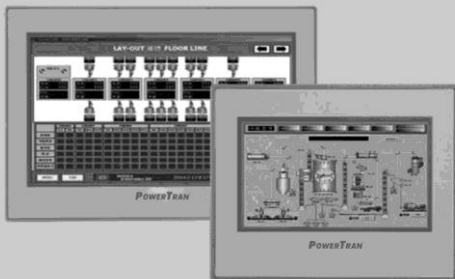


POWERTRAN Xpanel

Industrial Automation

User Manual

Model : XT04/XT07



THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS : (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.



CAUTION

To use this product correctly, it is absolutely required to read the product description before use.

1. For your safety and the safe operation of this product, please read this manual before using the product. The manual is subject to change without notice.
2. Please review the product specifications in this manual to determine the suitability of this product for its intended use.
3. For your safety only qualified persons should perform electrical and wiring attachments to this product.

FCC RF

INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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ESSENTIAL SAFETY PRECAUTIONS

WARNING

Precautions for design

- Do not implement a trigger in the software for emergency stop of hazardous operation. If Xpanel is damaged while output signal remain ON or OFF, fatal accident may be caused. Design an emergency stop switch outside of the product so it can be manually stopped.
- Do not use Xpanel for the purpose of generating an alarm for injury to operators, breakdown of devices, or production halt.
- Design the system so that it can be hand-operated in case the product malfunctions.
- Do not use Xpanel as a control unit on applications requiring extreme stability such as airplane control device, aerospace device, centralized data processing device, nuclear control system, medical life support system, etc.
- In case Xpanel is used in transportations such as trains, vehicle, vessels, or warning devices for disasters and crime, various safety devices, and medical devices excluding life support system, you are required to design backup or failure provision system to secure reliability and stability.
- Even if the screen is black, the unit could still be turned on with a dead LCD backlight. When the operator touches a panel in this situation, the action could cause device's malfunction. Do not use this product for controlling safety devices such as emergency stop switches.

Precautions for installation

- Please do not disassemble or modify the Xpanel. It will void the warranty and may cause an electric shock.
- This version of the Xpanel is not rated for flammable environments. Do not use this Xpanel around flammable gases. It may cause an explosion.

ESSENTIAL SAFETY PRECAUTIONS

WARNING

Precautions for wiring

- Make sure to check if the device's power supply is turned off before wiring. Failure to do so may cause electric shock or damage to the device.
- Do not use power beyond the specified voltage range of the PC. Doing so may cause fire, electric shock or damage to the device.

Maintenance

- The Xpanel uses a lithium battery to back up the internal clock. Do not replace this battery by yourself because it may cause an explosion. If the battery needs to be replaced, please contact your local service center.

Maintenance

- The LCD contains a powerful irritant and if for any reason the panel is damaged and this liquid contacts any part of your body, be sure to wash that area with running water for 15 minutes. If any of this liquid enters your eye, flush your eye for 15 minutes with running water and contact a physician.

ESSENTIAL SAFETY PRECAUTIONS

CAUTIONS

Precautions for installation

- Be sure to securely connect all cable connectors to the Xpanel. A loose connection may cause incorrect input or output.

Precautions for wiring

- Field Ground (FG) wires must be run individually from each unit to the master grounding terminal. DO NOT daisy chain the FG wires between devices.
- Correctly wire the Xpanel, be sure that the rated voltage and terminal layout are within the designated range. If the voltage supplied differs from the rated voltage, or incorrect wiring or grounding is performed, it may cause a fire or unit malfunction and it will void the warranty.
- Make sure to tighten the screw with standard torque (0.5~0.6Nm). Loose connections may cause short, fire or malfunction.
- Be careful that metal debris do not enter the Xpanel, they may cause a fire, Xpanel damage or malfunction.

Precautions for unit disposal

- When this unit is disposed of, it should be done so according to your country's regulation for similar types of industrial waste.

