

Quartix

Award-Winning Vehicle Tracking



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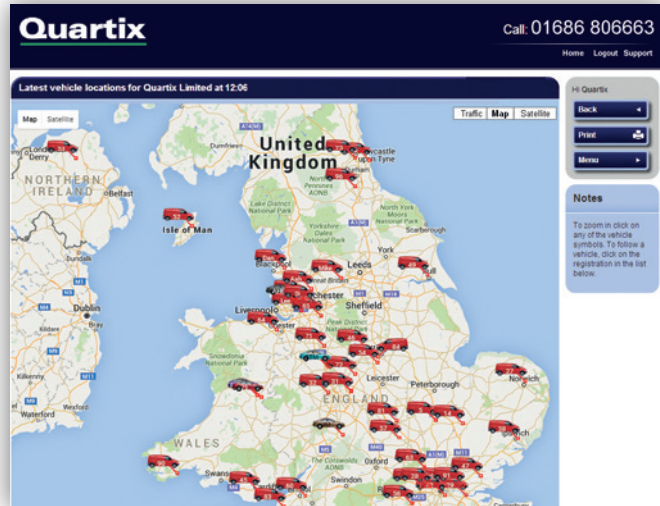


Real-time vehicle tracking

Internet-based for easy access

Using the Quartix vehicle tracking system you can track your vehicles in real-time, anytime, using any internet-connected device. There is no need for proprietary software or maps - everything is accessed over the web. Our system uses GPS satellites to locate your vehicles, and GSM technology to ensure that their positions, routes and logs are constantly updated.

Google Maps, backed by Satellite, Street View and Traffic Integration, is used to pinpoint your vehicles. Our website gives you instant access to 12 months' worth of history for each vehicle. Older data is archived for easy retrieval.



Navigation between reports

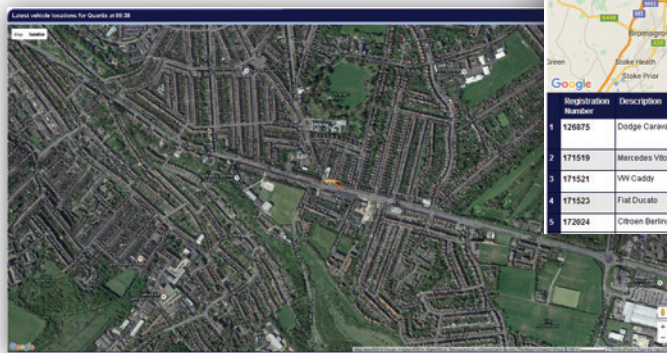
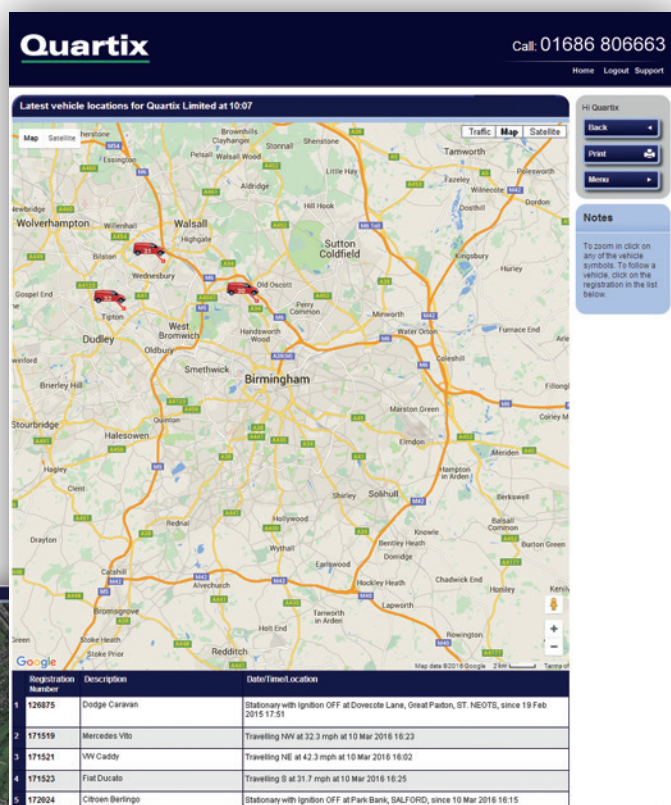
All of the key features of the tracking system are available from the live tracking screen. Clicking on a vehicle gives you access to the following features:

Daily log - a timesheet of a day's activity, including jobs completed or deliveries made

Route map - a clear, colour-coded trace of the route taken between stops

Zoom and follow - locks the display on that vehicle, and follows its journey

Zoom to location - zooms to show the map detail around the vehicle, giving access to satellite, street view and traffic information (where available)



MAIN FEATURES

Daily logs

Daily logs are presented in a clear, easy-to-read format. The day is split into separate trips and the level of detail in the report can be specified for each vehicle. Stops with the ignition on and short movements around a site can either be shown or filtered out.

Custom Location Names and Job References - adding your own custom address location names is an easy task. (See the configuration section.) These names then replace the street addresses on your customised reports, making it easy to identify sites that you visit regularly.

Links to locations and routes – clicking on any place name takes you to a map showing that location, and the magnifying glass next to each trip takes you straight to the route display, described below.

Trip	Depart	Arrive	Travel Time	Idling time	Distance (miles)	Average Speed (mph)
1	09:40 Rob Singer - HOME	10:50 Taboo Sports Bar & Grill - Lavender Bars Trading Ltd	1:02		45.4	43.5
2	11:18 Taboo Sports Bar & Grill - Lavender Bars Trading Ltd	12:24 Watford Gap (S) - RoadChef	1:05		59.0	52.7
3	12:29 Watford Gap (S) - RoadChef	12:51 Rob Singer - HOME	0:22		15.4	42.0
4	21:23 Rob Singer - HOME	21:29 Kettering Road, NORTHAMPTON, SE3 6AH	0:05		2.0	20.0
5	21:32 Kettering Road, NORTHAMPTON, SE3 6AH	21:40 Rob Singer - HOME	0:08		2.4	18.0
6	21:41 Rob Singer - HOME	22:55 Oxford Road, Chaveley, NEWBURY, Berkshire, RG208XX	1:14		67.9	55.1
7	23:36 Oxford Road, Chaveley, NEWBURY, Berkshire, RG208XX	23:52 Reading (IT) - Moto	0:16		14.3	53.6
Totals			4:14	0:00	205.4	48.5

Notes

1. Asterisk (*) after departure time indicates previous day's trip.
2. New trip threshold 10 miles.
3. Stops with ignition on are displayed.
4. Travel time excludes idling, average speed calculation includes idling.

The new trip threshold and whether stops with ignition on are displayed can be changed by your administrator or Quartix Technical Support.



Route map display

Each individual vehicle trip, or all journeys for a day, are displayed on the maps. Control and calendar buttons at the top allow you to step through each of the trips in a day – or to move between days. Each vehicle waypoint is marked with an arrow symbol indicating direction of travel and colour-coded according to speed thresholds shown in the key.

Timesheet reports in Excel

Delivered to your inbox

The weekly Microsoft Excel workbook provides a detailed sheet - per vehicle - for each day of the week, along with a summary sheet for the week as a whole. It is emailed to you automatically.

Key management information covered by the Excel report includes: mileage and fuel usage, maximum speeds, shift times, driving time and time spent at each site. The report is an invaluable tool for processing employee timesheets, pay and overtime. Private mileage can be entered in the report, providing a breakdown of business and private mileage for each day and the week as a whole.

