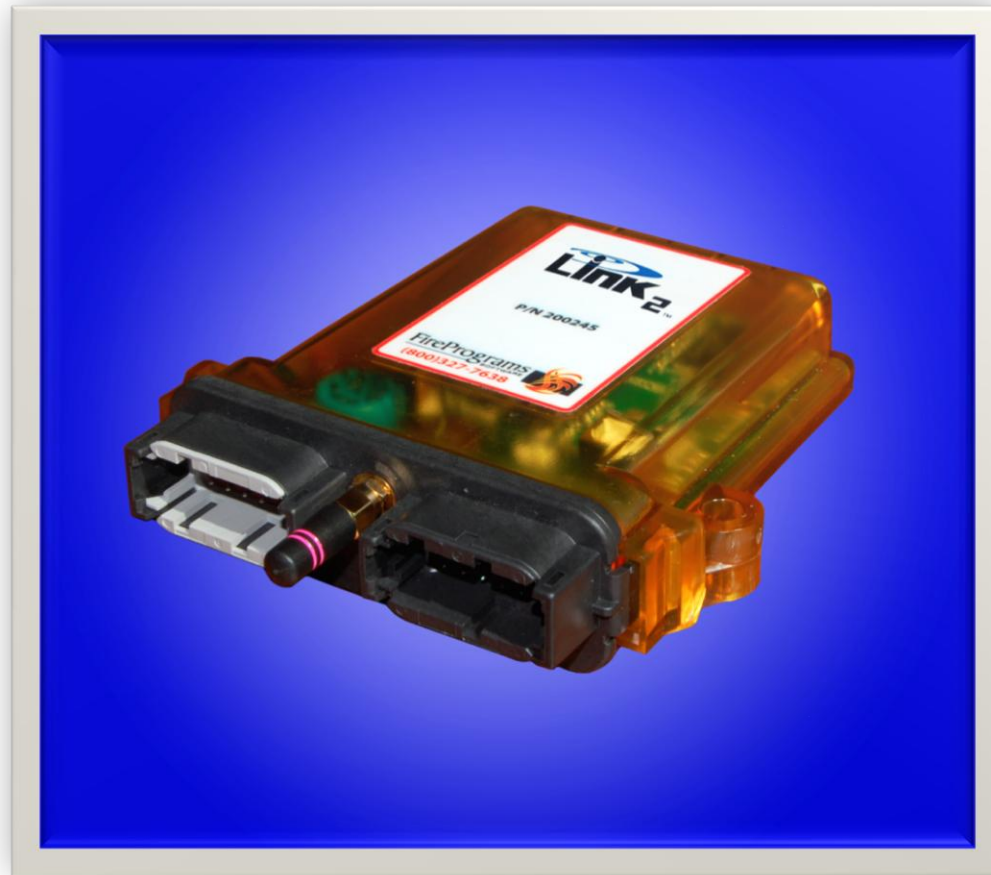


Link₂ Vehicle Maintenance System



Link₂ Data Module

- **Monitors Critical Vehicle Information**
 - **Records CAN J1939 data bus for engine, transmission and ABS along with aerial, PTO and generator information**
 - **Provides driveline diagnostic codes for technician alerts**
 - **Interfaces with other J1939 enabled devices on the vehicle including:**
 - **Pump pressure governors**
 - **Tank level gauges**
 - **Flow meters**
 - **Can monitor custom circuits and provide alerts for items such as:**
 - **Pump overheat, PTO hours, pump and aerial engagements and drug box temperature**
 - **Base scheduled maintenance upon actual component usage**
- **Uploads vehicle information via station WiFi to secure website**
- **Fire Department has secure web page for viewing and maintaining fleet information**

Link₂ Online General Overview Page

- Web based system provides a quick view of the status of your fleet
 - List of vehicles
 - Active alerts
 - Maintenance due
 - Inspections due

Link₂ Account Overview
Dashboard Edit Account Welcome tom Logout

Vehicles

[Activity Logs](#) [Activity Graphs](#) [Add Vehicle](#)

Drag a column header and drop it here to group by that column

Edit	Vehicle Name	Group
	Engine 5	Battalion 2
	Engineering Demo Truck	REACH ENGINEERING
	GRAND RIVER FIRE DISTRICT	Battalion 2
	Town of Algoma FD	Grand River Fire District

Alerts

No active alerts.

