Electromagnetic compatibility of multimedia equipment – Emissions
Requirements

EN55035:2017 (+A11) Electromagnetic Compatibility of Multimedia equipment – Immunity
Requirements

Dr ROBERT HEYLEN
TECHNICAL DIRECTOR

6th July 2023

9.4.2   E11 R10 Approval (Electromagnetic compatibility)

Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING APPROVAL EXTENDED OF A TYPE OF ELECTRONIC SUB-
ASSEMBLY WITH REGARD TO REGULATION NO. 10.06

(E11)   Approval No: E11*10R06/02*12042*01

1.   Make (trade name of manufacturer): Timespace Technology Ltd

2.   Type and general commercial description(s): V700NVR (Network Video Recorder), Model T920

3.   Means of identification of type, if marked on the component: Self-adhesive label, serial no: label
         containing the part number

3.1.   Location of that marking: Label located on the side of the NVR top left

4.   Category of vehicle: Not applicable

5.   Name and address of manufacturer:

         Timespace Technology Ltd
         Lakeview court
         Ermine Business Park
         Huntingdon
         PE29 6UA
         United Kingdom

6.   In the case of components and separate technical units, location and method of affixing of the
         approval mark: Self -adhesive label located on the side of the NVR top right

7.   Address(es) of assembly plant(s):

         Timespace Technology Ltd
         Lakeview court
         Ermine Business Park
         Huntingdon
         PE29 6UA
         United Kingdom

EAB604677

An executive agency of the Department for Transport
September 2022 Revision 3
Page 1 of 3

UK Approval Authority | Vehicle Certification Agency
02-Apr-24

E11*10R06/02*12042*01

8.   Additional information (where applicable): See Appendix below

9.   Technical Service responsible for carrying out the tests: Horiba MIRA Ltd

10.   Date of test report: 08th March 2024 (EMC Test Report) and 14th March 2024 (Technical Review)

11.   No. of test report: HORIBA MIRA-1228591-001#01 and EAB604677 EMC Technical Review & Declaration

12.   Remarks (if any): See Appendix below

13.   Place: BRISTOL

14.   Date: 02 APRIL 2024

15.   Signature:

                                        C McCABE
                                        Chief Technical and Statutory Operations Officer

16.   The index to the information package lodged with the Approval Authority, which may be obtained on request, is attached.

17.   Reasons for extension: Extension to cover the following changes in the Main Board, IF Board and PSU Board:
        V700 Main board changes
        1) Common mode chokes added to the HDMI data signals
        2) U13 1V1 regulator is now supplied from 3.3V
        V700 IF board changes
        1) EMC shields removed from the IF boards
        V700 PSU board changes
        1) MH1 & MH2 connected to chassis ground
        2) J1 pins 1 & 6 connected to Chassis ground
        3) 2.2uF added across Q1 pin8 and R12 pin2 – 12Volts regulator
        4) 2.2uF added across Q4 pin8 and Q5 pin1 -55Volts regulator

UK Approval Authority | Vehicle Certification Agency
02-Apr-24

E11*10R06/02*12042*01

Appendix
to type approval communication form No. E11*10R06/02*12042*01
concerning the type approval of an electrical/electronic sub-assembly under UN Regulation No. 10.06

1.   Additional information:

1.1.   Electrical system rated voltage: 24.0 V. neg ground

1.2.   This ESA can be used on any vehicle type with the following restrictions: Not applicable

1.2.1.   Installation conditions, if any:
         Manufacturer's instructions to be followed

1.3.   This ESA can be used only on the following vehicle types: Not applicable

1.3.1.   Installation conditions, if any:
         Not applicable

1.4.   The specific test method(s) used and the frequency ranges covered to determine immunity
         were: (Please specify precise method used from Annex 9):
         1)   ISO 11452-4: 2011, 20 to 400 MHz, Bulk Current Injection
         2)   ISO 11452-2: 2004, 400 to 2000 MHz, Absorber Line Shielded Enclosure