Daily Summary									
City of Council, Road Transport									
Mon 15 February 2016									
Shift start: midnight									
Number of Trips: 11 Total Trip Time: 6:24 Total Trip Time: 1:43 Total Distance (miles): 61.2 Average Speed (mph): 35.5 Maximum Speed (mph): 48.6 Fuel Consumption (mpg): 25.6 Expected fuel used (gallons): 2.4 Actual: 10.9									
Start of first trip: 00:00 End of last trip: 07:42 Total shift duration: 13:52									
Time on site Arrival at first location: 07:05 Departure from last location: 17:52 On-site shift duration: 10:46									
Trip Breakdown									
Trips	Start Location	Departure Time	End Location	Arrival Time	Start Time	Stop Time	Distance (miles)	Average Speed (mph)	Max Speed (mph)
1	COUNCIL	08:49	COUNCIL	08:55	0:15	0:12	0.1	0.4	0.8
2	COUNCIL	09:14	Stratford Road, WALSALL	09:25	2:11	0:36	17.4	7.9	31.1
3	Broadway West, WALSALL	09:36	TIP	10:30	0:54	0:18	8.6	10.1	32.3
4	TIP	10:49	Wool Lane, WALSALL	11:00	0:10	0:08	2.2	1.6	28.8
5	Wool Lane, WALSALL	11:14	TIP	11:51	0:36	0:10	2.1	3.5	20.7
6	TIP	11:51	TIP	11:58	0:06	0:08	0.8	7.5	35.2
7	TIP	12:59	Redwood Way, WALSALL	12:51	0:10	0:01	1.7	9.4	29.2
8	Redwood Way, WALSALL	12:28	Apex Road, Brownhills, WALSALL	13:25	0:56	0:12	13.8	13.3	39.2
9	COUNCIL	13:28	Engine Lane, Brownhills, WALSALL	16:33	0:07	0:01	0.9	0.9	21.7
10	Engine Lane, Brownhills, WALSALL	15:39	Apex Road, Brownhills, WALSALL	15:47	0:10	0:08	0.8	28.9	43.5
11	COUNCIL	17:12	WALSALL COUNCIL	17:42	0:30	0:02	0.4	16.7	43.7
Total on-site shift duration: 4:29									

Weekly Spreadsheet QX60 QWR - Renault Traffic									
Mon 25 Jan 2016 - Sun 31 Jan 2016									
Weekly Total									
Number of trips	35	9	6	6	6	8	9	9	9
Total trip time	12:17	03:15	03:32	03:08	03:00	02:44	03:00	02:41	02:41
Total distance (miles)	287.7	84.0	77.2	9.0	9.0	65.3	0.0	48.6	48.6
Average speed (mph)	1.27	0.07	0.30	0.90	0.90	0.97	0.00	0.43	0.43
Maximum speed (mph)	21.6	26.5	21.6	9.0	9.0	27.9	0.0	16.1	16.1
Maximum speed (mph)	67.7	67.7	67.7	9.0	9.0	67.7	0.0	67.1	67.1
Harvest fuel consumption (mpg)	-	25.0	25.0	25.0	25.0	25.6	25.6	25.9	25.9
Expected fuel used (gallons)	10.7	3.4	3.1	0.3	0.3	2.6	0.0	1.6	1.6
(litres)	46.7	15.4	14.0	0.0	0.0	11.9	0.0	7.4	7.4
CO2 emissions (g)	126.4	41.2	37.6	9.0	9.0	31.8	0.0	19.9	19.9
Start of first trip	-	10:17	09:48	09:08	09:00	08:36	09:00	11:36	11:36
End of last trip	-	16:18	14:36	09:08	09:00	16:25	09:00	17:55	17:55
Total shift duration	25:16	5:01	5:07	6:00	6:00	9:49	9:00	6:19	6:19
Arrival at first location	-	10:18	11:02	09:08	09:00	08:36	09:00	11:37	11:37
Departure from last location	-	14:41	14:18	-	-	17:47	-	17:52	17:52
On-site shift duration	22:56	4:23	2:16	-	-	9:18	-	5:05	5:05

Daily and weekly summaries

Mileage and fuel usage - the detail and summary sheets provide a check on the estimated fuel usage for each vehicle which can be verified against fuel bills and compared across the fleet - helping you track and control running costs.

Maximum speeds - the maximum recorded speed for each trip - tallied across individual days and weeks - provides a useful way of monitoring driving habits and promoting safer use of your vehicles.

Shift times - the report automatically calculates the time from the first to the last movement of the vehicle in each day. Configuration options also allow you to specify shift times to be used in the reports.

Links to location and route maps - the location names and trip numbers provide direct links to maps on our website - so that you can quickly and easily check stop locations, speeds, routes driven etc.

Time-on-site report

The time-on-site report allows you to pick a location and compiles a report of each one of your vehicles that has visited that site in the period you choose, revealing the time spent there. It's a great help in analysing the cost of each job.

Time on Site Report for Demo					
05/01/2016 - 31/01/2016					
Custom Locations: Car Park A Main Site					
Vehicle	Arrival Time	Event	Location	Departure Time	Time on site (h)
QX10 SEB - Mercedes Atego	12/01/2016 10:29	Stop	Stopped with Ignition ON at Birmingham Road, Great Barr, BIRMINGHAM, B43 7AH	12/01/2016 11:06	0:37
QX10 SEB - Mercedes Atego	12/01/2016 18:59	Ignition-Off	Vicarage Road, WEST BROMWICH, West Midlands, B71 1AW	13/01/2016 07:18	12:18
QX10 SEB - Mercedes Atego	13/01/2016 18:17	Ignition-Off	Charley Road, WEST BROMWICH, West Midlands, B71 1QL	14/01/2016 07:52	13:35
QX10 SEB - Mercedes Atego	19/01/2016 15:18	Stop	Stopped with Ignition ON at Birmingham Road, Great Barr, BIRMINGHAM, B43 7AH	19/01/2016 15:22	0:04
QX10 SEB - Mercedes Atego	26/01/2016 11:22	Stop	Stopped with Ignition ON at Scott Arms Shopping Centre, Walsall Road, Great Barr, BIRMINGHAM, B42 1TQ	26/01/2016 11:47	0:25
Total					26:09
QX10 SNW - Fiat Ducato	22/01/2016 11:53	Stop	Stopped with Ignition ON at Birmingham Road, Great Barr, BIRMINGHAM, B43 7AH	22/01/2016 12:00	0:06
QX10 SNW - Fiat Ducato	23/01/2016 15:27	Stop	Stopped with Ignition ON at Jerome Retail Park, Midland Road, WALSALL, W51 3GB	23/01/2016 15:52	0:24
QX10 SNW - Fiat Ducato	23/01/2016 20:26	Stop	Stopped with Ignition ON at Aldridge Road, Great Barr, BIRMINGHAM, B44 8HQ	23/01/2016 21:08	0:42
QX10 SNW - Fiat Ducato	24/01/2016 04:35	Ignition-Off	Birmingham Road, Great Barr, BIRMINGHAM, B43 7AH	24/01/2016 16:05	11:30
QX10 SNW - Fiat Ducato	27/01/2016 13:31	Stop	Stopped with Ignition ON at Queens Road, BIRMINGHAM, B43 7EQ	27/01/2016 14:51	1:20

Vehicle group reports

Excel reports also cover an entire group of vehicles. You will receive a daily email with an Excel attachment with timesheets for each vehicle as part of a fleet-wide summary.

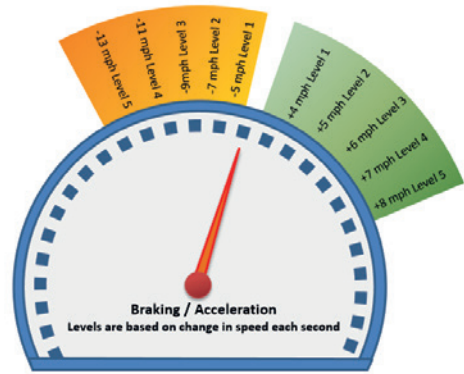
This report allows you to see the activity levels, stop and start times and shift durations for each of your vehicles on a single sheet. It's backed up with full detail for each vehicle.

Daily Summary for Delivery Vehicles									
Monday 8 February									
Arrival: 07:00 Departure: 17:00 Start of first trip: 07:00 End of last trip: 17:00 Average Speed: 35.5 Maximum Speed: 48.6 Fuel Consumption: 25.6 Expected fuel used: 2.4 Actual: 10.9									
Start of first trip: 07:00 End of last trip: 17:00 Total shift duration: 10:00									
Time on site Arrival at first location: 07:05 Departure from last location: 17:52 On-site shift duration: 10:46									
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5	Wool Lane, WALSALL	11:14	TIP	11:51	0:36	0:10	2.1	3.5	20.7
6	TIP	11:51	TIP	11:58	0:06	0:08	0.8	7.5	35.2
7	TIP	12:59	Redwood Way, WALSALL	12:51	0:10	0:01	1.7	9.4	29.2
8	Redwood Way, WALSALL	12:28	Apex Road, Brownhills, WALSALL	13:25	0:56	0:12	13.8	13.3	39.2
9	COUNCIL	13:28	Engine Lane, Brownhills, WALSALL	16:33	0:07	0:01	0.9	0.9	21.7
10	Engine Lane, Brownhills, WALSALL	15:39	Apex Road, Brownhills, WALSALL	15:47	0:10	0:08	0.8	28.9	43.5
11	COUNCIL	17:12	WALSALL COUNCIL	17:42	0:30	0:02	0.4	16.7	43.7
Total on-site shift duration: 4:29									

Driving style
Saving fuel and reducing risk

The Quartix InfoPlus option includes a comprehensive range of reports and displays, helping you work with your mobile workforce to improve their driving, reducing their risk of accident and cutting fuel costs at the same time.

