

# Coravel software operation instruction

## Attention:

F1 key does not call any help. It is used to start star measurement.  
After restarting program ALWAYS execute Operation/Reset command!  
Do not use measurement online correction mode without supervisor.

## Introduction

Location C:\WinCora\  
Program name WinCora.exe

Program operates in two modes:  
Coravel connected (online).  
Coravel disconnected (offline).  
You will always use only Coravel online mode.

The program interface consists of Header window, three panelized (Main, Database and ScanAnal) windows and settings window.

## Main window

Coravel can be operated by keyboard keys or mouse.

Buttons:

- F1 – Starts star measurement
- F2 – Pause/continue star measurement
- F3 – Calculate Gaussian fit to measured points
- F4 – Starts caliber measurement
- F5 – Show signal intensity
- F6 – Rescale signal graph
- F7 – Call settings window
- F8 – Shift spectrum to the left
- F9 – Shift spectrum to the right
- F10 – Write measurements and derived parameters to the binary file

CTRL+

- F1 – Close mirror
- F2 – Open mirror
- F3 – Find star in the database
- F4 – Start measuring sky
- F5 – Enter measurement online correction mode
- F6 – Set sky parameters for interpolation/extrapolation
- F7 – Set sky to zero
- F8 – Reserved
- F9 – Create new database
- F10 Write measurement to the text file

Next to the buttons are shown measured/calculated parameters.

In the right there are two graphs – the upper is scan graph, the lower is signal graph.

You can clear graphs with clear buttons. To rescale scan graph use spined it above the clear button. To rescale signal graph - use F6 button.

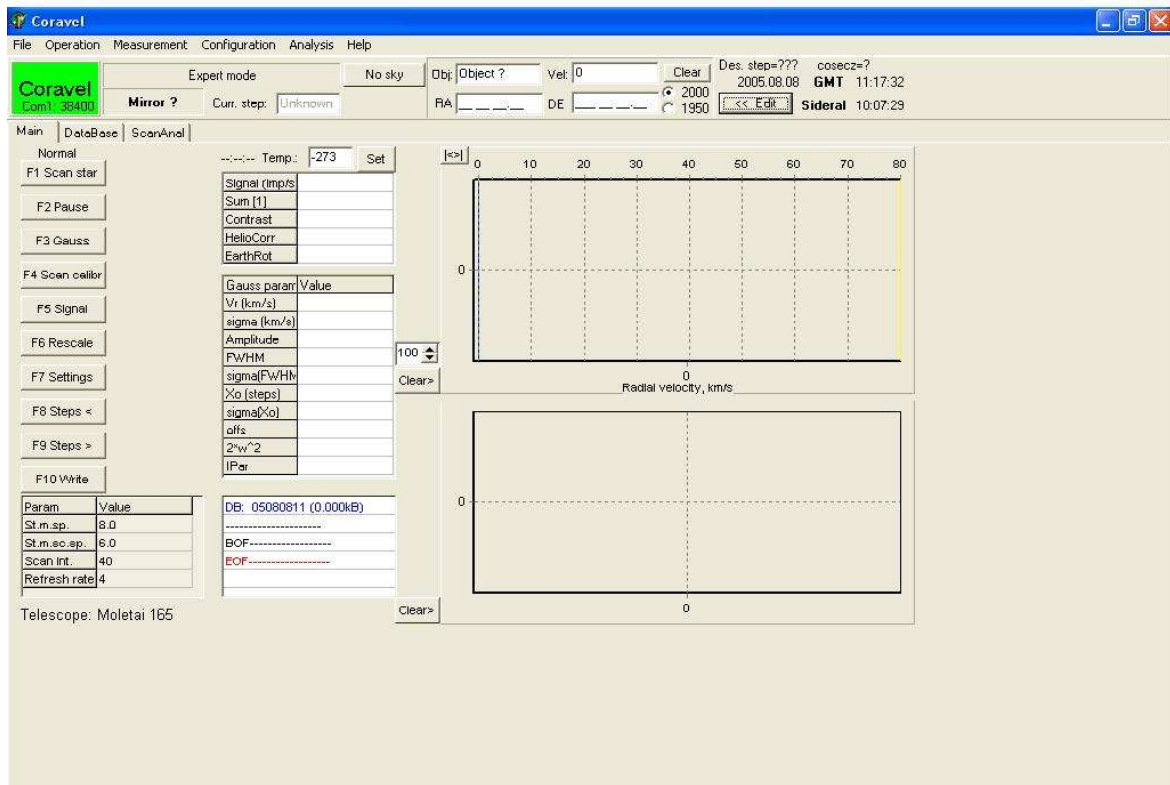


Fig 1. Header and main window

## DataBase window

In the database you can navigate through records (but not edit!).