Status **Link₂** Vehicle Data General Alerts Maintenance Inspections

Town of Algoma FD

Unit ID: 8
Assigned To: Grand River Fire District
Unit Name: Rescue 21

Mileage: 4,997.0 Miles
Fuel Level: 34 %

Engine Hours: 588.1 Hours
Water Level: Level Not Available

Last Link₂ Activity: 10/28/2010 8:51 PM

Fleet Maintenance/Administration

Grand River Fire District Address

Address: 877 North Margaret Street
City: Markesan State: WI Zipcode: 53946
Station Phone Number: 920-555-1232
Station Email Address: test@email.com
Contact Name: Deputy Chief Ron Thiem

Assigned Station

Station: 21

Address: 2622 Omro Road
City: Oshkosh State: WI Zipcode: 54904
Station Phone Number: (920) 233-5905
Station Email Address: toafd@ntd.net
Contact Name: Chris Magiera

Maintenance

New Maintenance Rule	
7-28-10A Rule	
New Maintenance Rule	
Oil Change	
New Maintenance Rule	
tire test	

Inspections

Mike Test	8/19/2010
Mike Test	11/1/2010
9-15-10 Chris B	11/1/2010
daily inspection test 1	11/1/2010
daily inspection test 1	11/1/2010

Link₂Online Alerts

- Provides a list of all active alerts for the vehicles in your fleet
 - Engine, transmission and drive train fault codes
 - Custom alerts for vehicle speed, pump overheat, etc.
 - Issues that are identified during truck inspections
- Alerts are provided on department website and by e-mail
 - View active and archived alerts by vehicle

Alerts

All Alerts | Alert Rules

Active Archived

Drag a column header and drop it here to group by that column

Edit	Priority	Alert	Unit Name	Unit ID	Alert Date	Alert Time	Alert Rule	Status
		Fuel Alert	GRAND RIVER FIRE DISTRICT		10/27/2010	1:08 PM	Fuel Level < 95	Active

Alerts

All Alerts | Alert Rules

[New Alert Rule](#)

Drag a column header and drop it here to group by that column

Edit	Del	Priority	Alert
			Fuel Alert

Parameters:

Parameter	Op	Value	Units
Fuel Level	<	95	Percent

Vehicles:

GRAND RIVER FIRE DISTRICT

Link₂Online Maintenance

- Provides a list of all maintenance due for the vehicles in your fleet
 - Maintenance alerts triggered by miles, hours and events for each vehicle
 - Calendar view for maintenance (day, week and month)

Maintenance

All Maintenance | Maintenance Rules

Date Range: Pending Completed

Drag a column header and drop it here to group by that column

Edit	Maintenance	Unit Name	Due	Interval	Type	Status
	Add More Fuel	GRAND RIVER	6700			Pending
	Add Fuel	GRAND RIVER	0			Pending
	New Maintenance Rule	GRAND RIVER	6454	6454	Mileage	Pending

Maintenance Rule Editor

Properties | Vehicles | Notifications

Maintenance Name:

Type of Maintenance:

Schedule Task:

Scheduled Mileage

Every Mile(s)

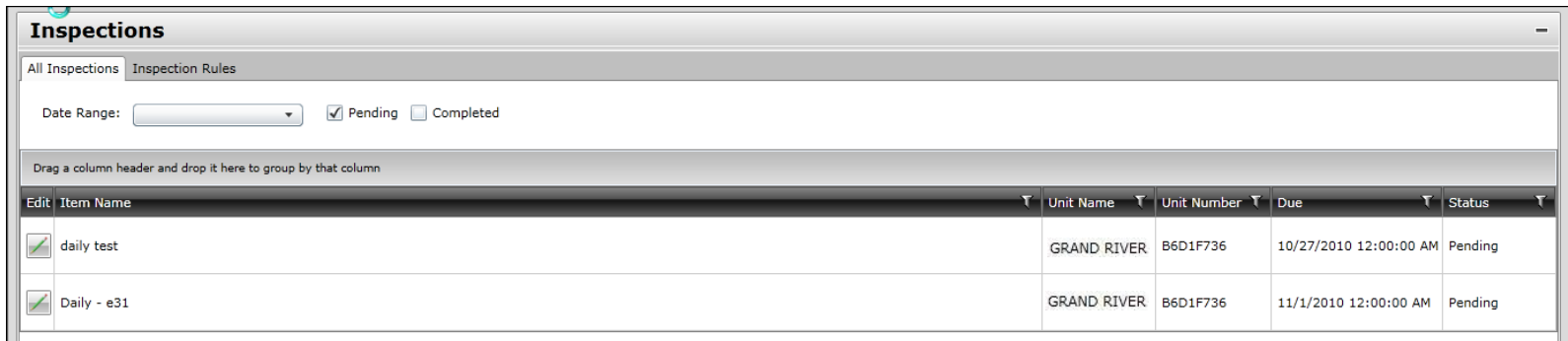
Starting Value Mile(s)

