



Model Keypad 105

KEYTROLLER

Keypad

Vehicle

Access + Monitoring
Device

KEYTROLLER

available in 2 model series

- Keypad Model 105

- Code input
- RFID card input

This presentation covers this model



- LCD Model 500 series

- Full featured start from keypad Model 501 –impacts/speeding etc
- Keyless ignition Model 502





KEYTRON

Vehicle Monitoring Systems



Can be installed on **ANY** make/model
electric, gas, LPG or Diesel powered vehicle



Monitoring systems on forklifts instill in your operators a sense of responsibility and accountability for safety



- Employee knows the device is there and knows he will be accountable ----for the first time----for his abusive driving habits.
- Abusive operators either change their ways, get retrained, or relocated to a new job.
- Management has data to back up abuse

ADVANTAGES + DISADVANTAGES KEYPAD vs LCD

Advantages of keypad 105 model (vs LCD)

- Inexpensive, but very effective system
- Multiple configurations---box keypad, flush keypad, double keypad models
- Low profile flush mounting available
- Dual keypads for multiple controls (like truck cranes—see schematics)
- Designed for very tough, very abusive applications (like freezers, foundries, etc)



Disadvantages of keypad 105 model (vs LCD)

- No LCD screen for many operator and supervisor interfaces (like checklists, recent events, wireless text messages, etc)
- Automates checklist with only PASS or FAIL for entire checklist not individual items. Entire list recorded as one event---not individual checklist logged items
- Less memory of 2,040 events vs up to 10,000



Keypad 105 Models



- **KEY105B** Box mounted keypad (code only) and relay module
- **KEY105B-SM** SM in the model denotes external shock memory module
- **KEY105B-IM** IM in the model denotes internal memory mounted in box (no impact sensing) addition
- **KEYS105B** S in the model denotes standard RFID card reader
- **KEYH105B** H is for HID-Prox card reader option
- **EXAMPLE: KEYH105B-SM** denotes keypad with HID RFID card reader, dual relay module and shock memory module

Voltage regulators

- Standard voltage -12VDC vehicles no converter needed
- Electric vehicles require in line converter option
- 24 VDC vehicles add MVC converter option
 - 436---48VDC vehicles add HVC converter option



Design Schematic Model 105

www.keytroller.com

KEYTROLLER BOX MOUNTED KEYPAD

MODELS IN THIS CONFIGURATION:

1. KEY105B: Basic Unit.
2. KEY105B-IM: Unit with Internal Memory.
3. KEY105B-SM: Unit with external Shock/Memory Module.
- 3.1. Optional Speed sensor (Magnetic or Gear tooth).