Reports available are Daily Driver Briefing, Driving Style League Table, Driving Style Trend Report, Monthly Speed Report and Weekly Speed and Utilisation Chart. The driver briefing shows speeds and utilisation for the day, together with the corresponding acceleration and braking profiles for the same periods. Links are provided from the graphs to the actual map location of any speeding, braking or acceleration incidents. The driver is given an overall score for the day based on the factors shown in the next section.



Acceleration and braking

The Quartix system monitors the speed of the vehicle every second, and the acceleration and braking indexes are calculated from the number of times per hour that the speed changes by more than a given amount between one second and the next. These are then weighted according to how severe they are, and averaged over a driving hour to calculate the Acceleration Index and the Braking Index.

This speedometer shows the 10 levels of acceleration and braking, and each level has a weighting based on its severity. As such, speed reaching 6 mph in a second is a level 3 acceleration. Speed which goes down by 9 mph equates to level 3 braking, and so on.

Calculating the driving-style score

The weighting of acceleration and braking events is shown in the table opposite.

The acceleration index is the sum of all the acceleration incidents, each multiplied by their severity and finally divided by the driving time in hours. The braking index is worked out in a similar way, except that the levels of speed change are slightly different, as are the severity weightings.

Example: If a vehicle is driven for 2 hours, and during that time there are 20 level 1 accelerations (severity 0.2) and 15 level 2 accelerations (severity 0.5) then the acceleration index is $(20 \times 0.2 + 15 \times 0.5) / 2 = 5.75$ This is a relatively low index, showing modest acceleration.

The Driving Style Score is the overall score out of 100 for a given period, typically a day, a week or a month. The system will add up all the weighted acceleration and braking events with their severities, calculate the total driving time and work out the Acceleration and Braking Indexes.

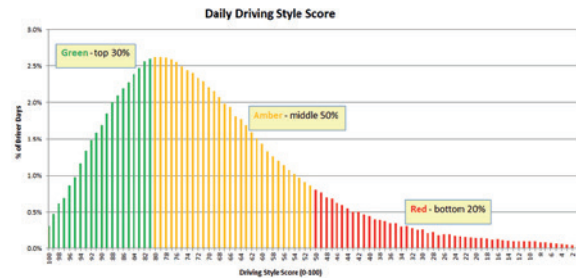
Level	Acceleration	Braking
1	0.2	0.5
2	0.5	2
3	2	4
4	4	10
5	10	20

Distribution of Daily Driving Style Scores

This graph shows an analysis of 830,000 journeys, giving scores for 64,000 'driver days'.

As described on page 4, the calculation of the acceleration and braking indexes, and hence the driving style score, are based on a 'per hour' calculation. Calculating the average per hour means that no drivers are penalised for driving more or less than any other driver.

The system calculates the Daily Driving Style Score for each day, based on the amount of driving for that day or shift (excluding any parts of trips before the start or after the end of the day/shift). We apply colours to the Daily Driving Style scores as shown on the plot opposite. If the score is >80 it is green - this represents the best 30% of drivers. If the score is between 50 and 80 it is shown as amber, and this represents the middle 50% of daily scores. 50 or below is red, and that's the worst 20%.



A screenshot of the Quartix software interface showing a 'Driving style league table reports' window. The table displays various metrics for different vehicle groups, including 'Average', 'Maximum', 'Minimum', and 'Standard Deviation'. The rows are color-coded: red for the bottom 20%, yellow for the middle 50%, and green for the top 30%. The table includes columns for 'Vehicle Group', 'Average', 'Maximum', 'Minimum', 'Standard Deviation', and 'Count'.

Driving style league table reports

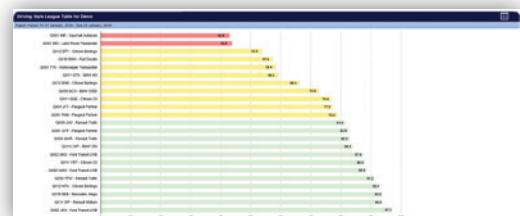
Driving style scores can be compared across groups of vehicles, or even the whole fleet. Driver ranking can be carried out on acceleration or braking indexes as well as the overall score, and can also be measured over any selected period.

Once the league table is compiled in the desired order and format, it can be exported to a csv file for further analysis in software such as Microsoft Excel.

Driving style league chart

The league table can also be displayed in graphical format, as shown.

Many of our customers have reported significant savings in fuel costs: an improvement in average driving style score from 50 to 80 could result in savings of between 8 and 14%



Driving Style Trend Report

This report provides a visual representation of driving style and speed scores for your selected range. It is helpful for identifying trends and assisting ongoing assessment.



MANAGEMENT INFORMATION

Quartix Dashboards

With the addition of Quartix Dashboards feature, we have gone one step further towards giving our customers control over how they view their fleet's activities in real-time.

The Quartix Dashboards are made up of a number of components, each using simple and clear graphs to display a variety of live fleet information. Individually, each one is itself customisable.

You can view the components on the Live Status Dashboard, with two at the top and three below or more if you prefer.

This live dashboard will routinely update to show the current status of all parameters being monitored—you can view your entire fleet or specific groups of vehicles for each individual component.

Once the layout is created that best suits your needs, you can save this under a customised name, to use in the future. It can also be shared with selected colleagues and any alterations will be reflected on their dashboard too.

The components are as follows:

Usage Profile Bar Chart

This is displayed as a bar chart showing the percentage of vehicles in use either for each hour of the current day or for each day of the week. Clicking on any bar in the chart will list the vehicles in use and not in use during that time period, in separate, scrollable lists. You can then click on a vehicle to view its daily log (for vehicles in use) or last location (for stationary vehicles).

Number of Calls

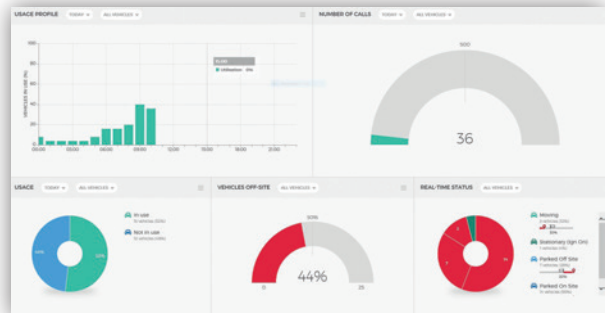
This component, displayed as a speedometer, shows the number of calls made as compared to a set target number. A 'call' is considered to be a stop at a different place from where the vehicle was kept at the start of its shift. Define targets, calls per day per vehicle, alert start times and decide if you wish to include stops with ignition on or off only. The chart will accommodate double the target set and display targets reached at the top of the arch. Clicking on the component will display the list of vehicles, in ascending number of calls undertaken, and each vehicle will take you to its daily log.

Usage Chart

This doughnut chart shows the vehicles that are used and unused for either the day or the week as whole, rather than by the hour as in the Usage Profile. The default distance to note the movement is 250m but this can be altered and could include all ignition on events. Utilisation targets can be set here and alerts raised which will show in red on the chart. Again you can click on any portion to show daily logs or last location.

Vehicles Off-Site

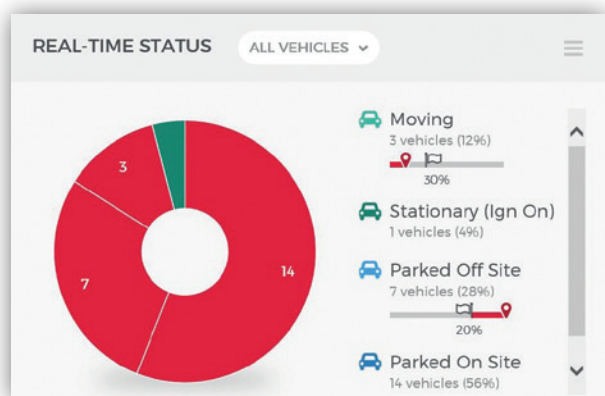
This component, displayed as a speedometer, shows the number of vehicles that are away from their overnight location, to give the measure of fleet activity. For a vehicle to be considered 'Off-Site,' its latest event must be at a different place from where the vehicle was kept overnight.



Clicking on any section will list the vehicles in use and not in use during that time period, in separate lists. Click on a vehicle to view its daily log (for vehicles in use) or last location (for unused vehicles).

Real-Time Status

This doughnut chart summarises what all selected fleet vehicles are doing at the current time. The status options are Moving, Stationary, Parked Off-Site, and Parked On-Site. Off-Site will be considered to be a different place from where the vehicle was kept overnight. Individual targets and alerts can be set and clicking the sections will show a list of the vehicles in each category, sorted in descending order of importance. In other words, if the target is to be above a certain number, the furthest from meeting that criteria will be shown first. You can click through the daily log for each vehicle.



Some of the components have additional graphics, such as above, that flag the targets for each status and alert in red, just like the graph itself, until those targets are met. A glance at the screen can tell you how close you are to reaching a particular target.

