Marshall Electronics

VS-TKC-100

PTZ Controller



User Manual

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TABLE OF CONTENTS

1 - Introduction	4
2 – Installation Process	. 7
3 - Installing the Marshall Video Management Software	. 8
4 – Wire the PTZ Camera(s)	10
5 – Set Up VMS for Soft On-Screen PTZ Control	11
6 – Connecting TKC-100 and Installing the Driver	18
7 – Verifying the COM Port TKC-100	22
8 - Set Up the Seriel Protocol in VMS	23
9 - Set Up "PTZ SETUP" on the TKC-100	25
10 - Test TKC-100 with VMS Software	26

About the TKC-100

The Marshall PTZ Controller, TKC-100 is designed as a Hardware Pan, Tilt, Zoom and Focus Controller to work with Marshall Cameras under Marshall Video Management Software Control.

It operates under either Battery Power (9V) or AC with the include Marshall AC Adapter (12V).



1 - Introduction

The TKC-100 is designed to connect to the Computer that hosts the Marshall Video Management Software by USB, both V1.1 and V2.0 are supported.

The Marshall Video Management Software is available in a number of versions the only difference between them being how many Cameras can be controlled and viewed at the same time at the Console.

VMS-16	Supports	16	Camera on	Screen	at one	time	
VMS-32	Supports	32	Camera on	Screen	at one	time	
	o · · ·	~ 4	<u>^</u>	<u> </u>			

- VMS-64 Supports 64 Camera on Screen at one time
- VMS-128 Supports 128 Camera on Screen at one time

The VMS Software is used to select which Camera is controlled by the TKC-100.

The VMS Software offers not only the ability to Monitor the Cameras but also to Record them either by schedule, event or manually. We use a proprietary recording format, which allows us to record all the Streams to one File together with an individual audio track per camera. There is a stand-alone viewer available (VMS Client) without any control features to View an Audio/Video Live Stream or playback a Recording on another Computer.



The TKC-100 is designed to work exclusively with the Marshall Video Management Software and does not work with the Live View in Internet Explorer. So even if you are using just one Camera you must have the VMS Software Installed.

The choice of the Host Computer and its performance is determined by two factors, the resolution of the Cameras being displayed and how many will displayed at the same time. An installation with 4 Cameras at 720P will need less Computer horsepower than 16 Camera at 1080P.

1 - Introduction

We will describe the basic features of the Marshall Video Management Software VMS-16, as it is an intrinsic part of using the TKC-100, however, to enjoy all the advanced features of the VMS Software we encourage you to read the VMS User Guide.

So this manual will go over an Installation that has one Marshall PTZ Camera, a Computer and a Marshall TKC-100 PTZ Controller. If the Installation had a number of PTZ Cameras and / or Fixed Cameras you only need to add an IP Switch between the Cameras and Computer to accommodate this.



The Installation process is broken down into a number of steps. You may of course omit any of these steps if they have already been done:

- 2-1 Install the Marshall Video Management Software VMS-16.
- 2-2 Wire a Marshall PTZ Camera with a RJ45 Cable to the Host Computer.
- 2-3 Set-up the Camera to work with the Software using the Soft On-Screen PTZ Control.
- 2-4 Connect the Marshall TKC-100 PTZ Controller with the supplied USB Cable to the Computer and Install the FTDI CDM Drivers.
- 2-5 Check what COM Port the TKC-100 has been assigned.
- 2-6 Set-up the Serial Protocol within the Marshall Video Management Software to match the TKC-100 chosen settings.
- 2-7 Set-up the "PTZ Setup" on the TKC-100.
- 2-8 Test the TKC-100 for Pan, Tilt, Zoom and Focus.

To do this installation you will need the following:

- Marshall Video Management Software VMS-16
- Marshall TKC-100 FIDI Driver
- Marshall PTZ Camera
- Windows Computer XP Professional SP2 or above
- Marshall TKC-100 PTZ Controller with USB Cable
- RJ45 Cable

Once the Installation and test are complete it is very easy to add or subtract cameras in the future.

3 – Installing the Marshall Video Management Software

The Marshall Video Management Software is installed on a Windows Computer, which meets the following minimum specifications:

- Windows XP Professional SP2 or above, Vista Business, Server 2003, Server 2008 or Windows 7 Professional.
- CPU Intel Pentium 4, 2.4GHz or higher.
- RAM: 1GB or larger.
- Network: Ethernet 100Mbps or higher.
- Graphics:
 - Graphics memory: 128MB or larger
 - DirectX9.0c installed
 - Screen resolution: 1024x768 or larger

Note: The above minimum requirements are for normal use with a few cameras. The requirements to support more cameras vary a lot depending on the number of channels, video resolution, framerate, bitrate etc. Please contact Marshall Technical Support to get the recommendation for a specific configuration for supporting a large number of cameras.