1.5.   Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for
         carrying out the tests: HORIBA-MIRA Limited, Watling Street, Nuneaton, Warwickshire, CV10
         0TU, United Kingdom

2.   Remarks: None

UK Approval Authority | Vehicle Certification Agency
02-Apr-24

9.4.3   E11 R118 Approval (Fire safety/burning behaviour of materials)

Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED[(1)]/ APPROVAL EXTENDED [(1)]/ APPROVAL REFUSED [(1)]/ APPROVAL WITHDRAWN [(1)]/ PRODUCTION DEFINITIVELY DISCONTINUED [(1)] OF A COMPONENT TYPE PURSUANT TO REGULATION NO 118.03

E11   Approval No: E11*118R03/00*1281*00

Reason for extension: Not applicable

SECTION I

GENERAL

1.1.   Make (trade name of manufacturer): Timespace Technology Limited

1.2.   Type: TDVRS

1.3.   Means of identification of type, if marked on the device [(b)]: Not applicable

1.3.1.   Location of that marking: Not applicable

1.4   Name and address of manufacturer:

Timespace Technology Limited
Lakeview Court
Ermine Business Park
Huntington
PE29 6UA
United Kingdom

1.5.   Location of the approval mark: Manufacturers label affix to component or packaging

ESV479167

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March 2018 Revision 0
Page 1 of 1

UK Approval Authority | Vehicle Certification Agency
19-Mar-20

E11*118R03/00*1281*00

1.6.   Address(es) of assembly plant(s):

        Timespace Technology Limited
        Lakeview Court
        Ermine Business Park
        Huntington
        PE29 6UA
        United Kingdom

SECTION II

1.   Additional information (where applicable): See Appendix

2.   Technical Service responsible for carrying out the tests: Vehicle Certification Agency

3.   Date of test report: 04 February 2020

4.   Number of test report: ESV479167

5.   Remarks (if any): None

6.   Place: BRISTOL

7.   Date: 19 MARCH 2020

8.   Signature:

                                                          D LAWLOR
                                      Chief Technical and Statutory Operations Officer

9.   The index to the information package lodged with the Type Approval Authority, which may be
      obtained on request, is attached.

(1)   Strike out what does not apply (there are cases where nothing needs to be deleted, when more than one entry is applicable)

(b)   If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit
       types covered in this information document, such characters shall be represented in the documentation by the symbol "?" (e.g.
       ABC??123??)

UK Approval Authority | Vehicle Certification Agency

19-Mar-20

E11*118R03/00*1281*00

APPENDIX

to type-approval communication form No. E11*118R03/00*1281*00

concerning the type-approval of a component type pursuant to Regulation No. 118.03

1.   Additional information. See Appendix

1.1.   Interior materials

1.1.1. The direction which the component may be installed: ~~horizontal / vertical /~~ both horizontal and vertical direction(s). [1]

1.1.2. Fulfils the requirements in paragraph 6.2.2.: Yes/~~Not applicable~~[1]

1.1.3. Compliance has been checked for components approved as complete devices: Yes/~~No~~[1]

1.1.4. Any restrictions of use and installation requirements: This device / material is prohibited from use within the engine compartment and any heating compartments

1.2.   Insulation materials

1.2.1. The direction which the component may be installed: horizontal / vertical / both horizontal and vertical direction(s). [1] Not applicable

1.2.2. Compliance has been checked for components approved as complete devices: yes/no [1]
        Not applicable

1.2.3. Any restrictions of use and installation requirements: Not applicable

1.3.   Electric cables

1.3.1. Any restrictions of use and installation requirements: Not applicable

2.   Remarks: None

UK Approval Authority | Vehicle Certification Agency

19-Mar-20

9.5   Appendix 6 – Splash Screen

SPLASH SCREEN – Enables use of a .BMP file to be displayed, for example an Operator/Company logo. Can be set to 5, 10, 20, 30, 60 seconds, or Until Exit (which requires user interaction to clear).