These five components offer quick and comprehensive views of the most vital functions of a mobile fleet and make staying on top of operations easier than ever.

MANAGEMENT INFORMATION

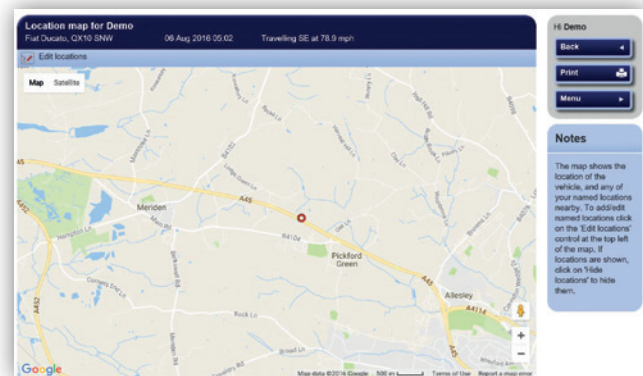
Monthly speed reports

Health and safety is of paramount importance in the management of a mobile workforce.

The monthly speed report complements the driving style tools by summarizing all speeding incidents for individual groups or the fleet as a whole, covering a whole month. It works in the following way:

- The menu allows you to select the group of vehicles, month and minimum speed threshold
- The report shows the speed, date and time of each incidence of excessive speed, together with the time spent at above the speed threshold
- Links to the route maps are provided for the location of the speeding incident and the day as a whole

Reg No. & Description	Max Speed (mph)	Date	Time	Mins in day above 85 mph
QK10 SEB - Mercedes Atego	85.9	09/08/2016	10:58	1 mins
QK10 BNF - Fiat Ducato	76.4	09/08/2016	22:01	9 mins
QK10 BNF - Fiat Ducato	78.9	09/08/2016	05:02	22 mins
QK10 BNF - Fiat Ducato	74.8	07/08/2016	02:23	9 mins
QK10 BNF - Fiat Ducato	78.4	09/08/2016	11:26	13 mins
QK10 BNF - Fiat Ducato	85.8	26/08/2016	01:23	1 mins
QK11 LWP - BMF 350	87.7	06/08/2016	08:29	1 mins
QK11 LWP - BMF 350	85.9	12/08/2016	10:12	1 mins
QK11 LWP - BMF 350	87.1	13/08/2016	08:33	3 mins
QK11 LWP - BMF 350	87.7	14/08/2016	07:55	12 mins
QK11 LWP - BMF 350	87.1	06/08/2016	19:18	1 mins
QK11 LWP - BMF 350	87.1	20/08/2016	05:34	5 mins
QK11 LWP - BMF 350	87.7	27/08/2016	05:57	3 mins
QK11 LWP - BMF 350	85.9	28/08/2016	06:16	1 mins
QK11 LWP - BMF 350	87.1	28/08/2016	05:58	10 mins
QK11 DQE - Citroen CS	87.7	01/08/2016	10:56	28 mins



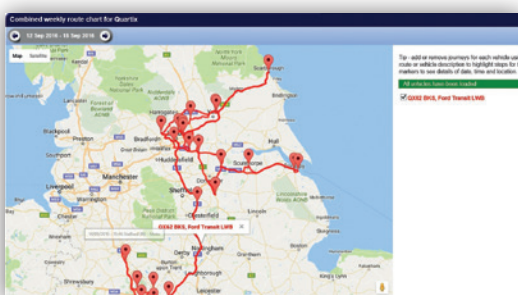
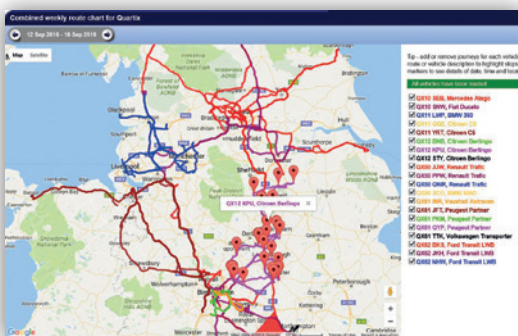
The example shows a selected speed incident of 78.9 mph and the corresponding route map where this was registered.

Route reports

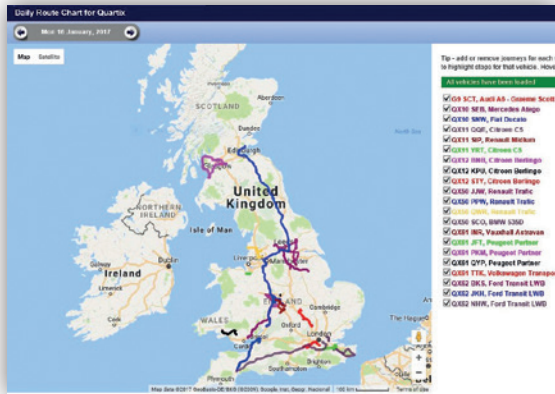
Available on **either a daily or weekly basis**, this key management tool is of particular value to fleets operating from multiple depots, or with groups of vehicles covering different areas. The Weekly Route Chart (illustrated here) provides an overview of mobile workforce activity in any selected week, displayed clearly on a colour plot online. This can greatly assist you in optimising your fleet operations.

Key features of the reports:

- Your choice of 7 days' or daily routes are summarised on a single map
- Different colours help to identify various vehicles
- The entire UK map is accessible with embedded google mapping
- Specific vehicles can be viewed if required and others omitted
- 12 months' historical fleet activity data is readily available from our servers



MANAGEMENT INFORMATION



Business benefits

These daily and weekly reports are an invaluable business tool, offering numerous financial benefits:

Cost Savings with the easy identification of journey duplication and overlap by vehicles from adjacent depots. Removing these inefficiencies will result in greatly reduced fuel expenditure and maintenance costs.

Streamlining of the fleet whilst retaining excellent standards of customer service through raised levels of operation.

More Efficient Allocation of service/delivery calls through improved insight into longer term fleet activity.

Optimum Allocation of new clients to specific depots, based on a graphical overview of current routes.

Trip reporter

This report offers a simple way to see a fleet's total mileage, driving hours and idling time over any time period. For those interested in totals by vehicle or driver, the summary screen shows the driving and idling times as well as the total distance for each vehicle or driver for the whole of the report period.

To track the usage of the fleet over time, the totals can also be grouped by the day the trips took place. The day takes into account a shift's start time for either the driver or the vehicle. Each of the groupings by vehicle, driver or day can be examined in detail to review trips actually made during the reporting period. This is true for reports of both trips made by a vehicle or driver over a number of days, as well as the trips made by all or part of the fleet for a single day.

Because some companies do not monitor their vehicles all of the time, the report offers the ability to include or exclude the non-monitored mileage, or to just report on the total non-monitored distance. As for monitored mileages, these can be grouped by vehicle or by day.

In our time and cost conscious environment, Trip Reporter enables the user to condense and specify data in accordance with need. Multiple dates and vehicles can be included or excluded in this flexible report. The selection of key points makes a quick overview possible with the depth of more detailed information available should it be required.

Quartix application menu

- > Live Tracking
- > Daily Vehicle Logs
- > Daily Route Maps
- > Trip Reporting
- > Fleet Management
- > Driving Style
- > Click here to Log Out

Trip Reporter for Demo

This report allows ad hoc reporting of trips

Enter the details below and click 'OK'

Group: Demo All vehicles

Vehicle: All vehicles

Driver: No drivers registered

Group by: ☐ Day (vehicle shifts) ☐ Day (driver shifts) ☐ Vehicle ☐ Driver

Start Date: 01/10/2015 (dd/mm/yyyy)

End Date: 31/10/2015 (dd/mm/yyyy)

Privacy: ☒ Include Business Distance ☒ Include Private Distance ☐ Include Untracked Distance

OK

Tip - you can type any dates over the last 12 months into the Date fields above.