The Marshall Video Management Software is available in two versions:

- VMS Server Software known as VMS Software
- VMS Client Software

To use the TKC-100 you will need to install the VMS Software.

- 3-1 Find the file folder on the TKC-100 Installation Disk called: "VMS Software".
- 3-2 Double left click on the file "VMS1_06_5111.exe".
- 3-3 The Welcome to the InstallShield Wizard for VMS window will appear, Click "Next".



- 3-4 When localization window appears, select language of your choice, Click "Next".
- 3-5 Choose destination location; typically use the default setting "C\Program Files\VMS\". Click "Next".

3 – Installing the Marshall Video Management Software

- 3-6 After the install program pane appears, Click "Install" and the install will begin automatically.
- 3-7 When the installation is complete, a window will appear stating "Installation Complete". <u>Do not select</u> "Launch VMS" box as shown below. Click "Finish".

VMS installer	
	Installation Complete
	Setup has finished installing VMS on your computer.
	Launch VMS
	< Back Finish Cancel

3-8 You should find an icon on the desktop that looks like this:



4 – Wire the PTZ Camera(s)

4-1 Connect up one or more Marshall PTZ Cameras to the Host Computer with Cat5e/RJ45 Cable. If you have one Camera you may direct connect it to the Host Computer. For more than one PTZ Camera you will need to insert a Switch between the Cameras and the Host Computer as shown below.



The first thing to do is set-up the Host Computer for a Fixed IP Address. Here's an example using Windows XP Professional:

5-1 Go to Control Panel and open Network Connections.



- 5-2 When you connect the Switch or Camera, you're computer find the acquired the device. The computer in this example has a Dual NIC (Network Interface Card) so it can support both a Static and DHCP Network at the same time.
- 5-3 Right mouse click the Local Area Network Connection, highlight the Internet Protocol (TCP/IP) and click on Properties.

🚣 Local Area Connection 1 Properties 🔋 🕺	Internet Protocol (TCP/IP) Properties
General Authentication Advanced	General Alternate Configuration
Connect using: Image: NVIDIA nForce Networking Controller Configure	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
This connection uses the following items:	Dtain an IP address automatically
Eile and Printer Sharing for Microsoft Networks	C Use the following IP address:
Cost Packet Scheduler	[P address:
	Subnet mask:
	Default gateway:
	Obtain DNS server address automaticallu
Transmission Control Protocol/Internet Protocol. The default	C Use the following DNS server addresses:
wide area network protocol that provides communication across diverse interconnected networks.	Ereferred DNG server:
Show icon in notification area when connected	Alternate DNS server:
✓ Notify me when this connection has limited or no connectivity	
	Adyanced
OK Cancel	OK Cancel

- 5-4 The Internet Protocol Properties Page will appear to set up for DHCP.
- 5-5 Select "Use the following IP address".

Internet Protocol (TCP/IP) Properties	×	Internet Protocol (TCP/IP) Properties
General	-	General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.		You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
O Obtain an IP address automatically		Obtain an IP address automatically
Use the following IP address:		Use the following IP address:
IP address:		IP address: 192.168.1.99
Sybnet mask:		Subnet mask: 255 . 255 . 0
Default gateway:		Default gateway:
C Obtain DNS server address automatically		C Diptain DNS server address automatically
Use the following DNS server addresses:		Use the following DNS server addresses:
Preferred DNS server:		Preferred DNS server:
Alternate DNS server:		Alternate DNS server:
Advanced		Advanced
OK Cancel		OK Cancel

- 5-6 Enter **IP Address 192.168.1.99** and the subnet mask will populate automatically. Click OK, and OK again to close.
- 5-7 Make sure your PTZ Camera(s) are powered on and connected.
- 5-8 Launch the VMS Software by double left clicking the VMS Icon on the desktop.



5-9 You will see the Video Management System Login Screen as shown below.



The Default Login Credentials are:User ID:adminPassword:1234

If you choose to check the box Automatic Login you will not be asked for a password on launch, but you will need the password to exit VMS.

5-10 The VMS Home Page appears with a superimposed notice over it "VMS recording failure". The VMS Application as well as monitoring "Live Streams" from up to 16 sources with audio (VMS-16 Version) can also record them in a Muxed File (also known as Multiplexing) and can play them back in a multi-viewer presentation. The notice means that no hard drive has been allocated to record the streams. We don't need this feature to set-up and test our PTZ Controller so we will simple click "OK" and close the notice. If interested in using the Record Feature, set up details can be found in the VMS Manual.