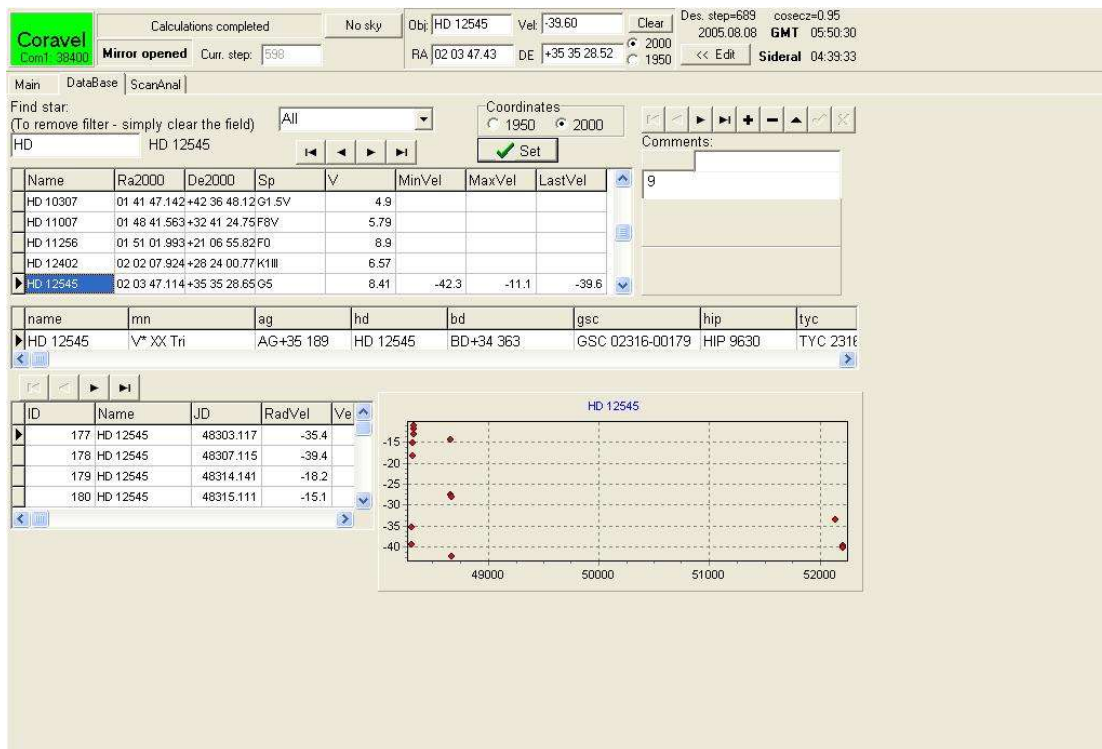


Fig 2. DataBase window

In filter edit field you can enter start of the name to filter records.  
In the filter combobox you can select all or only standard stars.

In the right lower corner there is the graph of individual measurements of selected star (if any).

### ScanAnal window

This window is intended to use for graphical preview of one-night measurements and for correction object name information.

Check desired check box for caliber and press Refresh.

If you want to view series of measurements for specific object, select it in the grid, check the lowest checkbox and press refresh.

All information is displayed in the form of Coravel step system.

If you have forgotten to write the data to the file or misspelled object name, you can correct it select desired record in the grid and pressing "Edit name" button.