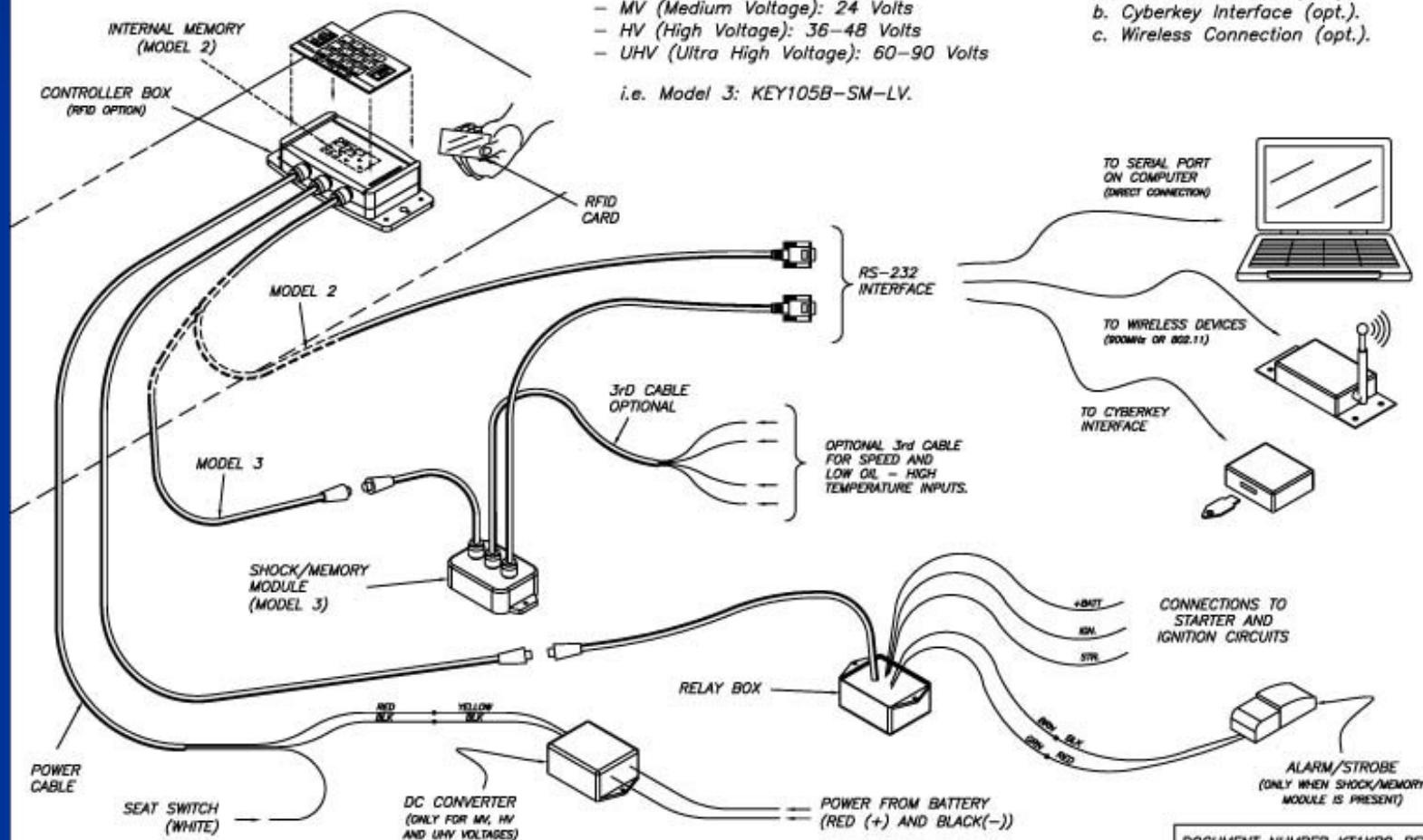
SPECIFY VEHICLE VOLTAGE AFTER MODEL AS FOLLOWS:

- LV (Low Voltage): 12 Volts
- MV (Medium Voltage): 24 Volts
- HV (High Voltage): 36-48 Volts
- UHV (Ultra High Voltage): 60-90 Volts

i.e. Model 3: KEY105B-SM-LV.

COMMUNICATION OPTIONS:

- a. Direct Connection (std.).
- b. Cyberkey Interface (opt.).
- c. Wireless Connection (opt.).



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RFID card reader options

- HID-Prox card reader (H model)
 - Standard 125KHz (S model)
- * It is recommended you send one of your company RFID cards to Keytroller to evaluate to insure it works properly with the model you choose
- * Unlike competitive brands, the RFID card reader is safely protected in the sealed box and under the keypad. This protection provides high reliability.



Enable with--code or RFID card

- **Key Switch Eliminated!!**
start directly from keypad!
- Private code used for access or optional RFID card
- Programmer can add new employee codes /cards from keypad
- Mounted on dash or bracket
- Can preset allowed time to exit and re-enter lift without using code again. Just press **START** when re-entering vehicle before time out
- Time out can be actuated by seat switch or by pressing **STOP** which will shut down engine



RFID card vs codes

- RFID cards are usually the same card as driver uses for doors + time clock
- RFID cards are unique to individual and unlikely stolen or used by another
- RFID cards are unique to operator and easily seen by supervisor
- Codes are easily seen and used (stolen) by other drivers
- Unless management is “baby sitting” the operation and code usage, stolen codes can go on indefinitely until there is an accident or problem
- If codes “get out” (stolen) and are abused, the security of the system is completely compromised



