

Style modification

In the INI file, enter a numeric value from 0 to 4, for example Style=1

```
ChronoEXE.ini
Plik  Edytuj  Wyświetl

[Settings]
Style=1
TXT=0
Multiplier=1
CheckBoxScroll=1
ComPort=
CheckBoxAuto=0
CheckBoxAuto50=0
MU=10
```

CHRONO-LMBR

Port COM:

OPEN

SAVE

LOAD

CLEAR

Mix

Units

00,0 m/s

VAVG 00,0

VMAX 00,0

VMIN 00,0

dV 00,0

SV 00,0

CHRONO-LMBR

Port COM:

OPEN

SAVE

LOAD

CLEAR

Mix

Units

00,0 m/s

VAVG 00,0

VMAX 00,0

VMIN 00,0

dV 00,0

SV 00,0

CHRONO-LMBR

Port COM:

OPEN

SAVE

LOAD

CLEAR

Mix

Units

00,0 m/s

VAVG 00,0

VMAX 00,0

VMIN 00,0

dV 00,0

SV 00,0

CHRONO-LMBR

Port COM:

OPEN

SAVE

LOAD

CLEAR

Mix

Units

00,0 m/s

VAVG 00,0

VMAX 00,0

VMIN 00,0

dV 00,0

SV 00,0

CHRONO-LMBR

Port COM:

OPEN

SAVE

LOAD

CLEAR

Mix

Units

Chart

Auto

Auto50

00,0 m/s

0,00 J

VAVG 00,0

VMAX 00,0

VMIN 00,0

dV 00,0

SV 00,0

NR 0

EAVG 00,0

g

VELOCITY

0

0 SHOTS

Style=0

Style=1

Style=2

Style=3

Style=4

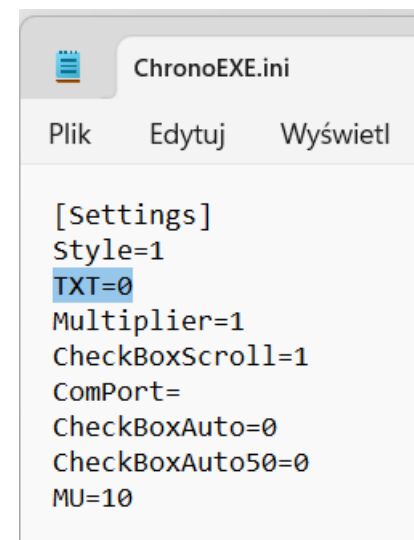
File format for data storage and retrieval

In the INI file, enter a numeric value from 0 to 1, for example:

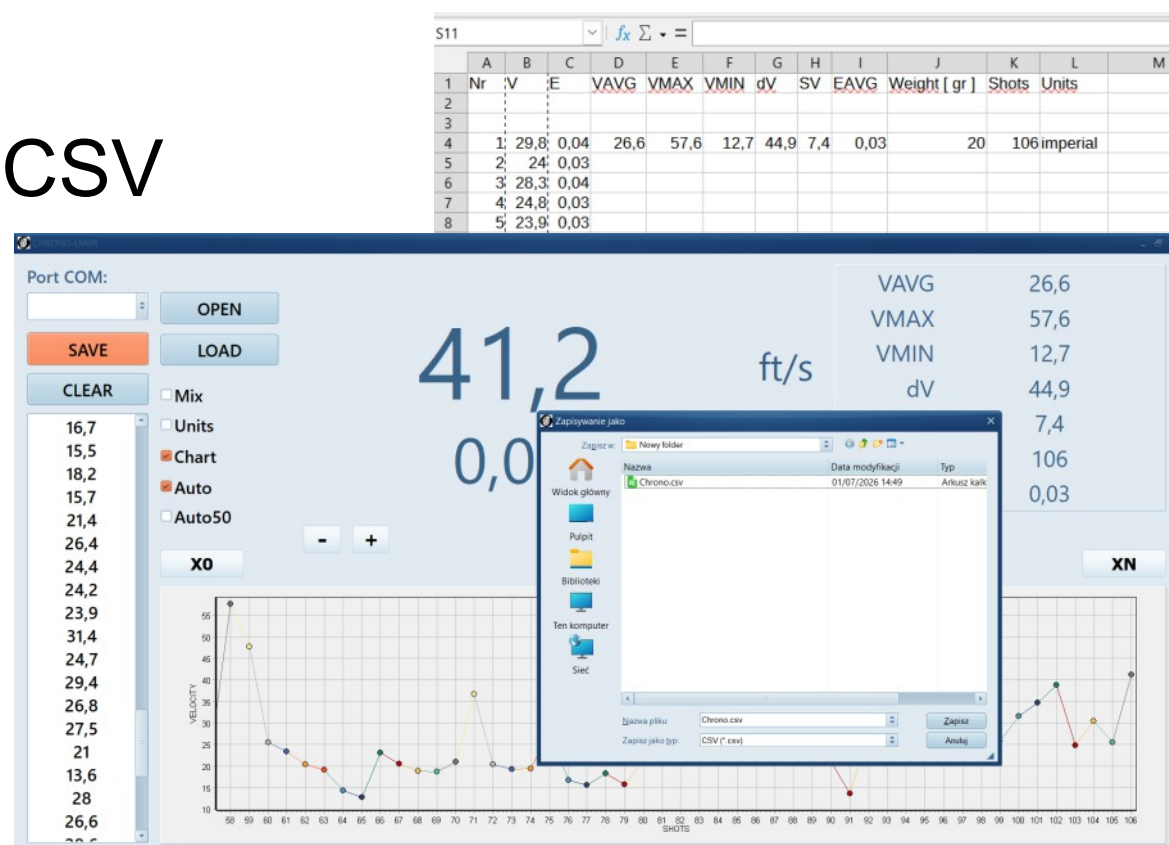
TXT=1 (saved in txt format)