Trip Reporter - Trip Report										Print Report		Export Report	
Report Period: 01/01/2015 - 31/12/2015													
										Vehicle Code		Driver Code	
Date	Vehicle Code	Driver Code	Start Time	End Time	Distance	Fuel	Cost	Rate	Notes				
01/01/2015	Q001 SCT	John Smith	08:00	09:00	10.5	1.2	10.5	1.2					
01/01/2015	Q002 SDB	John Smith	09:00	10:00	10.5	1.2	10.5	1.2					
01/01/2015	Q003 NBN	John Smith	10:00	11:00	10.5	1.2	10.5	1.2					
01/01/2015	Q004 GDF	John Smith	11:00	12:00	10.5	1.2	10.5	1.2					
01/01/2015	Q005 NBN	John Smith	12:00	13:00	10.5	1.2	10.5	1.2					
01/01/2015	Q006 YRS	John Smith	13:00	14:00	10.5	1.2	10.5	1.2					
01/01/2015	Q007 SDB	John Smith	14:00	15:00	10.5	1.2	10.5	1.2					
01/01/2015	Q008 KPL	John Smith	15:00	16:00	10.5	1.2	10.5	1.2					
01/01/2015	Q009 JNM	John Smith	16:00	17:00	10.5	1.2	10.5	1.2					
01/01/2015	Q010 PNB	John Smith	17:00	18:00	10.5	1.2	10.5	1.2					
01/01/2015	Q011 SDB	John Smith	18:00	19:00	10.5	1.2	10.5	1.2					
01/01/2015	Q012 SDB	John Smith	19:00	20:00	10.5	1.2	10.5	1.2					
01/01/2015	Q013 JPL	John Smith	20:00	21:00	10.5	1.2	10.5	1.2					
01/01/2015	Q014 PNB	John Smith	21:00	22:00	10.5	1.2	10.5	1.2					
01/01/2015	Q015 QYP	John Smith	22:00	23:00	10.5	1.2	10.5	1.2					
01/01/2015	Q016 TRL	John Smith	23:00	24:00	10.5	1.2	10.5	1.2					
01/01/2015	Q017 SDB	John Smith	24:00	25:00	10.5	1.2	10.5	1.2					
01/01/2015	Q018 JNM	John Smith	25:00	26:00	10.5	1.2	10.5	1.2					
01/01/2015	Q019 NBN	John Smith	26:00	27:00	10.5	1.2	10.5	1.2					
01/01/2015	Q020 NBN	John Smith	27:00	28:00	10.5	1.2	10.5	1.2					
01/01/2015	Q021 NBN	John Smith	28:00	29:00	10.5	1.2	10.5	1.2					
01/01/2015	Q022 NBN	John Smith	29:00	30:00	10.5	1.2	10.5	1.2					
01/01/2015	Q023 NBN	John Smith	30:00	31:00	10.5	1.2	10.5	1.2					
01/01/2015	Q024 NBN	John Smith	31:00	32:00	10.5	1.2	10.5	1.2					
01/01/2015	Q025 NBN	John Smith	32:00	33:00	10.5	1.2	10.5	1.2					
01/01/2015	Q026 NBN	John Smith	33:00	34:00	10.5	1.2	10.5	1.2					
01/01/2015	Q027 NBN	John Smith	34:00	35:00	10.5	1.2	10.5	1.2					
01/01/2015	Q028 NBN	John Smith	35:00	36:00	10.5	1.2	10.5	1.2					
01/01/2015	Q029 NBN	John Smith	36:00	37:00	10.5	1.2	10.5	1.2					
01/01/2015	Q030 NBN	John Smith	37:00	38:00	10.5	1.2	10.5	1.2					
01/01/2015	Q031 NBN	John Smith	38:00	39:00	10.5	1.2	10.5	1.2					
01/01/2015	Q032 NBN	John Smith	39:00	40:00	10.5	1.2	10.5	1.2					
01/01/2015	Q033 NBN	John Smith	40:00	41:00	10.5	1.2	10.5	1.2					
01/01/2015	Q034 NBN	John Smith	41:00	42:00	10.5	1.2	10.5	1.2					
01/01/2015	Q035 NBN	John Smith	42:00	43:00	10.5	1.2	10.5	1.2					
01/01/2015	Q036 NBN	John Smith	43:00	44:00	10.5	1.2	10.5	1.2					
01/01/2015	Q037 NBN	John Smith	44:00	45:00	10.5	1.2	10.5	1.2					
01/01/2015	Q038 NBN	John Smith	45:00	46:00	10.5	1.2	10.5	1.2					
01/01/2015	Q039 NBN	John Smith	46:00	47:00	10.5	1.2	10.5	1.2					
01/01/2015	Q040 NBN	John Smith	47:00	48:00	10.5	1.2	10.5	1.2					
01/01/2015	Q041 NBN	John Smith	48:00	49:00	10.5	1.2	10.5	1.2					
01/01/2015	Q042 NBN	John Smith	49:00	50:00	10.5	1.2	10.5	1.2					
01/01/2015	Q043 NBN	John Smith	50:00	51:00	10.5	1.2	10.5	1.2					
01/01/2015	Q044 NBN	John Smith	51:00	52:00	10.5	1.2	10.5	1.2					
01/01/2015	Q045 NBN	John Smith	52:00	53:00	10.5	1.2	10.5	1.2					
01/01/2015	Q046 NBN	John Smith	53:00	54:00	10.5	1.2	10.5	1.2					
01/01/2015	Q047 NBN	John Smith	54:00	55:00	10.5	1.2	10.5	1.2					
01/01/2015	Q048 NBN	John Smith	55:00	56:00	10.5	1.2	10.5	1.2					
01/01/2015	Q049 NBN	John Smith	56:00	57:00	10.5	1.2	10.5	1.2					
01/01/2015	Q050 NBN	John Smith	57:00	58:00	10.5	1.2	10.5	1.2					
01/01/2015	Q051 NBN	John Smith	58:00	59:00	10.5	1.2	10.5	1.2					
01/01/2015	Q052 NBN	John Smith	59:00	60:00	10.5	1.2	10.5	1.2					
01/01/2015	Q053 NBN	John Smith	60:00	61:00	10.5	1.2	10.5	1.2					
01/01/2015	Q054 NBN	John Smith	61:00	62:00	10.5	1.2	10.5	1.2					
01/01/2015	Q055 NBN	John Smith	62:00	63:00	10.5	1.2	10.5	1.2					
01/01/2015	Q056 NBN	John Smith	63:00	64:00	10.5	1.2	10.5	1.2					
01/01/2015	Q057 NBN	John Smith	64:00	65:00	10.5	1.2	10.5	1.2					
01/01/2015	Q058 NBN	John Smith	65:00	66:00	10.5	1.2	10.5	1.2					
01/01/2015	Q059 NBN	John Smith	66:00	67:00	10.5	1.2	10.5	1.2					
01/01/2015	Q060 NBN	John Smith	67:00	68:00	10.5	1.2	10.5	1.2					
01/01/2015	Q061 NBN	John Smith	68:00	69:00	10.5	1.2	10.5	1.2					
01/01/2015	Q062 NBN	John Smith	69:00	70:00	10.5	1.2	10.5	1.2					
01/01/2015	Q063 NBN	John Smith	70:00	71:00	10.5	1.2	10.5	1.2					
01/01/2015	Q064 NBN	John Smith	71:00	72:00	10.5	1.2	10.5	1.2					
01/01/2015	Q065 NBN	John Smith	72:00	73:00	10.5	1.2	10.5	1.2					
01/01/2015	Q066 NBN	John Smith	73:00	74:00	10.5	1.2	10.5	1.2					
01/01/2015	Q067 NBN	John Smith	74:00	75:00	10.5	1.2	10.5	1.2					
01/01/2015	Q068 NBN	John Smith	75:00	76:00	10.5	1.2	10.5	1.2					
01/01/2015	Q069 NBN	John Smith	76:00	77:00	10.5	1.2	10.5	1.2					
01/01/2015	Q070 NBN	John Smith	77:00	78:00	10.5	1.2	10.5	1.2					
01/01/2015	Q071 NBN	John Smith	78:00	79:00	10.5	1.2	10.5	1.2					
01/01/2015	Q072 NBN	John Smith	79:00	80:00	10.5	1.2	10.5	1.2					
01/01/2015	Q073 NBN	John Smith	80:00	81:00	10.5	1.2	10.5	1.2					
01/01/2015	Q074 NBN	John Smith	81:00	82:00	10.5	1.2	10.5	1.2					
01/01/2015	Q075 NBN	John Smith	82:00	83:00	10.5	1.2	10.5	1.2					
01/01/2015	Q076 NBN	John Smith	83:00	84:00	10.5	1.2	10.5	1.2					
01/01/2015	Q077 NBN	John Smith	84:00	85:00	10.5	1.2	10.5	1.2					
01/01/2015	Q078 NBN	John Smith	85:00	86:00	10.5	1.2	10.5	1.2					
01/01/2015	Q079 NBN	John Smith	86:00	87:00	10.5	1.2	10.5	1.2					
01/01/2015	Q080 NBN	John Smith	87:00	88:00	10.5	1.2	10.5	1.2					
01/01/2015	Q081 NBN	John Smith	88:00	89:00	10.5	1.2	10.5	1.2					
01/01/2015	Q082 NBN	John Smith	89:00	90:00	10.5	1.2	10.5	1.2					
01/01/2015	Q083 NBN	John Smith	90:00	91:00	10.5	1.2	10.5	1.2					
01/01/2015	Q084 NBN	John Smith	91:00	92:00	10.5	1.2	10.5	1.2					
01/01/2015	Q085 NBN	John Smith	92:00	93:00	10.5	1.2	10.5	1.2					
01/01/2015	Q086 NBN	John Smith	93:00	94:00	10.5	1.2	10.5	1.2					
01/01/2015	Q087 NBN	John Smith	94:00	95:00	10.5	1.2	10.5	1.2					
01/01/2015	Q088 NBN	John Smith	95:00	96:00	10.5	1.2	10.5	1.2					
01/01/2015	Q089 NBN	John Smith	96:00	97:00	10.5	1.2	10.5	1.2					
01/01/2015	Q090 NBN	John Smith	97:00	98:00	10.5	1.2	10.5	1.2					
01/01/2015	Q091 NBN	John Smith	98:00	99:00	10.5	1.2	10.5	1.2					
01/01/2015	Q092 NBN	John Smith	99:00	100:00	10.5	1.2	10.5	1.2					
01/01/2015	Q093 NBN	John Smith	100:00	101:00	10.5	1.2	10.5	1.2					
01/01/2015	Q094 NBN	John Smith	101:00	102:00	10.5	1.2	10.5	1.2					
01/01/2015	Q095 NBN	John Smith	102:00	103:00	10.5	1.2</							

