System Requirements	Operating System: 64bit Microsoft Windows (MS) 10 or 11 CPU: 64 bit Intel, 64 bit AMD or equivalent 64 bit Intel Pentium compatible multicore CPU with minimum of 2 GHz. Memory: Minimum of 8 Gb, recommended 16 Gb RAM, 500 GB Free Hard Disk Space for Data processing Graphics Adapter: Minimum of Full HD with 32 Bit Colour Depth and 1 Gb Graphics Memory, double screen with 2Gb memory. Interfaces: 1 free USB-port; Direct or USB-Hub for software security key	General	Diagnostics module is a set of tools which can be used for analysing the condition of roads, bridges and runaways using a combination of information from multiple sources. Requires: Road Doctor Core
Manual and automatic analysis	Manual road analysis: Up to 20 different user definable analysis fields can be set along with an annotation field. Analysed sections are highlighted using the mouse. Possibility to refine the selected section or use hotkeys to set directly value to selected field. Selected section can be averaged or use set rules to change segmentation unit lengths. Analysed parameters can be linked together so that they can be used to calculate a new field which is factored by those fields. Summary output: Analysis fields can be designated with a parameter which defines the type of summary – set into classes, sum of values, average of values etc. Automatic analysis: Utility to classify road sections based on road measurement data and given rules. Maximum of 8 classes can be calculated simultaneously from multiple parameters. The output is directed to a new analysis field. A utility is included which transfers data from a text table to analysis fields for display and further analysis.	Pavement Distress Inventory	Pavement distress inventory: Operation shows a programmable keyboard on the screen. Each vertical key-row can be defined as an investigated parameter and each key a class value. The operator selects the parameter and class based on running video or image-list. The start and end location of distress parameters are marked. The created list of notes can be transferred to an analysis field for further processing. MSI (Modified Swiss Index) analysis includes a keyboard tool “Fixed Interval Analysis”, which updates the analysis fields in real-time at fixed distance intervals. Included is also a tool to calculate the actual I_MSI values for road sections based on analysed parameters. Road feature measurement tool is used to estimate road width and objects’ size from single video or image. The view angle and camera elevation must be calibrated and horizontal level set.

Pavement residual lifetime estimation	Rutting and roughness increase calculation tool is used to estimate the remaining lifetime of a pavement. The rutting and IRI data is imported in database or in specific profilometer data format. Measurements from several years are displayed and initial paving date and critical value set. Based on rutting and roughness increase the program outputs the remaining lifetime and date when the critical value will be reached. Table tool for estimating residual lifetime: A specific table tool is provided which can be used to calculate the residual lifetime based on monitored value. Possible is also to estimate the value at specific year.	Bearing capacity analysis	Bearing Capacity Index operation: Provides information about the strength of the road structures. Uses Swedish BI formulas which use pavement thickness, falling weight deflection and traffic volume values for calculations. The operation also calculates the strain at the pavement bottom level and subgrade moduli. The results can be exported to analysis database or to text tables for follow-up analysis. Odemark tool: The bearing capacity of current structures as MPas can be calculated using the Odemark tool. For definition of the initial bearing capacity, it uses road structures, which are interpreted from GPR data or given as a database, and Moduli values, which can be set values or calculated values. Elmod link is a tool which can be used to calculate layer moduli values. The falling weight deflections and layer thicknesses are transferred via a database to the Elmod back calculation program. Elmod writes the results and Road Doctor reads them back and uses them in its own calculations. Elmod needs to be purchased separately from Dynatest. The supported Elmod version is 6.5 Forward calculation of pavement, base and subgrade moduli. The operation is part of Odemark moduli and is based on FHWA formulas. It uses pavement and base thickness values and falling weight deflection values to make an estimation of layers moduli value and depth to stiff layer. The operation also calculates several curvature indexes. The results are outputted to a grid table and specified analysis file fields.
Thermal diagnostics	Thermal diagnostics operation makes it possible to view and analyse FLIR Thermal Camera images, which have been recorded using Road Doctor Camlink's Thermal Camera option. The thermal image can be coloured with different colour scales and the colour range can be set to scale automatically from the full image or from a given region. The temperature limits can also be set manually. The images are scrolled in synchronization with all other data. Minimum, maximum, and average temperature and temperature deviation can be calculated from selected sections. Surface data from a single image scan line can be exported to a text table and shown as a surface map. Road Doctor Camlink's thermal data converter utility can be used to convert the scan lines to a Road Doctors GPR format which makes it possible to use all sorts of vertical and horizontal filtering and data summing/ subtraction operations to process the data. The features can then be picked with digitizing tools (General Core version feature).	Exporting results	As default all the output is done to grid tables. Several different options include possibility to calculate the results in fixed length sections or output only change points or output the results directly to shape and google KML-files for visualization in ESRI ArcGis or Google Earth programs. Summary tool makes it possible to quickly calculate different statistics from the data. Batch exporting Analysis: enables exporting multiple analysis data simultaneously without user interaction.