GENERAL SAFETY PRECAUTIONS

- Do not strike the touch panel with a hard or pointed object, or press on the touch panel with too much force, since it may damage the touch panel or the display.
- Do not install the Xpanel where the ambient temperature exceeds the allowed range. Doing so may cause the Xpanel to malfunction or shorten product lifespan.
- Do not restrict or limit naturally occurring rear-face ventilation of the Xpanel, or storing or using the Xpanel in an environment that is too hot.
- Do not use the Xpanel in areas where large, sudden temperature changes can occur. These changes can cause condensation to form inside the unit, possibly causing the unit to malfunction.
- Do not allow water, liquids, metal or charged particles to enter inside the Xpanel, since they can cause either a Xpanel malfunction or an electrical shock.
- Do not store or use the Xpanel in direct sunlight, or in excessively dusty or dirty environments.
- Do not store or use the Xpanel where strong jolting or excessive vibration can occur.
- Do not store or use the Xpanel where chemicals (such as organic solvents, etc.) and acids can evaporate, or where chemicals and acids are present in the air.
- Do not use paint thinner or organic solvents to clean the Xpanel.
- Do not store or operate the LCD display in areas receiving direct sunlight, since the sun's UV rays may cause the LCD display's quality to deteriorate.
- After turning the Xpanel OFF, be sure to wait a few seconds before turning it ON again. If the Xpanel started too soon, it may not start up correctly.
- Due to the possibility of unexpected accidents, you must back up the project data of the Xpanel regularly.

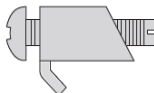
PACKAGE CONTENTS

The following items are contained in the package of the Xpanel. Before using the Xpanel, please confirm that all items listed here are present.

- Xpanel Unit



- Fastener



- Power plug



- Installation Guide



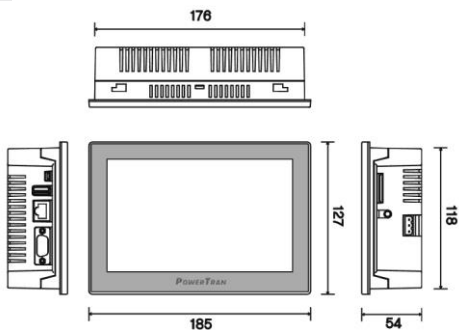
This unit has been carefully packed, with special attention to quality.

However, should you find anything damaged or missing, please contact your local Xpanel distributor immediately.

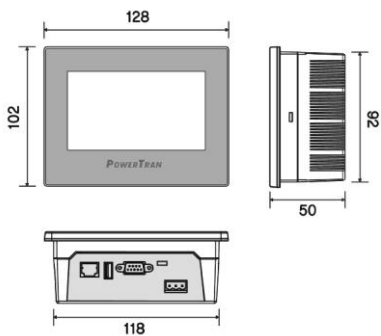
DIMENSION

Unit : mm

• XT07



• XT04

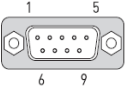


INTERFACES

1) XT04/XT07 COM Ports

- COM1 : RS-232C / COM2 : RS-422/485

This interface is used to connect the Xpanel to the host (PLC), via an RS-232C or RS-422/485 cable. COM1 and COM2 share pins of 9Pin DSUB connector.

Connector	Pin No.	Name	Description	Port
	1	SDA	Send Data A	COM2
	2	RD	Receive Data	COM1
	3	TD	Transmit Data	COM1
	4	RDA	Receive Data A	COM2
	5	SG	Signal Ground	COM1 COM2
	6	SDB	Send Data B	COM2
	7	RTS	Request To Send	COM1
	8	CTS	Clear To Send	COM1
	9	RDB	Receive Data B	COM2





- In case of RS-485 cable (2wire) connection, connect only both SDA and SDB lines.
- The RS-485 of the Xpanel runs under auto toggle mode.
- To reduce the risk of damaging the RS-422 circuit, be sure to connect the Pin 5(SG) terminal.

INTERFACES

2) Ethernet

This interface complies with the IEEE802.3 for Ethernet (10BaseT/100BaseTX)

RJ45 Connector	RJ45 Jack
	

Direct Cable: Host ↔ HUB

Cable	No	Color	Color	No	Cable
	1	Orange/W	Orange/W	1	
	2	Orange	Orange	2	
	3	Green/W	Green/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Green	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	

Crossover Cable: Host ↔ Host

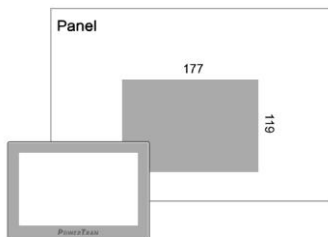
Cable	No	Color	Color	No	Cable
	1	Orange/W	Green/W	1	
	2	Orange	Green	2	
	3	Green/W	Orange/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Orange	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	

INTERFACES

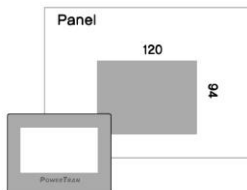
- Create a Panel Cut and insert the Xpanel into the panel from front.