Next Occurrence Mile(s)

Reminder Sent At Mile(s)

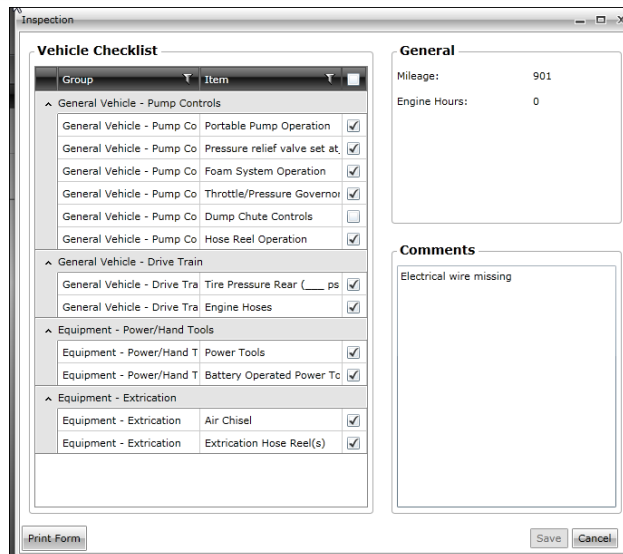
Link₂Online Inspections

- Provides a list of all inspections due for the vehicles in your fleet
 - Set up daily, weekly, monthly and annual inspections
 - Inspections are recorded online for reporting purposes
- Automatically creates alerts for identified issues during inspections
 - Alerts are displayed in Alert section and provides e-mail notifications



The screenshot shows the 'Inspections' web interface. At the top, there are tabs for 'All Inspections' and 'Inspection Rules'. Below the tabs, there is a 'Date Range' dropdown menu and checkboxes for 'Pending' (checked) and 'Completed'. A instruction reads 'Drag a column header and drop it here to group by that column'. The main part of the interface is a table with the following columns: 'Edit', 'Item Name', 'Unit Name', 'Unit Number', 'Due', and 'Status'. There are two rows of data:

Edit	Item Name	Unit Name	Unit Number	Due	Status
	daily test	GRAND RIVER	B6D1F736	10/27/2010 12:00:00 AM	Pending
	Daily - e31	GRAND RIVER	B6D1F736	11/1/2010 12:00:00 AM	Pending



The screenshot shows the 'Inspection' form. It is divided into two main sections: 'Vehicle Checklist' and 'General'. The 'Vehicle Checklist' section contains a table with columns for 'Group', 'Item', and a checkbox. The 'General' section contains fields for 'Mileage' and 'Engine Hours'. The 'Comments' section contains a text area for notes.

Vehicle Checklist

Group	Item	
General Vehicle - Pump Controls		
General Vehicle - Pump Co	Portable Pump Operation	<input checked="" type="checkbox"/>
General Vehicle - Pump Co	Pressure relief valve set at	<input checked="" type="checkbox"/>
General Vehicle - Pump Co	Foam System Operation	<input checked="" type="checkbox"/>
General Vehicle - Pump Co	Throttle/Pressure Govern	<input checked="" type="checkbox"/>
General Vehicle - Pump Co	Dump Chute Controls	<input type="checkbox"/>
General Vehicle - Pump Co	Hose Reel Operation	<input checked="" type="checkbox"/>
General Vehicle - Drive Train		
General Vehicle - Drive Tra	Tire Pressure Rear (___ ps	<input checked="" type="checkbox"/>
General Vehicle - Drive Tra	Engine Hoses	<input checked="" type="checkbox"/>
Equipment - Power/Hand Tools		
Equipment - Power/Hand T	Power Tools	<input checked="" type="checkbox"/>
Equipment - Power/Hand T	Battery Operated Power To	<input checked="" type="checkbox"/>
Equipment - Extrication		
Equipment - Extrication	Air Chisel	<input checked="" type="checkbox"/>
Equipment - Extrication	Extrication Hose Reel(s)	<input checked="" type="checkbox"/>