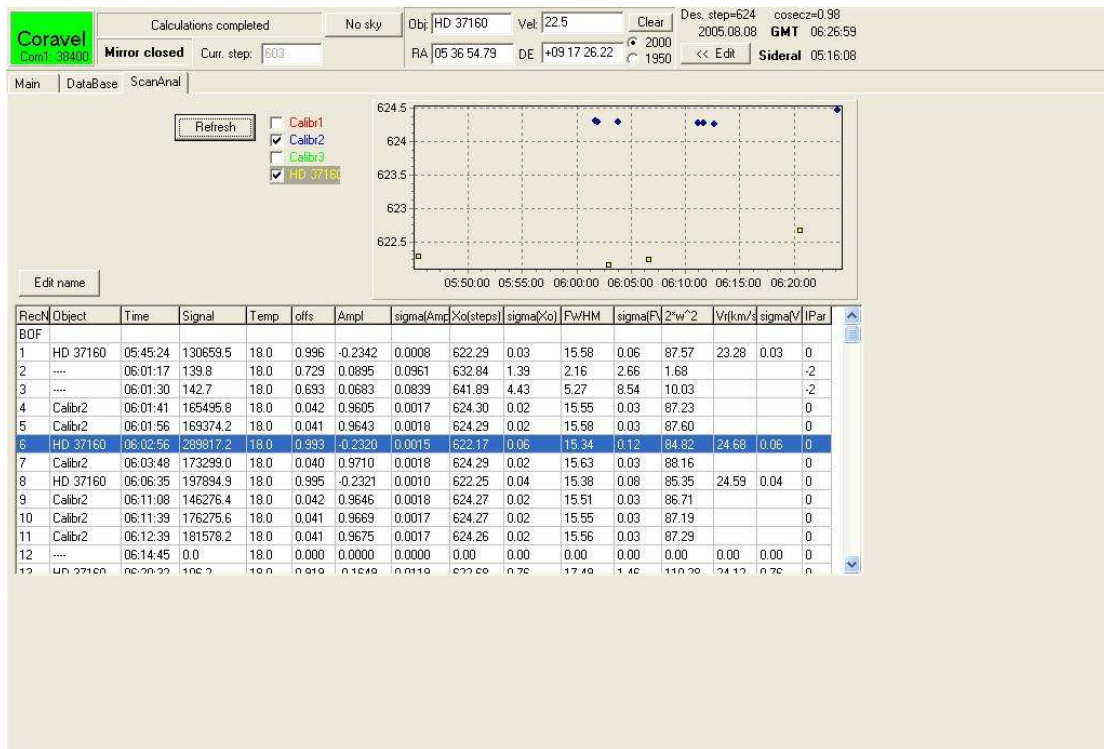


Fig. 3 ScanAnal window

## Settings window

The screenshot shows a settings window with the following fields and controls:

- Star step (StStep):** 623
- Refresh rate:** 4
- Time out error (milliseconds):** 2000
- Step increment:** 100
- Scan boundary:** 1200
- St. m. sc. speed:** 6.0
- Scan interval:** 50
- St. m. speed:** 8.0
- Graph scale Y:** 30
- Equation:**  $temp[i] = offs + Amplitude * \exp\left(\frac{-(Step[i] - Xo)^2}{2 * w^2}\right)$
- Equation:**  $Vr = (HelioCorr + EarthRot) + A + B * (CalibrStep - Xo)$
- A:** 0
- B:** 1
- Calibration table:**

Calibr step	Calibr weight	Use	Exposure (Scans)
570	0	<input type="checkbox"/> Use1	36
623	1	<input checked="" type="checkbox"/> Use2	Scan interval
674	0	<input type="checkbox"/> Use3	40
- Observatory location:**
  - Longitude: 1 h 41 m 41.0 s
  - Latitude: 55 ° 14 ' 0.0 "
- Buttons:** OK (green checkmark), Cancel (red X)

Fig 3. Settings window

You can set starting step for measurement, when you do not have any impression about the expected velocity.

Refresh rate parameter shows count of scans between refresh on the screen.

Scan interval shows spectral range for scanning. The smaller interval, the faster is scanning procedure. But keep in mind that you should scan the whole Gaussian, which for rapidly rotating stars may be pretty outspread.

### Measurement procedure:

Start the program. You will get the view as in Fig 1.

Execute main menu command Operation/Reset (synchronize step motor encoders)

Check settings from main menu command Configuration/Settings. You will see window as in Fig 3.

Recommended values are shown in Fig. 3 also.

If needed press Ctrl+F9 (New) to create new database.

It is recommended to keep default file name.

Enter dome temperature in the temperature edit field and press "Set". Later enter it if it is changed significantly.