Unit : mm

• XT07

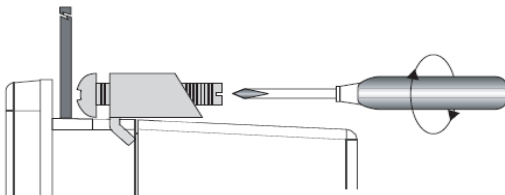


• XT04



INSTALLATION

- Attach the Installation Fasteners from inside the panel
- Insert each the hook of fastener into slot and tighten it with a screwdriver



- Tightening the screws with too much force can damage the case of the Xpanel.
- The necessary torque is 0.678_0.813lb*ft (0.5~0.6 N•m)
- Depending on the thickness of installation panel, the number of installation fasteners used may need to be increased to provide the desired level of moisture resistance.

INSTALLATION

- Make sure to check if the device's power and external power supply is turned off before wiring, via a breaker, or similar unit. Failure to do so may cause electric shock or damage to the device.
- Since there is no power switch on the Xpanel unit, be sure to attach a breaker-type switch to its power cord.



- To avoid a short caused by loose ring terminals, be sure to use ring terminals with an insulating sleeve.
- When the FG terminal is connected, be sure the wire is grounded. Not grounding the Xpanel unit will result in excess noise and vibration.

• **Connecting the Xpanel Power Cord**

When connecting the power cord, be sure to follow the procedures below.

- Confirm that the Power Cord is unplugged from the power supply.
- Unscrew the screws from the middle three (3) terminals, align the Ring Terminals and re-attach the screws.



- Confirm that the ring terminal wires are connected correctly.
- The torque required to tighten these screws is 0.678_0.813lb*ft (0.5 ~ 0.6N•m)

POWER SUPPLY CAUTION

Please pay special attention to the following instructions when connecting the power cord terminals to the Xpanel unit.

- If the power supply voltage exceeds the GP's specified range, connect a voltage transformer.
- Between the line and the ground, be sure to use a low noise power supply. If there is still an excessive amount of noise, connect a noise reducing transformer.
- The power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a surge absorber to handle power surges.
- To reduce noise, make the power cord as short as possible.

GROUNDING CAUTION

When grounding to the rear face FG terminal of the Xpanel, (on the Power Input Terminal Block), be sure to create an exclusive ground.

- Inside the Xpanel unit, the SG (Signal Ground) and FG (Frame Ground) terminals are connected to each other.
- When connecting an external device to the Xpanel with the SG terminal, ensure that no short-circuit loop is created when you setup the system.

SPECIFICATION

● XT07

Model	CM-XT07CD-AE / CM-XT07CD-DE	CM-XT07CD-AN / CM-XT07CD-DN
LCD Size	7 inch wide	
LCD Type	TFT color	
Colors	65,536 colors	
Resolution	WVGA 800x480	
Backlight	LED	
Luminance	400cd/m ²	
Touch Panel	4 wire resistive	
Memory	128MByte DDR2	
Storage	128MByte SLC NAND Flash	
SD Card	1 SD slot	None
COM1	RS-232C	
COM2	RS-422/485	
Ethernet	10/100 BaseT	None
USB Host	1 port	
Tool Port	1 USB device	
Audio	1 port	None
Rated Voltage	-A: AC100-240V / -D: DC24V	
Power Consumption	6W	
OS	Windows CE 6.0	
Dimension (mm)	185x127x50	
Panel Cut (mm)	177x119	
Certificate	CE, UL(cUL), FCC, IP65	