A tool can be provided on request to create the Splash Screen image in the correct format, from an input source. The input source should not be more than 1.5mb and should be a simple image with plain colours, approx 720x576. An example images is show below;
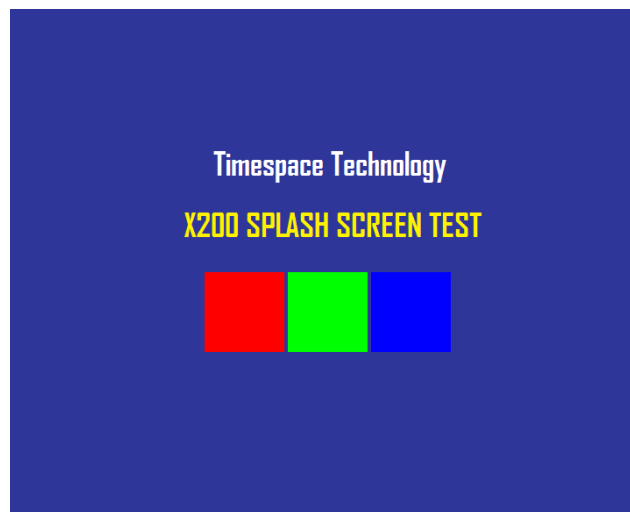
Once in the correct format (using the Timespace conversion tool), the image is placed on the V700 cartridge, named; Splash.ext. Once configured in the menu, the Splash Screen will be read from the disk and displayed.

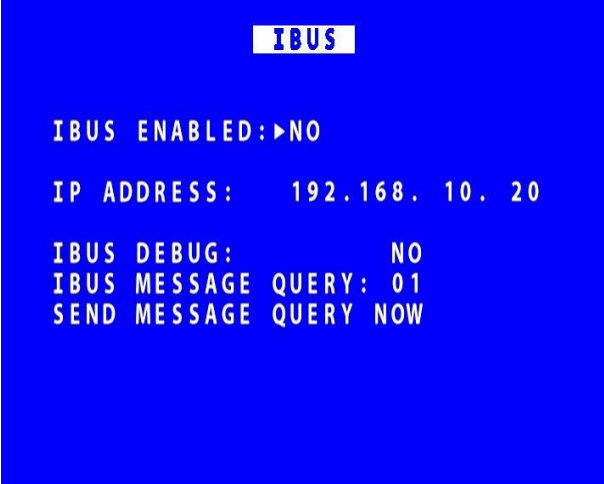Please contact support@tspace.co.uk for the conversion tool.

9.6   Appendix 7 – Transport for London IBUS diagnostic interface

Timespace has developed a diagnostic interface in conjunction with Transport for London (TFL) to monitor the status, performance and health of Timespace digital video recorders (DVRs) on London Buses.

Data strings are passed between the DVRs and the IBUS system every 5 minutes. In addition to the scheduled data packets, the DVRs can be queried by sending it a proprietary text string. Several different data sets can be retrieved according to the input string.

The IBUS menu is accessed using the short code **9001234** on the X200 and X300 (the short code can be entered from any menu using the number keys on the Reviewer). On the V-Series DVRs, the IBUS Menu is accessed via the menu system:

Settings Menu > External Equipment > IBUS.

IBUS ENABLED – The IBUS interface can be enabled/disabled by setting YES/NO accordingly.

IP ADDRESS – is the IP address of VLAN3 on the V700. The default is 192.168.10.30.

IBUS DEBUG – For testing purposes a debug mode can be enabled. This will increase the rate of messages sent out from the V700 to every 5 seconds. It is not recommended to leave debug turned on during normal operation.

Example setup of the IBUS interface on a **V700** includes;
- Set recording parameters as required.
- Enter IBUS menu and set ENABLED to YES
- Navigate to the VLAN menu and set the IP ADDRESS to 192.168.10.30.

It is advised to set the correct date and time when enabling the IBUS feature and ensure no Service/Fail conditions are currently being displayed.

NB: on the V700 unit, port 23 is used for the IBUS interface (see Figure 6 V700 Side Panel Interface/Connections).

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