General

Mileage: 901
Engine Hours: 0

Comments

Electrical wire missing

Buttons: Print Form, Save, Cancel

Link₂Online Activity Logs

- Provides a list of vehicle runs
 - Each run shows an activity log of the run
 - Records time stamped vehicle events, mileage, speed and codes
 - Assists with remote diagnostics of vehicle and operational issues

Activity Log

Vehicle: GRAND RIVER FIRE

Last Week
 Last Month
 Last Year
 Custom Span

Drag a column header and drop it here to group by that column

Date	Link2	Group	EmergencyRun
10/28/2010 10:31:10 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/28/2010 09:44:29 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/28/2010 09:03:59 A	GRAND RIVER FIRE DISTRICT		Non Emergency
10/28/2010 07:54:17 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/28/2010 07:10:13 A	GRAND RIVER FIRE DISTRICT		Non Emergency
10/28/2010 06:37:27 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/27/2010 09:46:32 P	GRAND RIVER FIRE DISTRICT		Non Emergency
10/27/2010 05:40:17 P	GRAND RIVER FIRE DISTRICT		Non Emergency
10/27/2010 01:43:02 P	GRAND RIVER FIRE DISTRICT		Emergency Run
10/27/2010 12:37:52 P	GRAND RIVER FIRE DISTRICT		Emergency Run
10/27/2010 11:21:51 A	GRAND RIVER FIRE DISTRICT		Non Emergency
10/27/2010 11:09:51 A	GRAND RIVER FIRE DISTRICT		Non Emergency
10/27/2010 09:36:19 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/27/2010 08:51:56 A	GRAND RIVER FIRE DISTRICT		Emergency Run
10/27/2010 08:07:56 A	GRAND RIVER FIRE DISTRICT		Emergency Run