SPECIFICATION

● XT04

Model	CM-XT04CD-DE	CM-XT04CD-DN
LCD Size	4.3 inch wide	
LCD Type	TFT color	
Colors	65,536 colors	
Resolution	WQVGA 480x272	
Backlight	LED	
Luminance	400cd/m ²	
Touch Panel	4 wire resistive	
Memory	128MByte DDR2	
Storage	128MByte SLC NAND Flash	
COM1	RS-232C	
COM2	RS-422/485	
Ethernet	10/100 BaseT	None
USB Host	1 port	
Tool Port	1 USB device	
Rated Voltage	DC24V	
Power Consumption	4W	
OS	Windows CE 6.0	
Dimension (mm)	128x102x50	
Panel Cut (mm)	120x94	
Certificate	CE, UL(cUL), FCC, IP65	

SPECIFICATION

● XPANEL Environmental Specification

Item	Description
Rated Voltage	DC 24V or AC100-240V
Ambient Temperature	0℃~65℃
Storage Temperature	-20℃~65℃
Ambient Humidity	10%RH~90%RH(below 29℃, no dew condensation)
Storage Humidity	10%RH~90%RH(below 39℃, no dew condensation)
Environment Condition	800hPa ~ 1114hPa(2000m/6,500ft or less)
Dust	$\leq 0.1\text{mg/m}^3$
Pollution Degree	\leq Pollution degree 2
Operating	Free from corrosive gas and excessive dust
Vibration Resistance	JIS B 3502, IEC/EN61131-2 compliant 5~9Hz Single amplitude : 3.5mm 9~150Hz Fixed acceleration : 9.8m/s^2 X,Y,Z directions for 10 cycle (approx. 100min)
Concussion Resistance	JIS B 3502, IEC/EN61131-2 compliant 147m/s^2 , X,Y,Z directions for ± 3 times (Total 18 times)
Noise resistance	Impulse, EFT/Burst, Surge, $\pm 2\text{KV}$, 1us
Static discharge resistance	Contact Discharge 4kV (IEC61000-4-2)
	Air Discharge 8kV (IEC61000-4-2)

PROJECT DOWNLOAD

- **Download ActiveSync/Window Mobile Device center**

Download ActiveSync by enclosed CD. You can also download ActiveSync on Microsoft website. (www.microsoft.com/en-us)

If you use Windows Vista, 7, 8, 10 OS, install Windows Mobile Device Center. This can also be found on Microsoft website. (www.microsoft.com/en-us)

- **Install Xpanel driver**

- 1) Supply power to Xpanel. When Xpanel boots up, connect to PC by USB cable.
- 2) At “Found New Hardware Wizard”, select an option “No, not this time” as below. Then, press [Next].



- 3) Select an option “Install from a list or specific location (Advanced)” as below and press [Next].



- 4) Select "Include this location in the search" and specify the directory of driver file.
- 5) Click [Browse] and specify the directory as below. Then, press [Next].

C:\Program Files\Xpanel\Xpanel_Driver\XT04_Sync_Drv



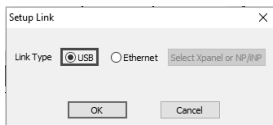
- 6) When the installation finishes, press [Finish].




- **Download project by USB**


- 1) Run Xpanel Designer and retrieve a project to download.
- 2) Go to [Online] – [Setup Link] and choose [USB].

PROJECT DOWNLOAD



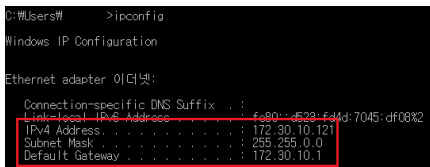
- 3) Go to [Online] – [Download to Xpanel] to download the project.

 Please note that only one Xpanel can be connected to a PC at a time, even if the PC has two or more unused USB ports.

 The project will not operate correctly if the version of the Xpanel Designer that was used to create the project is different from the version of the Xpanel Designer that is running the project. Update or downgrade the software until both versions are identical.

- **Checking IP address of PC**

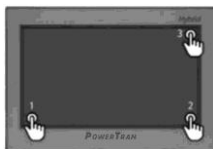
- 1) Go to [Window] – [Run] and enter 'cmd' on the input screen.
- 2) Enter 'ipconfig' on the command screen to check the PC's Ethernet setup.



