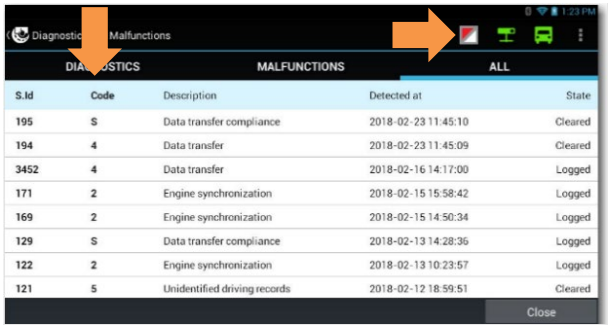
ISAAC OnTheGo detects two types of anomalies: *Data Diagnostic Events (DDE)* and *Malfunctions*.

Both are signaled to the driver by illuminating an indicator icon in the upper right corner of the tablet. When a Data Diagnostic Event is recorded, the indicator in the top left part of the icon lights up by becoming red ( ). When a Malfunction is detected, the indicator in the bottom right part of the icon also lights up in red ( ). Note that having both indicators illuminated ( ) means a data diagnostic event and a compliance malfunction are present.

Refer to the codes below (corresponding to the codes on the tablet) for details on possible data diagnostic events, malfunctions, and required actions.




Under Canadian ELD rules, carriers must take appropriate actions to correct a Data Diagnostic Event or Malfunction within 14 days of becoming aware of it. That limit can be extended to the moment the vehicle returns to its home terminal from a planned trip that exceeds the 14-day period. Carriers must also keep a register of all Data Diagnostic Events and Malfunctions recorded on their ELDs. It is understood that information about the steps taken to resolve them will be entered in this register. As such, the recommendation to do so is not given for each data diagnostic event or malfunction listed below.

Under US rules, carriers must take appropriate actions to correct a Malfunction within 8 days of becoming aware of it. An extension can be requested to the FMCSA Division Administrator for the State of the motor carrier's principal place of business within 5 days of becoming aware of the Malfunction. Also, although no register of Malfunctions is required, it is advisable to keep track of Data Diagnostic Events and Malfunctions and the actions taken to correct them.

| CODE | CATEGORY | WHAT IS HAPPENING? | POTENTIAL CAUSES AND REQUIRED ACTIONS |
|---|---|---|---|
| 1 | Power data diagnostic event | **Description**<br>The electronic logging device detected a period during which it could not be powered and fully functional within one minute of the vehicle's engine receiving power, or could not stay powered for as long as the vehicle's engine was powered.<br>The ISAAC system records a **Power data diagnostic event** when a jump in engine hours is detected, which indicates that the vehicle was driven while the ISAAC InMetrics system was not functional or absent.<br><br>**Duration**<br>Because of the way this DDE is detected, the ISAAC system illuminates the DDE indicator after the problem is resolved. For this reason, the indicator is illuminated for **30 seconds.** | **Driver**<br>Possible causes: The ISAAC InMetrics recorder was replaced in the vehicle; the vehicle was driven without a recorder, or the recorder was not powered on or not functional while the vehicle was driven.<br>➢ What to do: Verify that your logs are accurate and correct them if needed. Inform your carrier of the issue.<br>If the situation reoccurs or if you have concerns about the integrity of your logbook, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: The ISAAC InMetrics recorder in the vehicle was replaced.<br>➢ What to do: Note the change in your DDE and Malfunction register. No other actions are required.<br>Possible cause: The vehicle was driven without an ISAAC InMetrics recorder.<br>➢ What to do: Note the event in your DDE and Malfunction register. No other actions are required.<br>Possible cause: If none of the above are possible, then the recorder was not powered on or not functional while the vehicle was driven.<br>➢ What to do: Verify that the driver's logs are accurate and suggest corrections if needed.<br>If the situation reoccurs, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |

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| P | Power malfunction | **Description**<br>The electronic logging device was not powered on for an aggregated driving time of 30 minutes or more over a day period across all driver profiles.<br>The ISAAC system records a **Power malfunction** when the jump in engine hours exceeds 30 minutes and is associated with a jump in odometer.<br>This malfunction can occur in one event where both conditions listed above are met, or can be the result of several smaller events which occurred in the same day. The latter is more serious than the former.<br><br>**Duration**<br>The malfunction indicator is illuminated for **24 hours** after the malfunction is detected. | **Driver**<br>Possible causes: The ISAAC InMetrics recorder was replaced in the vehicle; the vehicle was driven without a recorder, or the recorder was not powered on or not functional while the vehicle was driven.<br>➢ What to do: Verify that your logs are accurate and correct them if needed, and inform your carrier of the issue. Verify if the malfunction is the result of several Power DDEs. If it is, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: The ISAAC InMetrics recorder in the vehicle was replaced.<br>➢ What to do: Note the change in your DDE and Malfunction register. No other actions are required.<br>Possible cause: The vehicle was driven without an ISAAC InMetrics recorder.<br>➢ What to do: Note the event in your DDE and Malfunction register. No other actions are required.<br>Possible cause: If none of the above are possible, then the recorder was not powered on or not functional while the vehicle was driven.<br>➢ What to do: Verify that the driver's logs are accurate and suggest corrections if needed. Verify if the malfunction is the result of several Power DDEs. If it is, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support.<br>If the situation reoccurs, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |

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| 2 | Engine synchronization data diagnostic event | **Description**<br>The electronic logging system lost ECM connectivity and can no longer acquire updated values for the required ELD parameters.<br><br>**Duration**<br>The DDE indicator is illuminated for the **duration of the synchronization issue.** | **Driver**<br>Possible cause: A **Power data diagnostic event** was recorded. A power data diagnostic event is always associated with an Engine synchronization data diagnostic event.<br>➢ What to do: Refer to the power data diagnostic section for required actions.<br>Possible cause: The ISAAC InMetrics recorder lost its connection to the vehicle's ECM.<br>➢ What to do: Verify that your logs are accurate and correct them if needed, and inform your carrier of the issue.<br>If the situation reoccurs or if you have concerns about the integrity of your logbook, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: A **Power data diagnostic event** was recorded. A power data diagnostic event is always associated with an Engine synchronization data diagnostic event.<br>➢ What to do: Refer to the power data diagnostic section for required actions.<br>Possible cause: The ISAAC InMetrics recorder lost its connection to the vehicle's ECM.<br>➢ What to do: Make sure the ISAAC InMetrics recorder is well connected to the vehicle: the diagnostic connector is connected to the vehicle and the main harness connector is connected to the recorder. If the connections are sound and the situation reoccurs, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |

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|---|---|---|---|
| E | Engine synchronization malfunction | **Description**<br>The electronic logging system lost ECM connectivity and could not acquire updated values for the required ELD parameters for more than 30 minutes during a day, aggregated across all driver profiles.<br><br>**Duration**<br>The malfunction indicator is illuminated for **24 hours** after the detection of the malfunction. | **Driver**<br>Possible cause: One or multiple **Power data diagnostic event(s)** for which the total duration exceeded 30 minutes were recorded. A power data diagnostic event is always associated with an engine synchronization data diagnostic event.<br>➢ What to do: Refer to the power data diagnostic section for required actions.<br>Possible cause: The ISAAC InMetrics recorder lost its connection to the vehicle's ECM for an aggregated duration of 30 minutes in a day.<br>➢ What to do: Verify that your logs are accurate and correct them if needed, and inform your carrier of the issue.<br>If the situation reoccurs or if you have concerns about the integrity of your logbook, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: One or multiple **Power data diagnostic event(s)** for which the total duration exceeded 30 minutes were recorded. A power data diagnostic event is always associated with an engine synchronization data diagnostic event.<br>➢ What to do: Refer to the power data diagnostic section for required actions.<br>Possible cause: The ISAAC InMetrics recorder lost its connection to the vehicle's ECM.<br>➢ What to do: Make sure the ISAAC InMetrics recorder is well connected to the vehicle: the diagnostic connector is connected to the vehicle and the main harness connector is connected to the recorder. If the connections are sound and the situation reoccurs, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |

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| T | Timing malfunction | **Description**<br>The electronic logging system can no longer meet the underlying compliance requirement to record Coordinated Universal Time (UTC), where ELD time must be synchronized with UTC and not exceed an absolute deviation of 10 minutes at any time. The time accuracy on the ISAAC InControl tablet is evaluated every 30 minutes.<br>**Duration**<br>Because of the way this malfunction is detected, the ISAAC system illuminates the malfunction indicator after the problem is detected and resolved. For this reason, the indicator is illuminated for **30 seconds.** | **Driver**<br>Possible cause: The time displayed on the ISAAC InControl tablet deviated by more than 10 minutes.<br>➢ What to do: Verify that the activity times in the last 30 minutes are accurate, make corrections if needed, and inform your carrier of the issue.<br>If the situation reoccurs or if you have concerns about the integrity of your logbook, use an alternate method to keep your logbook.<br>**Carrier**<br>Possible cause: The time displayed on the ISAAC InControl tablet deviated by more than 10 minutes.<br>➢ What to do: Verify the accuracy of the driver's logs and suggest corrections if needed.<br>Check to see if this malfunction occurs again. A one-time event might not indicate a problem, but a reoccurrence might mean a more important issue. In that case, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |

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| L | Positioning malfunction | **Description**<br>For a cumulative elapsed time that exceeds 60 minutes over a day, the electronic logging system failed to acquire a valid position measurement within 8 km (5 miles) of the commercial motor vehicle's movement.<br><br>**Duration**<br>The malfunction indicator is illuminated for **24 hours** after the detection of the malfunction. | **Driver**<br>Possible cause: The GPS antenna had an obstructed view of the sky for a significant period during that day. This can happen when driving close to tall objects (like buildings or mountains) or if the antenna is inadvertently covered by an object placed on the vehicle's dashboard.<br>➢ What to do: Verify that your logs are accurate and correct them if needed. Pay particular attention to the addresses where the activities took place on the day the malfunction was detected. If addresses are wrong or missing, correct them. Inform your carrier of the issue.<br>Possible cause: The GPS has a problem.<br>➢ What to do: Verify that your logs are accurate and correct them if needed. Pay particular attention to the addresses where the activities took place on the day the malfunction was detected. If addresses are wrong or missing, correct them. Inform your carrier of the issue.<br>If the situation reoccurs without apparent reason or if you have concerns about the integrity of your logbook, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: The GPS antenna had an obstructed view of the sky for a significant period during that day. This can happen when driving close to tall objects (like buildings or mountains) or if the antenna is inadvertently covered by an object placed on the vehicle's dashboard.<br>➢ What to do: Verify that the driver's logs are accurate and suggest corrections if needed. Pay particular attention to the addresses where the activities took place on the day the malfunction was detected.<br>Possible cause: The GPS has a problem.<br>➢ What to do: Make sure the GPS antenna is connected properly to the ISAAC InMetrics recorder. If the connection is sound and the situation reoccurs, instruct the driver to use an alternate method to keep their logbook and contact ISAAC's technical support. |
| R | Data recording malfunction | **Description**<br>The electronic logging system may no longer be able to record or retain required events due to insufficient data storage on the ISAAC InControl tablet.<br><br>**Duration**<br>The malfunction indicator is illuminated **as long as the tablet storage is below a critical threshold**. It immediately turns off when the storage is above the threshold. | **Driver**<br>Possible cause: The ISAAC InControl tablet is low on storage space.<br>➢ What to do: Inform your carrier of the issue. Use an alternate method to keep your logbook, like a paper log, until the indicator is turned off.<br><br>**Carrier**<br>Possible cause: The ISAAC InControl tablet is low on storage space.<br>➢ What to do: Instruct the driver to use an alternate method to keep their logbook until the indicator is turned off and contact ISAAC's technical support. |