⊙ ¥MS-16		
<u>V</u> MS <u>V</u> iew <u>S</u> etup <u>E</u> vents <u>T</u> ools <u>H</u> elp		
2011-08-16 Tuesday		
15:52:52		
	Default page	
	VMS recording failure	
	No drives are selected for recording.	
	Please select at least one drive for recording. 2011-08-16 15:51:54	
	OK	
bla calested starsage		
No selected storages		
No selected drives		
Duration		
no data		J:00 22:00
Storage Audio Video		Þ
Login: admin	Clients: 0	

- 5-11 Click "Setup" on the menu at the top left of the screen and click "Camera".
- 5-12 On the Setup Screen, just below the table of cameras which is currently unpopulated, click on the button marked "Discovery".
- 5-13 Another window will open with camera(s) IP, Mac Address, Base Port, HTTP Port and IP Address. New cameras will default to the factory IP address of "**192.168.10.100**". Because of this common IP address, all new cameras should be connected one at a time to change IP address to a unique address.

5-14 First select the Camera or Encoder you wish to change by highlighting in the table. Next click "IP Change" and change to a unique IP address.Example: Change the IP Address to 192.168.1.150 and change the Gateway to

192.168.1.1. To complete, click "Change".

IP address	MAC address	Base port	HTTP port	IP mode	
192.168.10.100	00:1C:63:AD:01:88	2222	80	Fixed IP	
15 . ()	()				
1 Device(s)	found				

IP Address Change	×		IP Address Change	×
IP mode	Fixed IP		IP mode	Fixed IP
IP address	192 . 168 . 10 . 100		IP address	192 . 168 . 1 . 150
Subnet Mask	255 . 255 . 255 . 0		Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 10 . 1	-	Gateway	192 . 168 . 1 . 1
Base port	2222		Base port	2222
HTTP port	80		HTTP port	80
Chang	e Cancel		Change	e Cancel

5-15 Now back at the "Setup" page, click "Discovery" again, highlight the Camera or Encoder and click "Select".

Discovery					
IP address	MAC address	Base port	HTTP port	IP mode	
192.168.1.150	00:1C:63:AD:01:88	2222	80	Fixed IP	
					-
					-
					_
					_
					_
1 Device(s)	found				
Discover		Select	IP Cha	ange Clo:	e:

5-16 Now the "Add Camera" window appears. Fill in the following fields; see example with answers in italics. Many fields will auto populate. When finished, click "OK".

Name:	Main Gate
Group:	1
Туре:	TCAM/TCS (Default)
Address:	Fills in Automatically
Login:	admin (Default)
Password:	1234 (Default)
Channel:	1
Port:	2222

Additional Information: Both "Use PTZ" and "Use audio channel" should be checked.

Add	camera					×
⊢ ₿	asic information			1 [Connect to relay serve	r
		Get from camera			Relay name	None
N	lame	Main Gate			Relay address	
G	iroup	1	•		Relay port	
T,	уре	TCAM/TCS	•		Relay login	
A	ddress.	192.168.1.150			Relay password	
L	ogin	admin			User information	
P	'assword	****			Userinfo1	l
P	rotocol	ТСР	•		User info2	
С	hannel	1			Userinfo3	
P	'ort	2222				,
	1.02 1.2 4					
	dditional informat	lion				
P	ΤZ	🔽 Use PTZ				
A	udio	🔽 Use audio channel				
			OK Cancel]	

5-17 Now you should be back at the Setup Window and your camera should be in the list. Click "OK".

	Name	Group	Address	Channel	Port	Protocol	Audio	PTZ	Login
Cameras	Main Gate	1	192.168.1.150	1	2222	TCP	Y	Y	admir
Display									
Record									
Playback									
Audio									
Network									
Serial									
ensor & Alarm									
Security									
General	Add N	Modify Delete	Discovery Onvif D	iscovery	~~				

5-18 On the Home Page of the VMS Application, the "Main Gate" Camera will auto populate on the Control Pane.



5-19 Using the mouse, hold the left button and drag the Main Gate Camera from the control pane to one of the video windows in the multi-viewer. You will see a number of options at the bottom left: "Storage", "PTZ", "Audio" and "Video". Select "PTZ".



5-20 The Soft PTZ Control allows for Pan and Tilt together with Zoom and Focus. You should have control of the camera now. Dragging the small button inside the circular plate moves the camera to the desired location and the distance from the center sets the speed. Zoom and focus are triggered by pressing (-) or (+) button. Focus provides auto-focus functionality by the button with car sign inside. The speed of zoom and focus operation is controlled by setting the **Speed** slider.

Main gate	- Januar	Speed	-
Drag the t	outton	U Zoom	- Đ
$(- \diamond -)$		Focus	-+)
\smile			•
Storage PTZ Au	dio Vic	leo	

We will now connect the TKC-100, PTZ Hardware Controller and Install the Serial Control Drivers. You should <u>close all programs including the VMS Software</u> when doing this.