Press F4 (Scan Calibr) to measure caliber (Fig 4.). When checkbox "Use X" in the Settings window (Fig. 3) is checked, caliber is being scanned, calculated and written to file automatically. In some cases caliber lamp has some inertia, so set Exposure to sufficiently high value.

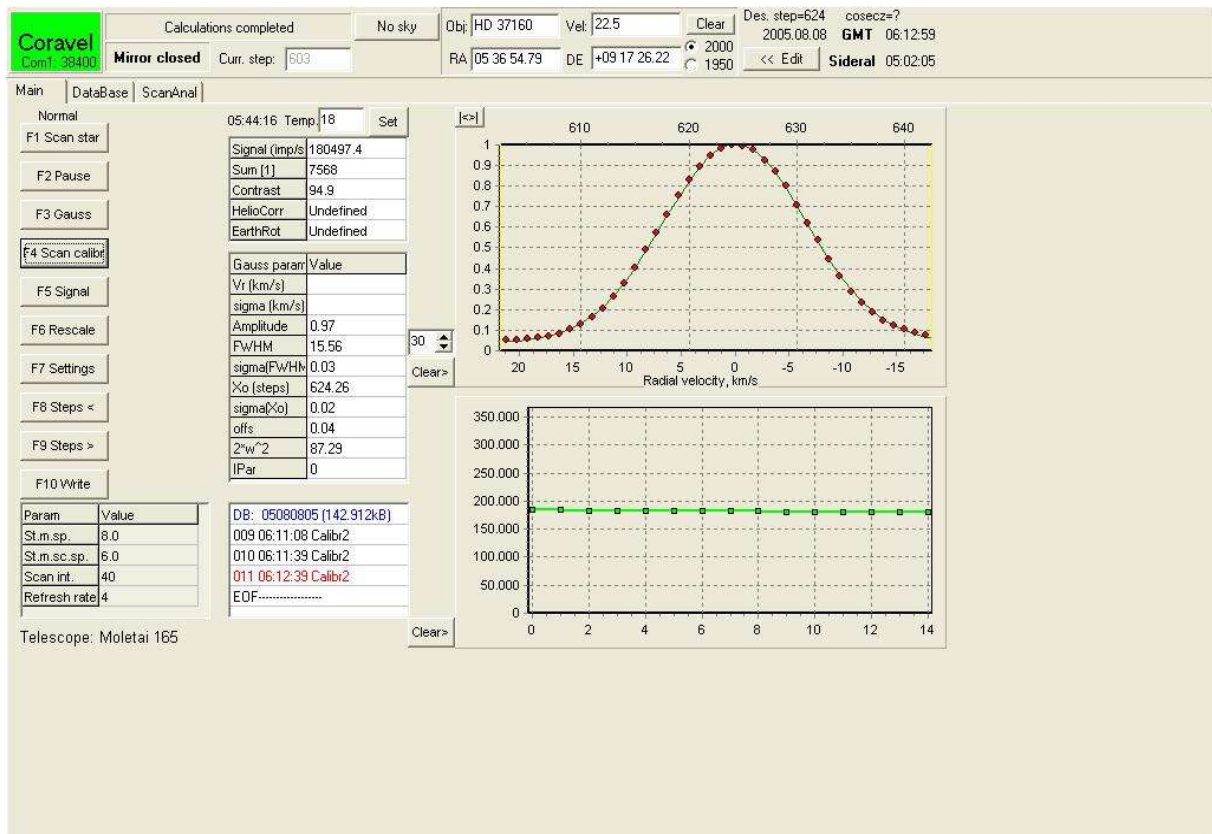


Fig 4. Main window view after caliber measurement

Point telescope to the sky with no star in the diaphragm and press Ctrl+F4 (Sky)

After accumulation of enough signal press F2 (Pause).

Press Ctrl+F6 (Sky bound) to select sky calculation/extrapolation parameters.

Mouse left button on the scan graph can select bounding intervals.

There are three options:

Cancel - discard selected intervals

Ignore - ignore intervals, use one mean value

Set – set selected intervals (between the selections will be used interpolated value, to the left and to the right will be used extrapolated mean values)

If you are satisfied with results, press F10 (Write) to save results to the file.

Next point telescope to the standard star, and press Ctr+F3. You will be directed to the database window. Select desired standard star and press button “Set” on that window. The information about standard will be written to Header window.