PRE-SHIFT CHECKLIST

- Shift start time and # of shifts programmed into KEYROLLER
 - “WARNING” LED flashes at first start of vehicle for that shift
 - Time to complete checklist is programmed in’
 - If PASS or FAIL not passed within that time, vehicle will shut down
 - Allows operator to restart and start checklist process all over again
- Uses laminated checklist attached to vehicle
- Operator completes checklist with “grease” pencil
- If ALL items pass successfully, **PASS** key is pressed
- If ANY item fails, **FAIL** key is pressed---vehicle shuts down
- Common operator can NOT restart vehicle if **FAIL** is pressed
- Supervisor, Mechanic or Programmer code can clear
- Failed event written up by supervisor/mechanic and either sent for repairs or cleared for use



Abandoned vehicles?

- Ever wonder took a truck from your department and never brought it back?
- Who left the truck in the back lot last night on third shift?
- Who got the flat tire and left the truck in the yard without calling the mechanic?
- Who knocked off the dock door and left the forklift sitting there?

NO MORE!

Those days are gone when you install
HEYTRACOLLER vehicle monitoring system!



MECHANIC'S LOCK OUT

- Regardless if the Mechanic knows how to repair the problem or not he can lock out the equipment until help arrives. Night shift mechanics can lock out a damaged piece of equipment until the next day, so no one uses it and gets hurt.
- Once the Mechanic code has been entered the lamp on the keypad labeled “IGN” will flash indicating he successfully disabled the vehicle.
- The Mechanic can re-enter his code to deactivate the lock out
- Another supervisor, mechanic or the programmer can over ride the Lock out.
- We recommend a “Do not operate” tag with lockout.
- Create true Red Flag lockout to prevent equipment usage by common operator codes



4 types of codes:

- 973 Drivers codes On-Off only
Code expiration---alerts management when recurrent training is due for that operator
- 10 Mechanic codes – On & Off + Mechanic lockout
- 10 Supervisor codes – On & Off, over ride Mechanic lock out and clear alarm
- 1 Programmer code – Full Access and programming codes IN/OUT from the keypad

Code	Name	Type	Valid
0478	Harold Hunter	U	2/20/2003
0641	George Girshwin	U	6/19/2003
✓ 0833	Nancy Drew	U	4/5/2003
1098	Clyde Christoff	U	3/17/2004
✓ 1111	Peter Townsend 2nd Shift	S	
1234	Mo Green	U	
✓ 1358	MANAGEMENT	P	
1776	Al Davis	U	2/5/2004
✓ 1798	Sam Jones	M	11/14/2003
✓ 1902	Bill Clinton	U	12/19/2003
1941	Frank Reynolds	U	10/7/2004
1945	John Beluchi	U	12/31/2003
✓ 2001	Paul Pititt	U	6/30/2002
2142	Anthony Hopkins	U	4/18/2003
✓ 2144	Harry Miller	U	4/29/2004
2212	Byron Russell	U	4/3/2003
✓ 2222	Don Simmons 1st shift	S	
2226	Victor Borge	U	1/30/2004



KEYTROLLER

105 COMPONENTS

- **KEYPAD**--Code or RFID Card Option
- **SHOCK/MEMORY/SPEED MODULE**
Plugs into keypad---stores impact sensors, real time clock and memory. 3 cables---3rd cable connects to speed and engine monitoring sensors
- **RELAY UNIT**---Plugs into keypad and is wired into ignition switch
 - 2 wires—electric
 - 3wires---internal combustion
 - Special software version for Fortis/Veracitor design
- **CYBERTOOTH**--- Bluetooth wireless option, manually move radio from Keytroller to Keytroller and make wireless connection
- **FLASHING ALARM/SIREN**— Wires into relay (optional)
- **CYBERWIRE**— 2.4ghz or 802.11 wireless radios (optional)