Activity Log

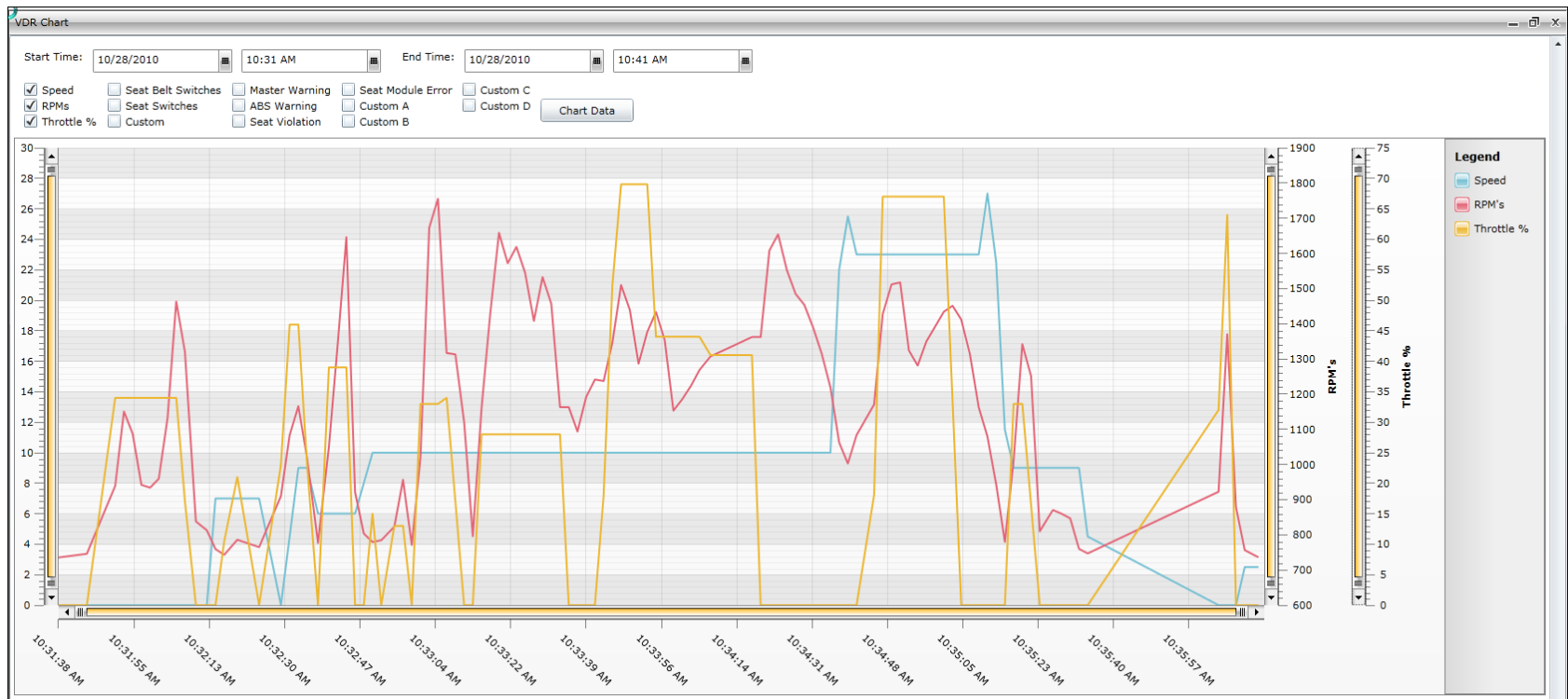
Collapse All

Activity Log

- ▲ 10/28/2010 9:44:29 AM : Activity Session Start
 - Session Date : 10/28/10
 - Link2 Id : b6d1f736-c9d6-9d3e-db10-631ae615d8d9
- ▲ 10/28/2010 9:44:29 AM : Power Status
 - Vehicle Power : On
- ▲ 10/28/2010 9:44:34 AM : Engine Run
 - Engine Status : Started
- ▲ 10/28/2010 9:44:40 AM : Transmission Gear
 - Transmission Gear : Forward
- ▲ 10/28/2010 9:44:46 AM : Vehicle Progress
 - Vehicle Progress : In Motion
- ▲ 10/28/2010 9:44:57 AM : Emergency Warning Switch
 - Master Warning : On
- ▲ 10/28/2010 9:47:25 AM : Vehicle Progress
 - Vehicle Progress : Stopped
- ▲ 10/28/2010 9:47:30 AM : Transmission Gear
 - Transmission Gear : Neutral
- ▲ 10/28/2010 9:47:30 AM : Vehicle Distance
 - Total Distance : 6,499.1 Miles
- ▲ 10/28/2010 9:45:27 AM : Maximum Vehicle Speed

Link₂Online Vehicle Data Recorder Logs

- Provides a list of vehicle logs for VDR data
 - Each log records information to meet NFPA VDR requirements
 - VDR data can be viewed for remote diagnostics
 - Graph displays multiple parameters for key diagnostic and vehicle operation information *including monitoring of custom circuits*
 - Example graph shows speed, rpm and throttle %
 - Provides key diagnostic information for OEM's and Service Centers



Link₂Online System Summary

Monitoring the operation and status of your fleet has never been easier. Link₂ provides your maintenance staff with critical vehicle data from the engine, transmission, ABS and electrical system network via an easy-to-use web based dashboard. With capabilities well beyond NFPA 1901 Vehicle Data Recorder requirements, Link₂ provides data for vehicle usage, diagnostics, warranty status, service history and current vehicle service needs. With the Link₂ system, you can base your maintenance upon actual component usage and provide service at the most appropriate time.

Never before have service personnel possessed the ability to view their fleet in such detail.

- Internet dashboard with usage, service and warranty specific data including current vehicle mileage and vehicle hours.
- Automatic notification of service requirements and critical faults sent to specific staff members.
- Ability to schedule future maintenance based upon vehicle hours, mileage and actual component usage – eliminate calls to fire stations for that information.
- Custom circuit monitoring and alerting capability.
- Configurable inputs and outputs monitor specific circuits for remote monitoring.
- Fully configurable wireless communication to the Web via multiple WiFi access points.