Then return to the main window (click on the title)

Press F1 (Scan star) to start measurements (Fig. 5).

Thick line in the scan graph during measurement procedure indicates your selected (and expected for this object) velocity.

When you see undesired signal changes, press F2 (Pause) and check the star.

If the desired signal is not accumulated, press F2 (Continue) again.

If the measurements are OK, press F3 (Gauss).

If you are satisfied, then press F10 to save the data to file.

Also you can set boundaries for Gaussian calculations with the mouse left button or restore default with the “|<>|” button near the scan graph.

In the same manner you can measure any star.

Also, you can set star information manually by pressing button “<<Edit” in the Header window. After editing press “Confirm” button to enter those parameters!

If you have forgotten to write the data to the file or misspelled object name, you can correct it in the ScanAnal window – select desired record and press “Edit name” button.

At the end of the night you should execute main menu command Analysis/Generate old journal, Calibr2, to generate journal files for further processing.

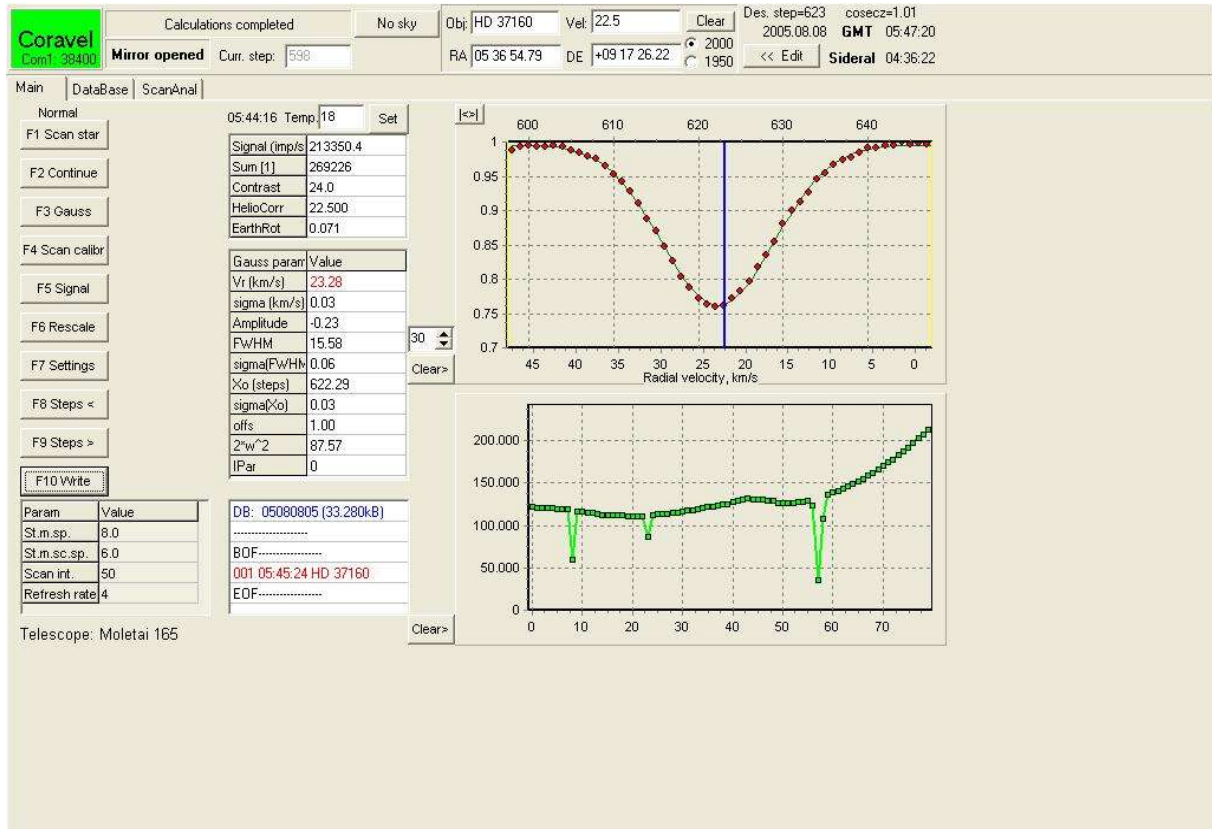


Fig 5. Main window during star measurement procedure