Indestructible Metal Piezo Keypad

- Sealed to tough outdoor and abusive applications
- No moving parts---electronic switches
- Vandal proof, weather proof, tamper proof
- Optional on KEYROLLER keypad 105 units
- Potted with gel for corrosive, wet applications



Adjustable mounting bracket options

- Double “ball” sockets allow for mounting to various flat and slanted surfaces
- 2 options:
 - Top: 4” shaft—round mounting plates
 - Bottom: Option for mounting to upright of drivers overhead guard



WARNING FLASHING SIREN

- 120dB flashing strobe siren when all three wires connected
- Can be wired to be silent with only the flashing strobe working
- Or wired for only 120dB siren
- Alarm stays on after impact requiring supervisor to deactivate
- If alarm is triggered and seat belt is unlatched, the alarm will stop, but start again when you latch the seat belt. (If you use electric seat belts to activate Keytroller)
- Strobe flashes during 1st 5 seconds of speeding, then activates alarm and shuts unit down, if operator continues to speed.
- Set the hours or date of next Preventive maintenance due, strobe will flicker indicating service is due as planned. A grace period date is also set and the vehicle will not start after that date or hours. Example: service due at 250 hours, strobe flickers during grace period of 50 hours and or 3 days, at 300 hours and or 72 hours, you can not start it.
- Supervisor or Mechanic can over ride the PM shutdown, but, if a operators puts his code in after the supervisor and the software date and hours haven't been adjusted and a PM is not completed, it will not start for the operator. The Keytroller will be assisting in the PM schedule is excessive gaps in hours and months between oil changes.



SHOCK/MEMORY MODULE--105

- Mounted near rear of vehicle on frame
- Side (X) or Front/Rear (Y) Impacts---settable in .1g increments
- “Ignore” impacts under—for more forgiving setting and reduction of false alarms
- Log Shows Intensity and Direction of Impact, Speed at Impact
- 3RD cable connection for Optional Speed and Engine Monitoring
- Code Expiration Operator Safety Refresher Training
- Real Time Clock
- Logged Data Storage 2040 event storage
- RS232 serial port for connection to: PC/laptop, Cyberkey data transfer key or Cyberwire wireless radio



Two types of speed sensing--optional

- Magnetic sensors mounted in wheel well and “erasure” magnet mounted in wheel hub.
- Gear tooth sensor mounted in crown gear of axle.
 - Provides better resolution required for auto speed control option



Speeding options

- Basic:
 - “Grace” period set by programmer (4-5 seconds)
 - Operator begins to speed – beeps + warns him
 - If operator speeds through “grace” period—alarm sounds and event is recorded making operator accountable
- Automatic:
 - NO “Grace” period set
 - When operators begins to speed **automatically** actuates electric actuator that restricts accelerator cable or rod stroke to restrict engine RPMs and therefore top speed automatically

Neither option restricts engine RPMs at low speed---so operator can maintain high engine RPM necessary for hydraulic speed and performance

***Fits to any gas, LPG, diesel, engine**



Seat Belt

- Auxiliary input can be connected to a seat belt with an internal switch (available as option from Keytroller)
- Insures that operator engages seat belt clip or Keytroller device will shut down vehicle



Engine monitoring

- Connections for engine “idiot” lights on dash for low oil pressure and high engine temp.
- Programmable ignition shut down after “idiot” light stays lit for programmable time---requires supervisor or mechanic’s code to restart.
- Protects engine from catastrophic failure



Programming operator codes and settings

Downloading event log data

- Can be done from the keypad, with a laptop, long connection to PC, Cybertooth Bluetooth radio set or Cyberwire wireless 2.4ghz or WiFi 802.11 radios.
- Easy to learn, demo and program with desktop plug in transformer connection



CYBERWIRE 2.4ghz Zigbee radio

- Vehicle to host PC communication
- Both download event data and upload new codes and settings
- Up to 1500' range indoors—up to 4000' outdoors
- Ethernet “wired” radio mounted within the warehouse can significantly increase range
- Easy set up
- Search mode automatic poling
- Weatherproof design with indicator LEDs
- Simply plugs into Keytroller serial port---receives power from Keytroller