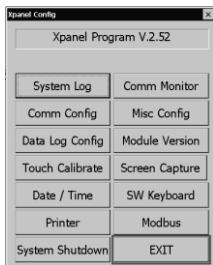
- **Configure IP address of Xpanel**

- 1) Click as numbered sequence. Xpanel Config dialog box appears.

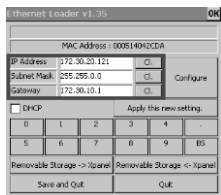
PROJECT DOWNLOAD



- 2) Select [Exit].



- 3) Configure IP address of Xpanel.



PROJECT DOWNLOAD

Subnet mask and gateway should be configured to match those of PC.



The front part of the IP Address and Gateway should match depending on how many times the number 255 is repeated in the Subnet Mask.

For example, when the subnet mask is 255.255.0.0, IP address can take the form 172.30.XXX.XXX and the gateway will take the form 172.30.YYY.YYY.

If the subnet mask is 255.255.255.0, IP address could take the form 172.30.153.XXX and the gateway will take the form 172.30.153.YYY.



Each of XXX and YYY is a number in range of 0~255.



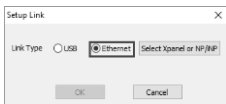
Duplicate IP addresses are not allowed.

Select [Apply this new setting] to save changes. A system reboot is required for changes to be applied.

Select [X] button if you want to modify the setting. Select [OK] if you want to go back to configuration. In this case, Xpanel should restart.

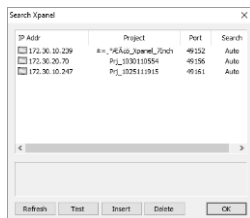
● Download by Ethernet

- 1) Run Xpanel Designer and open a project to be downloaded.
- 2) Go to [Online] – [Setup Link].



PROJECT DOWNLOAD

- 3) Choose [Ethernet] for connection method and click [Select Xpanel or NP/iNP]. Xpanel will appear on the list as shown below.



- 4) Select Xpanel to which you wish to download a project. You can see information of the selected Xpanel on a pop-up box.
- 5) Go to [Online] – [Download to Xpanel] to download the project.



The project will not operate correctly if the version of the Xpanel Designer that was used to create the project is different from the version of the Xpanel Designer that is running the project. Update or downgrade the software until both versions are identical.

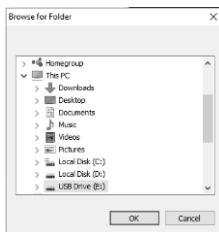
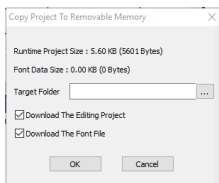
PROJECT DOWNLOAD

- **Download by Removable Disk**

- 1) Connect a removable disk on the PC and run Xpanel Designer.
- 2) Go to [Online] – [Copy project to removable memory], and input or select the directory where you want to save the project. If you wish to download the data to be uploaded as well, select [Download the Editing project].



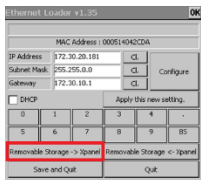
Make sure to specify the disk's directory when you save the project.



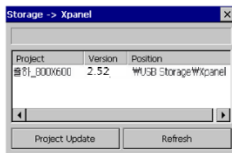
PROJECT DOWNLOAD

Upload the project from removable disk to Xpanel

- 1) Connect the removable disk that has the updated project to Xpanel. Select [Removable Storage → Xpanel] in the Ethernet Loader dialog box.



- 2) Select [Refresh] and you will see projects in removable disk that can be uploaded.



- 3) Click a project to update on the list and select [Project Update].
- ⚠ When you select [Project Update], the project and application program in the Hybrid Xpanel will be deleted first.
 - ⚠ [Project Update] button will be deactivated when the procedure starts and reactivated when update is complete. "All file update: OK" message will appear when update is completed.
 - ⚠ Do not touch the panel during update as it could cause incorrect operation.

MEMO

MEMO

PRODUCT WARRANTY

JKFIL Industrial automation products including hardware, software, and firmware (collectively called “Products”) carry a **one-year warranty** against defects in materials and workmanship beginning from the date of product receipt from seller or its appointed distributor. If a product proves defective in materials and workmanship within one year from the date of purchase, we will replace or repair it. JKFIL makes no representation or warranty, express or implied, that the operation of the Products will be uninterrupted or error free, or that the functions contained therein will meet or satisfy buyer’s intended use or requirements.