SafeSpeed Database

Excessive speed is widely accepted to be a contributory factor in many vehicle crashes. Several studies have demonstrated that the risk of having an accident, involving casualties rises significantly as speeds exceed traffic norms. Research by Quartix shows that urban and rural areas are equally affected which reflects the findings of universities and traffic safety organisations.

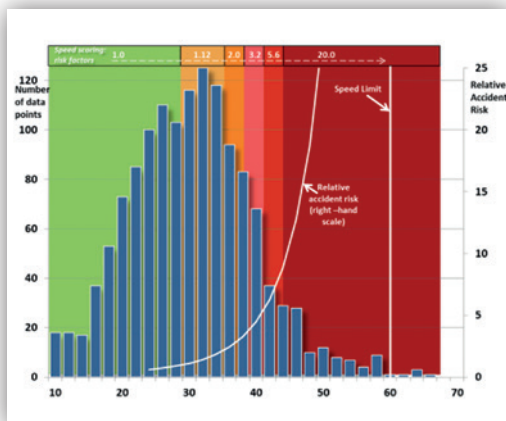
Statutory speed limits are an unsatisfactory benchmark for many roads

By recording actual speed data from its base of more than 60,000 commercial vehicles in the UK, Quartix matches vehicle data points to 2.6 million roads in the country, resulting in a database of more than 1 million speed distributions of statistical significance. This data is constantly logged and updated to identify optimum driving speeds which are often considerably below the given speed limit.

Factors such as driver inexperience, night-time driving, fatigue and weather conditions all increase the risk of accident when speed exceeds this level.

A Practical example on a rural road

The route between Foxton and Barrington in Cambridgeshire (60mph speed limit)



The graph on the left shows the distribution data that the SafeSpeed database holds for this short stretch of road, together with the speed limit and the relative accident risk (right hand scale).

The chart clearly demonstrates that the safe speed for this stretch of road is significantly lower than the speed limit: the distribution shows a mean speed of just 30mph, against a speed limit of 60mph.

In this particular example a driver would be at or around the 99th percentile in order to exceed the speed limit, and there is a real acceleration of accident risk from the 75th percentile onwards. There is therefore a significant gap between the speed distribution and the speed limit. It is clear, however, that single data points cannot be taken in isolation for comparative purposes as the road does include some straight stretches which would have clear visibility in good conditions. But maintaining an average speed percentile above 95 on this road would indicate a very high-risk driving style.

MANAGEMENT INFORMATION

Advantages of the SafeSpeed Database in brief:

- A realistic benchmark of safer speeds and driving style than comparison with the national speed limit alone
- Increased safety – fewer accidents
- Improved analysis of risk for fleet operator and insurer
- Lower fuel consumption
- Less vehicle “wear and tear”
- Integration with the Driving style reports to promote good driving practice
- Increased awareness of driving standards and corporate responsibility



The technology

- At least 30million commercial vehicle movements are processed by the database each day
- Each data point is completely anonymised: there is no identification of the vehicle from which it originated.
- Each event is matched in just 60 microseconds to one of more than 15 million segments of the 2.6 million roads making up the UK network – still leaving huge room for expansion of the database as the Quartix fleet customer base grows
- Events are batched in order of receipt as they are fed into the speed distributions
- Each road speed distribution (of which there are now more than 1 million of statistical significance) is updated as new data arrives, at a rate which is dependent on the traffic flow on that road

In the most recent development, Quartix has developed fast application programming interfaces (APIs). These are capable of interrogating the speed distributions for every single data point received from a particular vehicle to provide a speed profile score as a percentile within each distribution. The potential will be to factor in driver experience, “accident black spots”, time of day and so on to minimise risk further and improve the accuracy of assessment.

Fleet Maintenance

Managing service schedules in a large fleet is an onerous task. The Quartix system helps to automate the process by letting you manage service schedules, vehicle inspections, insurance and tax, as well as allowing you to set custom milestones and reminders.

To use this tool you simply enter the vehicle odometer reading and key milestones in the screen shown opposite (accessible through the configuration menu item). The Quartix system then accumulates the mileage from that date and notifies you when the vehicle needs servicing. Notifications are sent as emails or you can review the whole fleet in an online report.

Weekly Spreadsheet FJ5J BLF we 2014-01-18.xls attached

Quartix

FA63 BLF, Mercedes Sprinter

Week ending: 18 January 2014

Manual odometer reading :	3591 miles
Manual reading taken (date) :	21 September 2013 08:00
Quartix odometer estimate :	13551 miles
Quartix estimate date/time :	29 January 2014 11:21
Next service due (date) :	01 January 2014 *** WARNING: OVERDUE ***
Next service due (odometer) :	20000 miles
Insurance renewal (date) :	07 August 2014
Road tax renewal (date) :	31 August 2014
Next MOT due (date) :	31 August 2016

Notes:
1. The above status report is based on information entered into the Quartix system by the user.
2. The Quartix odometer estimate is based on distance monitored since the last manual reading.
3. To ensure consistency with the vehicle's odometer, the manual reading should be verified on a monthly basis.
4. While every attempt is made to ensure accuracy, Quartix Limited cannot accept liability for any errors or omissions.
5. Since 2010 has a new "Readiness" label which is used if you replace the front/rear wheels in the workshop or on a road adjustment. You can still read 2010 to paper file from trusted sources but we do not advise the complete disabling of the feature. When selected view is displayed there is an amber "Readiness" label. If you click this, the Quartix spreadsheet will open normally so you can view the data. Alternatively you will get a "Readiness" label - "Office File Validation" pop box. Please click on "Open" and again the Quartix spreadsheet will open normally so you can view the data.

Email alerts & Service date reports

The fleet maintenance system generates automated alerts by email, which are attached to the weekly vehicle workbook reports. Items for attention are coloured amber, and anything which is overdue is shown in red. For example, custom reminders can be generated to inspect tyres at a certain mileage.

As well as the email alerts, the service date reports provide a summary of the status of the entire vehicle fleet, including data on:

- Vehicle safety inspection
- Emission tests
- Service schedules
- Registration fee
- Insurance
- Custom milestones such as tyre inspection etc.

Fuel Card Integration

In partnership with Fleetcheck, the Quartix Fuel Purchase Report is available upon request for customers who have fuel cards with a third party provider.

The report is presented via an Excel file which contains all of your fuel card data, within a specific date range which you can select. The file will contain the following details:

- Vehicle details as registered with the fuel card provider (eg. Vehicle registration number)
- Date of fuel purchase
- Fuel card number
- Fuel type
- Quantity purchased (in litres)
- Cost of fuel (Net, VAT, and Gross)
- Subtotal of quantity and cost for each vehicle

The fuel data on this report can be updated as frequently as desired on a month, weekly or even daily basis. Most customers choose monthly and the updates occur within the first five days of the month.