CYBERWIRE 802.11 WiFi radio

- Requires WiFi access point “infrastructure” in ceiling to communicate to network PC
- Access points are dispersed throughout the ceiling of warehouse providing constant contact with roving forklifts
- Each lift has 802.11 radio in weatherproof box mounted to overhead guard
- Each lift radio has it's own IP address
- Devices can be configured to most encryption schemes
- Radio range can be extended with optional magnetic antennae



CYBERTOOTH Bluetooth radios

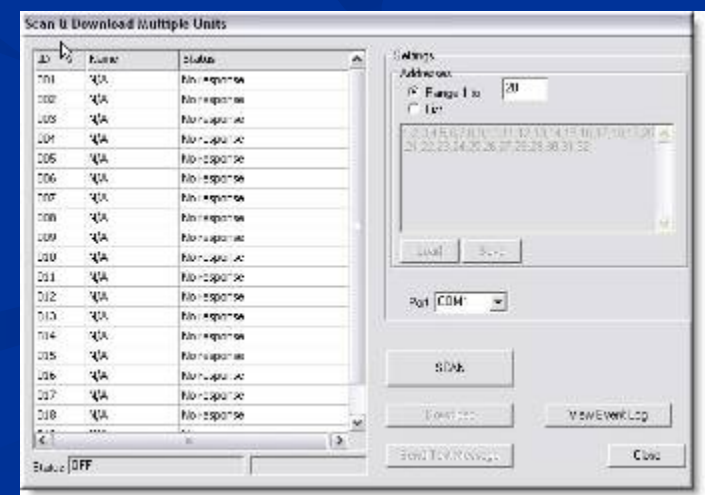
- “Semi-manual” wireless connectivity
- Simple easy set up
- 100-200’ range indoors
- Inexpensive---easier than cables
 - 1 USB radio plugs into PC
 - 1 RS232 serial radio plugs into Keytroller
- After connection to a Keytroller, simply move CYBERTOOTH to 2nd Keytroller and re-connect



KEYSOFT PC SOFTWARE

■ Programmable features:

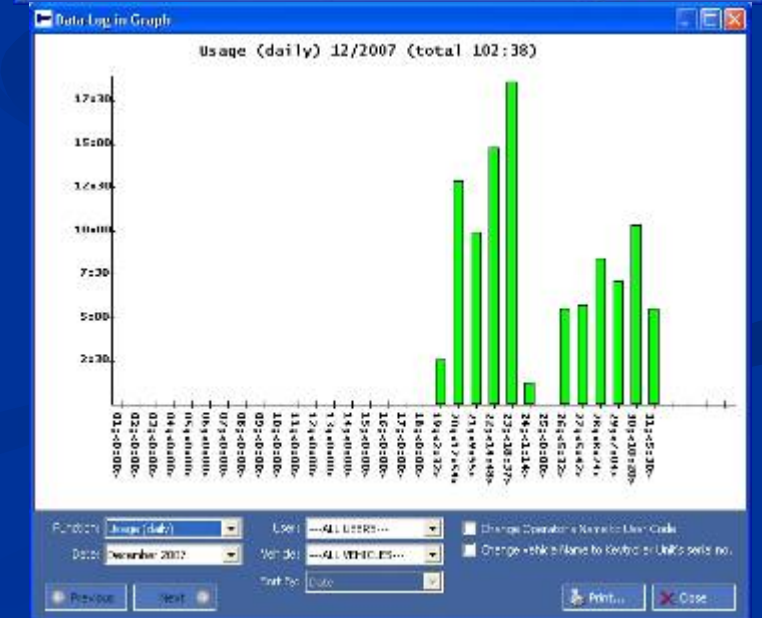
- Sync clock/date
- Pick com port
- Hour meter setting and maintenance limit
- Maintenance due date
- Maintenance grace period (hours or days)
- Impact threshold X—Y---Duration
- Speed threshold and grace period
- Disable ignition after no movement (minutes)
- Disable ignition after impact event (seconds)
- User and vehicle ID set up with expiration date
- Event log, filtering, graphing
- Seat switch timeout setting
- Oil pressure, water temp disable ignition setting
- Allow alarms or logging
- Create clone (codes and settings) file
- Read, write to and format Cyberkey
- Cyberwire wireless radio settings and IDs