- 6-1 Disconnect the Host Computer from the Internet.
- 6-2 Copy the TKC-100 folder and contents to your system hard drive, typically "C".
- 6-3 Connect the AC Adapter to the TKC-100. Make sure it's switched off. If not, press the red "ESC/PWR" button with no data on the display. Connect the supplied USB cable to the TKC-100 and the other end to a free USB port on the host computer.



- 6-4 Switch on the TKC-100.
- 6-5 "Found New Hardware" Balloon appears on the task bar.
- 6-6 The "Found New Hardware Wizard Opens" to install the "FT232R USB UART".



6-7 Select "Install from a list or specific location (Advanced)".



6-8 Check the boxes as shown and browse to the TKC-100 drivers folder that was put on the "C" drive earlier.

ind New Hardware Wizard				
Please choose your search and installa	tion options.			
Search for the best driver in these local	tions.			
Use the check boxes below to limit or e paths and removable media. The best d	xpand the default search, which includes local river found will be installed.			
🔲 Search removable <u>m</u> edia (floppy,	.CD-ROM)			
☑ Include this location in the search	h:			
C:\TKC-100 Driver	Browse			
O Don't search. I will choose the driver to	install.			
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.				
	< <u>B</u> ack <u>N</u> ext > Cancel			

6-9 The "Completing the Found New Hardware Wizard" Window appears. Click "Finish".



6-10 Now the "Found New Hardware Wizard Opens" to Install the "USB Serial Port".



6-11 As before, select "Install from a list or specific location (Advanced)."

6-12 Check the boxes as shown and browse the TKC-100 drivers folder on the "C" Drive.



6-13 The "Completing the Found New Hardware Wizard" window appears. Click "Finish".



6-14 The Drivers have now been installed time to check that they have installed correctly.

7 – Verifying the COM Port TKC-100

7-1 Open "Device Manager" in Windows XP. Right click "My Computer". Left Click "Properties". Left click "Hardware". Left click "Device Manager". Expand the tree for both "Universal Serial bus controllers" and "Ports (COM *LPT). You should see as "USB Serial Controller" and "USB Serial Port" (as seen below).



7-2 The TKC-100 has been assigned COM Port 2.

8 – Set Up the Serial Protocol in VMS

8-1 The TKC-100 must match the Serial Protocol of the VMS Software. Launch the VMS software. Click "Setup" from the menu items on the top left of the screen and click "Serial".

Setup		×
	Serial	
Cameras	 Send(PC to camera) 	Receive(Camera to PC) Off From selected camera only
Display	C To all cameras	C From all cameras
Record	Camera serial port Camera Serial port Main Gate RS-232	PC serial port
Playback		Data bit 8
Audio		Parity None Stop bip 1
Network		
Serial		
Sensor & Alarm		
Security		
General		
		OK Cancel Apply

8-2 The following changes need to be made:

Port = COM2 (Change) Bitrate = 2400 bps (Change) Data bit = 8 (Default) Parity = None (Default) Stop Bit = 1 (Default)

Set Send (PC to camera) to "To all cameras" (Change).

Set Received (Camera to PC) to "From selected camera only" (Change).

Set the Camera "Main Gate" (in our case) to RS-422/485 (Change).

When all the Changes have been made, Click "Apply" and then "OK"

8 – Set Up the Serial Protocol in VMS

8-3 Changes have been implemented.

Setup	×
	Serial
Cameras	Send(PC to camera)
Display	C I vall cameras
Record	Camera serial port Camera Serial port Main Gate RS-422/485 Bitrate 2400bos
Playback	Data bit 8
Audio	Parity None Stop bip 1
Network	
Serial	
Sensor & Alarm	
Security	
General	
	OK Cancel Apply

9 - Set Up "PTZ SETUP" on the TKC-100

- 9-1 Set up the TKC-100 Protocol.
- 9-2 Go to "PTZ Setup Mode" on TKC-100. Select 1 + "SET" and hold for 2 3 seconds.
- 9-3 Use the Joy Stick to make changes. UP/DOWN Scrolls through Menu, LEFT/RIGHT makes Entry Change. You only need to check and maybe change the Baudrate.
 NOTE: The PTZ Controller must not be in the "DVR WKEY" mode. Push the mouse button to change.

PTZ SETUP



10-1 Launch the VMS application, select a Camera from the Control Pane, and test Pan, Tilt, Zoom and Focus.



10-2 Most features of the TKC-100 are accessible through the Joy Stick, however there are two blue active buttons; top button for manual focus and the lower for zoom as an alternative to twisting the joy stick.



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