Repaired or replaced Products provided as a result of this warranty are warranted for a period of six (6) months from the date of replacement. JKFIL’s standard policy is that all customers are responsible for freight charges to JKFIL when returning products under the warranty return policy.

This warranty will be void if Products date codes or serial numbers are removed or defaced. Warranties do not apply to products that have been subjected to abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, unauthorized modifications, unauthorized repair, misuse, neglect, accident, alteration, improper installation or other acts which are not the fault of JKFIL, including damage caused in shipping. Our warranty also does not apply to any product that has been damaged by external causes such as fire, flood, sand, dirt, lightning, acts of God, battery leakage, theft, blown fuses, improper use of any electrical source or connection to product not recommended in writing for interconnection by JKFIL.

In no event will JKFIL be liable, whether in contract, tort or under any other legal theory, for lost profits or revenues, loss of use or similar economic loss, for any indirect, special, incidental, consequential, punitive or similar damages arising out of or in connection with any products including non-conforming products, or for any third party claims against you relating to the products, even if we have been advised of the possibility of such claim. **In no event will our monetary liability in respect of any product exceed the purchase price that you paid for it.**

PRODUCT WARRANTY

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation and operation is in compliance with the latest revision of these codes.

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EQUIPMENT DAMAGE OR SERIOUS INJURY TO PERSONNEL INCLUDING DEATH CAN RESULT FROM THE FAILURE TO FOLLOW ALL APPLICABLE CODES AND STANDARDS INCLUDING ENGINEERING STANDARDS. JKFIL DOES NOT ASSUME ANY RESPONSIBILITY FOR YOUR PRODUCT DESIGN, INSTALLATION OR OPERATION.

PRODUCT WARRANTY

JKFIL LTD AND ITS AFFILIATES AND SUPPLIERS DISCLAIM ANY REPRESENTATIONS OR WARRANTIES THAT YOUR USE OF THE PRODUCTS WILL SATISFY OR ENSURE COMPLIANCE WITH ANY LEGAL OBLIGATIONS OR LAWS OR REGULATIONS.

LIMITATION OF LIABILITY AND INDEMNITY. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE ENTIRE LIABILITY OF JKFIL, AND ITS AFFILIATES AND SUPPLIERS FOR ALL MATTERS OR CLAIMS RELATING TO THIS AGREEMENT SHALL BE LIMITED TO THE AMOUNT YOU PAID FOR THE PRODUCTS DURING THE TWELVE (12) MONTHS PRIOR TO SUCH CLAIM.

THE STATUTE OF LIMITATIONS FOR FILING A CLAIM SHALL BE LIMITED TO THE SHORTER OF TWELVE MONTHS, OR THE SHORTEST PERIOD ALLOWED UNDER APPLICABLE LAW.

SUBJECT TO APPLICABLE LAW, JKFIL AND ITS AFFILIATES AND SUPPLIERS ARE NOT LIABLE FOR ANY OF THE FOLLOWING: (A) INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES; (B) DAMAGES RELATING TO FAILURES OF TELECOMMUNICATIONS, THE INTERNET, ELECTRONIC COMMUNICATIONS, CORRUPTION, SECURITY, LOSS OR THEFT OF DATA, VIRUSES, SPYWARE, LOSS OF BUSINESS, REVENUE, PROFITS OR INVESTMENT, OR USE OF SOFTWARE OR HARDWARE THAT DOES NOT MEET POWERTRAN SYSTEM REQUIREMENTS. THE ABOVE LIMITATIONS APPLY EVEN IF JKFIL AND ITS AFFILIATES AND SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND/OR THE POSSIBILITY OF DAMAGES GREATER THAN THE LIMITATION ABOVE. THIS AGREEMENT SETS FORTH THE ENTIRE LIABILITY OF JKFIL, ITS AFFILIATES AND YOUR EXCLUSIVE REMEDY WITH RESPECT TO THE SOFTWARE AND ITS USE.

THE COURT AT CHENNAI SHALL HAVE EXCLUSIVE JURISDICTION.



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