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|---|---|---|---|
| 3 | Missing required data elements data diagnostic event | **Description**<br>A required data element was missing at the time of the recording of an activity.<br><br>**Duration**<br>If the required data element is a **GPS position**, the DDE indicator is illuminated **until the position is entered** manually.<br>**Otherwise**, the DDE indicator is illuminated for **15 days**. | **Driver**<br>Possible cause: Activities were performed while there was an engine synchronization issue.<br>➢ What to do: Refer to the Engine synchronization section for required actions.<br>Possible cause: A driving segment began while the GPS position was not available.<br>➢ What to do: Enter the missing location information on the driving segment and inform your carrier of the issue.<br>Possible cause: Some data elements were not recorded properly when activities were recorded.<br>➢ What to do: Inform your carrier of the issue. If this issue reoccurs, use an alternate method to keep your logbook.<br><br>**Carrier**<br>Possible cause: Activities were performed while there was an engine synchronization issue.<br>➢ What to do: Refer to the Engine synchronization section for required actions.<br>Possible cause: A driving segment began while the GPS position was not available.<br>➢ What to do: Instruct the driver to enter the missing location information on the driving segment.<br>Possible cause: Some data elements were not recorded properly when activities were recorded.<br>➢ What to do: If none of the causes above occurred, contact ISAAC support. If the situation reoccurs, instruct the driver to use an alternate method to keep their logbook. |
| 4 | Data transfer data diagnostic event | **Description**<br>A validation of the ISAAC solution's ability to transfer ELD outputs according to the ELD standard is performed every 7 days. This data diagnostic event is recorded if the validation fails. In that event, the validation frequency is increased.<br><br>**Duration**<br>The DDE indicator is illuminated **until the issue is resolved** and a validation succeeds. | **Driver**<br>Possible cause: The vehicle was out of cellular coverage for 7 consecutive days or more.<br>➢ What to do: Annotate your log to explain the situation and inform your carrier of the situation.<br>Possible cause: There is an issue with the data transfer process or with the cellular connection.<br>➢ What to do: Inform your carrier of the issue. Keep on using your ISAAC ELD because in the event of a roadside inspection, you can use the tablet to show your logs to the inspector.<br><br>**Carrier**<br>Possible cause: The vehicle was out of cellular coverage for 7 consecutive days or more.<br>➢ What to do: Instruct the driver to annotate their logbook to explain the situation.<br>Possible cause: There is an issue with the data transfer process or with the cellular connection.<br>➢ What to do: Contact ISAAC's technical support. It is recommended that the driver keeps on using the ISAAC ELD because in the event of a roadside inspection, they can use the tablet to show their logs to the inspector. |

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|---|---|---|---|
| S | Data transfer malfunction | **Description**<br>Following the electronic logging system's first failure to confirm the success of the data transfer mechanism which was reported as a Data diagnostic event, the ISAAC solution performs a validation every 24 hours for 3 days. If all 3 validations fail, a Data Transfer Malfunction is recorded.<br><br>**Duration**<br>The DDE indicator is illuminated **until the issue is resolved** and a validation succeeds. | **Driver**<br>Possible cause: The vehicle was out of cellular coverage for 10 consecutive days or more.<br>➢ What to do: Annotate your log to explain the situation and inform your carrier of the situation.<br>Possible cause: There is an issue with the data transfer process or with the cellular connection.<br>➢ What to do: Inform your carrier of the issue. Keep on using your ISAAC ELD because in the event of a roadside inspection, you can use the tablet to show your logs to the inspector.<br><br>**Carrier**<br>Possible cause: The vehicle was out of cellular coverage for 10 consecutive days or more.<br>➢ What to do: Instruct the driver to annotate their logbook to explain the situation.<br>Possible cause: There is an issue with the data transfer process or with the cellular connection.<br>➢ What to do: Contact ISAAC's technical support. It is recommended that the driver keeps on using ISAAC ELD because in the event of a roadside inspection, they can use the tablet to show their logs to the inspector. |
| 5 | Unidentified (unassigned) driving records data diagnostic event | **Description**<br>More than 30 minutes of cumulative unidentified driving time were recorded in the last day.<br><br>**Duration**<br>The DDE is illuminated **until the unassigned segments total less than 15 minutes in a day**. | **Driver**<br>Possible cause: The vehicle was driven while no one was logged on the ISAAC InControl tablet.<br>➢ What to do: Confirm or reject all the unassigned segments recorded on the tablet.<br><br>**Carrier**<br>Possible cause: The vehicle was driven while no one was logged on the ISAAC InControl tablet.<br>➢ What to do: Instruct the driver to confirm or reject all the unassigned segments recorded on the tablet. Alternatively, support personnel may offer to assign the unassigned driving segments. |