Quartix Fuel Purchase report

Vehicle	Date	Card Number	Details	Quantity	Net	Gross
Q11023	30-Nov-2013	7/102	Diesel	61.87	£12.08	£15.42
Q11024	30-Nov-2013	7/102	Diesel	47.12	£9.28	£11.46
Q11024	30-Nov-2013	7/102	Diesel	42.91	£8.28	£10.46
Q11024	30-Nov-2013	7/102	Diesel	57.88	£11.47	£14.48
Q11024	11-Nov-2013	7/102	Diesel	74.88	£14.78	£18.34
Q11024	14-Nov-2013	7/102	Diesel	47.82	£9.37	£11.53
Q11024	16-Nov-2013	7/102	Diesel	61.88	£12.24	£15.35
				458.92	£89.43	£109.13
Q11025	01-Dec-2013	7/102	Diesel	66.81	£12.95	£16.07
Q11025	01-Dec-2013	7/102	Diesel	62.37	£12.46	£15.42
Q11025	01-Dec-2013	7/102	Diesel	40.94	£8.21	£10.14
				169.94	£33.77	£41.63
Q11022	11-Nov-2013	7/102	Diesel	63.76	£12.32	£15.39
Q11022	20-Nov-2013	7/102	Diesel	46.84	£9.17	£11.31
				110.60	£21.49	£26.70
Q11034	04-Dec-2013	7/102	Diesel	49.81	£9.56	£11.71
Q11034	04-Dec-2013	7/102	Diesel	34.97	£6.91	£8.56
				113.02	£22.25	£27.64
Q11048	18-Nov-2013	7/102	Diesel	61.88	£12.24	£15.35
Q11048	20-Nov-2013	7/102	Diesel	46.88	£9.17	£11.31
				108.76	£21.41	£26.66
Q11047	04-Dec-2013	7/102	Diesel	39.77	£7.77	£9.55



Driver identification

Driver identification comes as an additional option and provides information on which driver is operating each vehicle. A small receiver is wired into the dashboard of each vehicle at the time of installation and each driver is equipped with their own magnetic key fob. Upon being placed onto the receiver, the unit will then register which driver is in the vehicle, and record all trip data specific to that driver.

A further option can be added so that a high-pitched buzzing sounds until the key fob is placed on the receiver.

GEOFENCING

Geofencing & out-of-hours

Real-time alerts by email

The Quartix system offers complete flexibility in setting up real-time alarms to inform you of unauthorised vehicle movements and other exceptions. The system allows you to set up a series of geographic zones together with the time-based rules of when vehicles should be inside or outside each zone.



Zones and modes of use

Two zone types are possible:

Named locations - comprising a named building or area, such as a depot, the driver's home address or a customer location.

Geographical zones - these can be set up to encompass any shape on a map and are intended to show the boundaries of a territory, city or similar. (London's Congestion Charge Zone, for example.)

Geofencing is used in one of two modes:

Mandatory mode - the vehicle must be inside the chosen zone for the times specified.

Prohibited mode - the vehicle must not enter the zone during the times specified.

The zones and times applied to them can be different for each vehicle and each day of the week, if required. The screen opposite shows how zones may be set to any shape or size – including polygons of unlimited complexity.

Alert types

Alarm messages can be sent to one or more email addresses or by text. Alerts can include:

- Out-of-hours: if the vehicle ignition is activated outside pre-set working hours, or
- If a geofence rule is broken, either a mandatory or prohibited zone rule.

Here are some examples of how our geofence system is used in practice:

1. A housing maintenance manager needs to know that all his vehicles are available on call inside the boundaries of the city.

Solution - Specify the boundary of the city as a 'Mandatory Zone' between the hours of 8.00am and 6.00pm, Monday to Friday (or as required). Any vehicle straying beyond this boundary between the set times, will trigger an alert.

2. For insurance purposes, a transport manager has to be sure that trucks are parked in the secure depot overnight.

Solution - Specify the depot as 'Quartix Named Location: Mandatory Zone' between the hours of 8.00pm and 8.00am (or as required). Any departure from this location between those hours would set off the alert.

3. A business owner wants to be sure that his employees are not returning home from site during the working day.

Solution - Designate the driver's home as a 'Quartix Named Location: Prohibited Zone' on weekdays between 8.00am and 6.00pm; email/text notification will be given if the vehicle goes to that postcode during the hours set.

Another notification by your chosen method (email or text) will be sent once the vehicle is compliant again and has returned to its intended location, or left the prohibited location.

In summary, geofencing can help you manage your business by alerting you to exceptional or prohibited behaviour - keeping you one step ahead.



TEMPERATURE MONITORING

Temperature Monitoring

Quartix offers an integrated solution for temperature control, to complement the existing functions available. Using the same GPRS technology that delivers their live vehicle tracking and fleet management tools, the Quartix system continually monitors conditions and transmits data, alerting customers when temperatures in their vehicles go out of range by as little as $\pm 0.5^\circ$ for temperatures between -10° and 85°C .

The system requires only two probes for even the largest of vehicles, and each probe can be customized for different temperature settings. For example, a truck with both frozen and chilled sections will be monitored accurately for the requirements of each zone. Our Temperature Monitoring probes have an accuracy of $\pm 0.5^\circ$ for temperatures between -10° and 85°C and $\pm 2.0^\circ$ for temperatures between -55° and -10°C . The probes themselves are only 30 mm long and 6 mm in diameter; they are connected to the vehicle's tracking unit with waterproof cables. The customer's chosen parameters are set in accordance with their instructions but can be changed with ease if required. 12 months' worth of data can be viewed and data older than a year is archived for easy retrieval.



The graph above shows that this customer set temperature parameters of between $+2^\circ\text{C}$ and $+8^\circ\text{C}$, with alerts triggered for any four consecutive alerts beyond that range.

Both the carrier and end user need to be confident that their goods have been transported under the correct conditions whether refrigerated or temperate. Any clarification that may be needed can be provided by easy access to the reports. With the Quartix system, temperatures are reported every two minutes while the vehicle is in use and every 15 minutes when the vehicle is not in use. Recordings are always taken when the vehicle stops and when the ignition is turned off. When a probe registers four consecutive temperature readings that are out of range, an alert is generated and an email is sent to the customer. This email can be sent to multiple recipients and contains a direct link to the vehicle on which the problem has arisen, allowing customers to correct any issues that, if unresolved, could lead to a loss of product. This has been adopted by the food sector, medical and pharmaceutical companies and other conveyors of sensitive products.

Quartix integration with Power Take Off (PTO) connections

Quartix works with many customers who have additional monitoring requirements via PTO connections. One such example is the use of Blue Lights in the emergency services as there are laws regulating their use. It is possible to run separate reports from the Quartix system which supply these details and are clearly displayed in the Trip Reporter options. This assists with record-keeping, audits and compliance.

Another area of increasing PTO connection requirements is within the public sector for services such as road cleaning and maintenance. Active periods of sweeping equipment, road planers, tankers and a host of other operational vehicles can be recorded. Ease of paperwork and timesheet administrative tasks, vehicle compliance, driver safety, and meeting insurance commitments are just some of the advantages of implementing the system.

The extract below shows some of the journeys taken by an emergency response vehicle and one of the corresponding route maps indicating the blue light usage.

Date	Time	Departure Address	Arrival Address	Time Taken	Stopping Time	Distance	Average Speed	Lights On
01/01	08:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:10	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:15	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:20	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:25	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:30	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:35	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:40	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:45	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:50	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	08:55	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:10	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:15	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:20	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:25	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:30	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:35	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:40	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:45	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:50	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	09:55	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:10	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:15	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:20	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:25	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:30	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:35	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:40	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:45	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:50	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	10:55	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:10	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:15	01/01	01/01	0:05	0:00	0.5	7.5	0:00
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01/01	11:30	01/01	01/01	0:05	0:00	0.5	7.5	0:00
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01/01	11:45	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:50	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	11:55	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	12:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	12:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
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01/01	12:35	01/01	01/01	0:05	0:00	0.5	7.5	0:00
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01/01	17:35	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	17:40	01/01	01/01	0:05	0:00	0.5	7.5	0:00
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01/01	17:50	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	17:55	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:00	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:05	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:10	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:15	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:20	01/01	01/01	0:05	0:00	0.5	7.5	0:00
01/01	18:25	01/01	01/01	0:05	0:00	0.5	7.5	0

CONFIGURATION

Configuration

A customisable tracking solution

Each vehicle can be configured in order to tailor the reports to your needs, either by us or by you. This can also be carried out using the administrator login.

The screen example opposite shows the main parameters that can be changed, including: whether the report is to show periods of idling, the new trip threshold (which, if required, can be set to eliminate short trips, such as movements around a parking lot or yard, for example), the shift start and stop times to be used in compiling the reports and the way in which the vehicle is to be displayed on the real-time tracking display.

Privacy Controls

The Quartix system has two important features which help in respecting the requirements of employee privacy and relevant legislation for vehicles which are used for private and business journeys.

Access privileges – Each user account can be set to provide access to just the information required to carry out that person's job. For example, service or support centre staff may need to know where all operatives are in real-time in order to locate the nearest person for a job, but they would not need to have access to the driver's working hours or timesheets.

Disabling of vehicle monitoring – By using the configuration screen, it is possible to disable the monitoring and storage of vehicle movement information for non-business hours. The system will report the mileage covered during this period, but not the locations visited.