Evaluating Event Log Data

Event logs can be filtered by time, date, operator, vehicle, event and deleted or exported to Access or Excel for further manipulation

Date	Time	Event	Name	VehicleID	SerialNo
11/7/2008	11:16:32 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:01:29 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:00:59 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:59:03 AM	Starter On	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:58:58 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:58:46 AM	Ignition OFF	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:58:27 AM	Starter On	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:58:08 AM	Log on	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:57:44 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:46:36 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:45:19 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:43:45 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:42:44 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:42:16 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:41:23 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:40:54 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:40:13 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:39:39 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:38:18 AM	Starter On	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:36:47 AM	Log on	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:35:19 AM	Ignition OFF	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:32:18 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:31:40 AM	Starter On	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:31:40 AM	Log on	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:31:25 AM	Log L-1 Powerup	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:19:13 AM	Ignition OFF	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:13:57 AM	Starter On	Undefined in DB	Parts Room Toyota	013541
11/7/2008	11:13:57 AM	Log on	Undefined in DB	Parts Room Toyota	013541



Why is **KEYTROLLER** better?

- **No** magnetic keys of any type—even your ignition key is gone!
- Keytroller can use your company RFID card
- Magnetic key is required to download event data--- limited memory in unit
- Magnetic key is required to set shock threshold---- Can only set in only .5g increments vs .1
- Magnetic keys are expensive!! Drivers loose or forget their keys causing hassles, downtime and loss of productivity replacing the key. Drivers get upset when asked to pay for replacement
- Programmer magnetic key is required to input new operator codes
- Supervisor magnetic key is required to shut off alarm after shock event.



KEYROLLER VS OEM Lift Mfg Monitoring Systems

- Keyroller systems can work on ANY make or model Gas, LPG, Diesel or Electric vehicle and they will be compatible with ANY future forklifts that you may purchase
- Most lift truck users have a variety of makes and models in use in their facility. Therefore, buying an OEM lift manufacturer's monitoring system—MAY NOT fit onto competitive lift trucks in use in the same plant.
- If you purchase an OEM vehicle monitoring system from a lift truck OEM and then purchase additional lifts later from a different lift truck manufacturer---your original OEM system will NOT be compatible with the new lift trucks.
- Lift truck OEM systems do not offer advanced features like wireless connectivity or model variations available from Keyroller.
- When dealing with Keyroller, you are dealing with a company whose expertise lies in design and manufacturing of electronic vehicle monitoring systems. Lift truck manufacturers are good at manufacturing lift trucks.



Demonstrating a **KEYTROLLER**

- Free 30 day trial
- Full functionality of the device right from your desktop!
- Plug in transformer and you can:
 - Program the device
 - Create events, starts, impacts, etc
 - Download event data using PC, Cyberkey, or Cyberwire
- After “learning” the device from the desktop, the fully programmed **KEYTROLLER** can then be installed on a forklift for further evaluation for suitability to your application.



Results of implementing **KEYTRROLLER** in your forklift fleet

- 50+% reduction in damage is typical
- Insures untrained, unauthorized operators cannot operate your equipment
- Eliminates keys totally
- Automates checklist
- Use your company RFID card!
- Helps with recurrent training (code/card expiration)
- Insures safe speeds
- Insures maintenance is scheduled
- Provides data for fleet management
- Easy programming and downloading
- Makes operators accountable for wreckless driving!
- Creates a *“CULTURE OF SAFETY”* within your plant!



KEYTROLLER, LLC.

The Company

- Full line of award winning equipment safety devices
- Over 500 equipment dealers for local representation and support
- OEM installation of devices available
- Over 25,000 devices installed in the field
- All models designed to install on any gas, diesel or electric powered vehicles
- Keytroller devices designed and supported in house
- Manufactured and/or distributed from Tampa, Fla



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