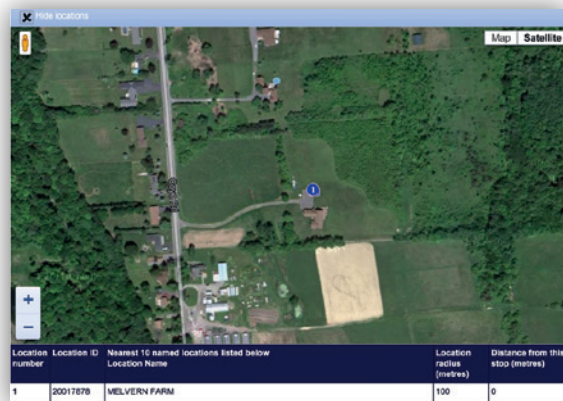
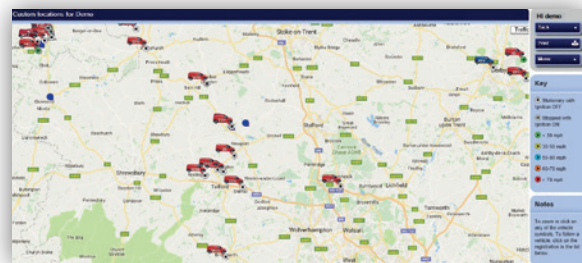
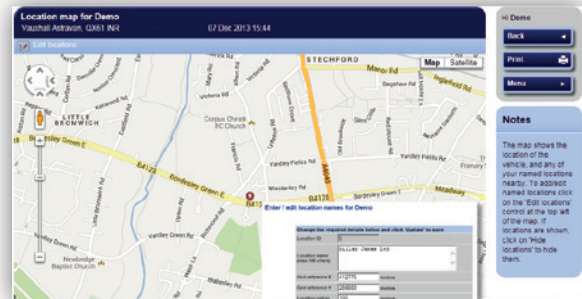
With the Privacy switch, disabling vehicle monitoring can be managed remotely via the web site. The different tracking modes are:

- **Track Always** – Monitoring 24/7. All information related to the vehicles is recorded.
- **Track Between** – Monitoring periods can be defined for weekdays and each day of the weekend. Vehicle tracking is only "on" during those periods.
- **Stop Tracking** – The vehicle will no longer be tracked. This is intended for use for extended periods when a vehicle is not being used on business (eg. When the driver is on holiday). **Tracking will stop permanently until re-enabled by the user.**

Customising location names

All vehicle logs and reports produced by the system, including Excel worksheets and real-time locations, can display your custom location names if you wish. These can either be entered by you or by Quartix. You will also be able to upload an Excel spread sheet that contains a list of locations, rather than uploading individually.

Using an administrator login you can access the "Edit Location" screen directly from the map linked to each stop point on the vehicle log. This shows the closest 10 named locations on that screen by highlighting them in blue. You can also select "Show Custom Locations on Map" from the Live Tracking menu to view or edit.



Modifying or adding a location

A list of custom locations is provided immediately beneath the map screen - the number corresponds to the number in the blue circles on the map. By clicking on the name of the location its position and radius can be modified. Adding a new location is just as straightforward: clicking on the link at the top of the table opens the edit location dialog box with a new entry in it, which can then be named and modified to suit.

PRODUCT DESIGN

Exceptional reliability, built on 16 years of telematics experience

The TCSV11 hard-wired and TCSV12 OBD plug-in tracking systems use Quartix's latest generation telematics technology and architecture, including fast GPS and accelerometer sampling. Based on experience gained over more than 15 years and 300,000 units installed, these products have been designed in-house by our Cambridge design team to satisfy the needs of our fleet and insurance customers.

Key features of the Quartix TCSV11 and TCSV12 telematics systems include:



The TCSV11 is held inside a bulkhead mounting plate which is fitted in a hidden location for ultimate security.

10Hz GPS - sampling location, speed and heading ten times per second

This gives our tracking systems unparalleled capabilities in calculating acceleration and braking, as well as providing 10 times more journey data in the period surrounding an impact.

100/800Hz accelerometer

This +/-8g, tri-axis, 14 bit resolution accelerometer, coupled with fast GPS data, provides the ideal hardware and firmware platform for crash detection and reconstruction. It is sampled 100 times per second and has 800Hz capability for future enhancement.



The TCSV12 plug-in system is compatible with more than 90% of modern cars.

Fast ARM processor with multi-tasking OS

The ARM processor and OS environment enable the tracking system to process large amounts of movement and acceleration data in real-time, correlating between them to achieve better accident detection

Tamper alerts

The voltage sense capabilities on the input power enable the system to detect engine activation by monitoring the alternator voltage – blocking any attempts to tamper with the ignition feed.

Battery backup

Our tracking systems are fitted with highly-efficient, lithium polymer batteries which are capable of powering multiple transmissions over several hours to our remote servers in the event that the tracking system is disconnected from the vehicle battery. This feature is crucial during a serious crash or in any attempt at tampering.

SYSTEM ARCHITECTURE & MOBILE APP

System architecture

A system built on fault tolerance and active redundancy

Everything about the Quartix vehicle tracking system has been developed by our own engineering teams, from the telematics terminal and firmware through to the database systems and user applications. Our customers access vehicle, management and business reports from any internet-connected device, and many of the exception and management reports are delivered directly by email, without the need to monitor the system or log in.

Key to the system's reliability is an architecture which has been built on fault tolerance and active redundancy – giving you peace of mind that your vehicle tracking system will be reliable and available for use from anywhere.

The key features of the system design include:

- GPS vehicle tracking, using the latest generation of GPS chip technology
- Real-time GPRS communication, with fault tolerance and backup built in
- Dual-redundant vehicle tracking servers and database systems based in separate physical locations
- Access to your data through either www.quartix.net or www.quartix.co.uk



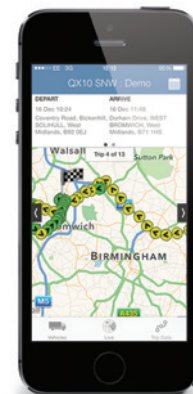
Mobile app

The Quartix mobile app enables users to view the real-time location of their vehicles and access the core features of the system whilst on the move. The app is free to download and can be used by all Quartix customers.

The Quartix app offers three key features:

- **Vehicle List** – a summary of all the vehicles to which the user has access, and their present location.
- **Live Tracking** – shows the latest location of a chosen vehicle in real time, as well as other vehicles in the area. The vehicle can be selected to be 'followed' by the app, and the map screen will automatically be updated.
- **Trip Data** – shows the trips carried out on any day over the previous 6 months.

The app is available to download for free on the **App Store**, **Google Play** and **Windows Phone Store**.



ABOUT QUARTIX

About Quartix

Key facts about Quartix:

- Founded in 2001 by four industry professionals
- Over 300,000 units installed
- More than 9,000 fleet customers and 12 major insurance clients
- Over 200 installers in the UK
- Premises in the UK, France and the USA.

What we offer:

- **Ease of access through the Internet from anywhere** - whether at home, work, or on the move.
- **Speed and ease of use** - quick web access and clear controls making the system extremely simple to use.
- **No hidden costs** - our prices are published on the web and there are no hidden warranty, software or service charges.
- **Short-term direct rental agreements** - no third-party finance or long-term contracts.
- **Service** - we pride ourselves on our service levels and the long-term relationships we keep with our clients.
- **Price** - we want to deliver just what you need, and no unnecessary extra features. By keeping our costs low, we aim to provide a superior level of service at a competitive price.

Our customers:

Today, more than 9,000 customers across almost all sectors of the UK economy use the system - including government organisations, housing associations, construction firms, hospital trusts, the emergency services, SMEs and large British brands.

"We're really happy with the Quartix tracking system - it's efficient, easy to use and competitive on price."

John Foster, Director, JR Foster Haulage Ltd.

"Real-time tracking from Quartix helps us answer passenger queries quickly and efficiently."

Michael Morris, Director, Tanat Valley Coaches

"The Quartix system has helped reduce our fuel usage and improve our customer service through increased productivity and better response times to repairs."

Rob Thomas, Head of Property Services, Valleys to Coast Housing Ltd.

"Whatever query we have, the Quartix support team is always fantastic to deal with. Nothing is too much trouble and they will always get back to you promptly and efficiently."

Amar Nandra, Director, Beeches Recovery



**More than
130 new fleet
customers
choose Quartix
each month.**



**Over 300,000
Quartix systems
have been
installed.**



**A new Quartix
system is installed
every one minute
and thirty seconds
of the working day.**

"WE HAVE SEEN IMPROVED DRIVING STANDARDS UTILISING THE QUARTIX DRIVING STYLE REPORTS, RESULTING IN REDUCED VEHICLE INCIDENTS AND AN 18% IMPROVEMENT IN FUEL CONSUMPTION."

ANDREW GIBBONS, FLEET CI MANAGER, GINSTERS VAN SALES

Specifications are subject to change without notice. This document is not intended to form any part of a contract.

Quartix

Award-Winning Vehicle Tracking

VEHICLE TRACKING APP

Available for **free** to all Quartix users