TXT=0 (saved in csv format)

The csv (tsv) file can be opened with a text editor or spreadsheet.

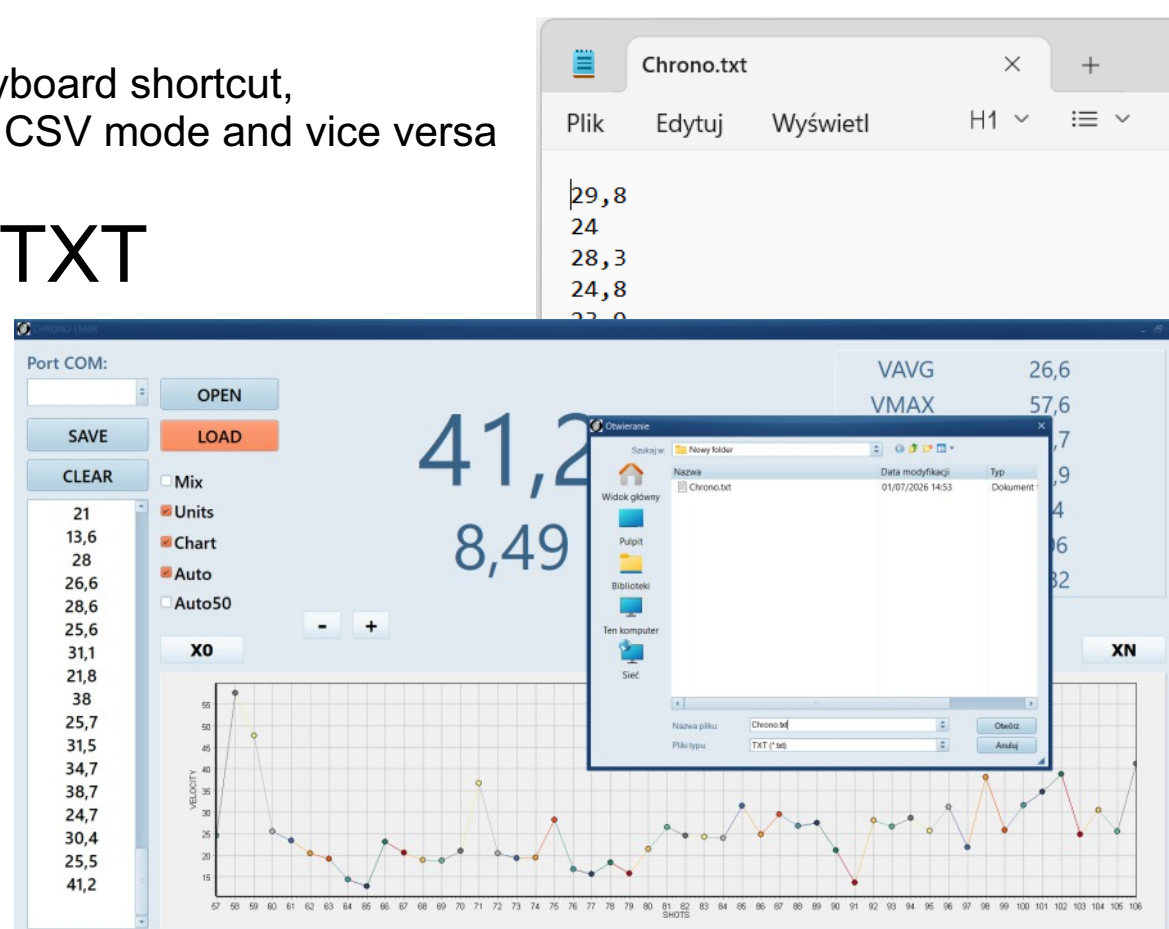


CSV



CTRL+T, the keyboard shortcut, switches TXT to CSV mode and vice versa

TXT

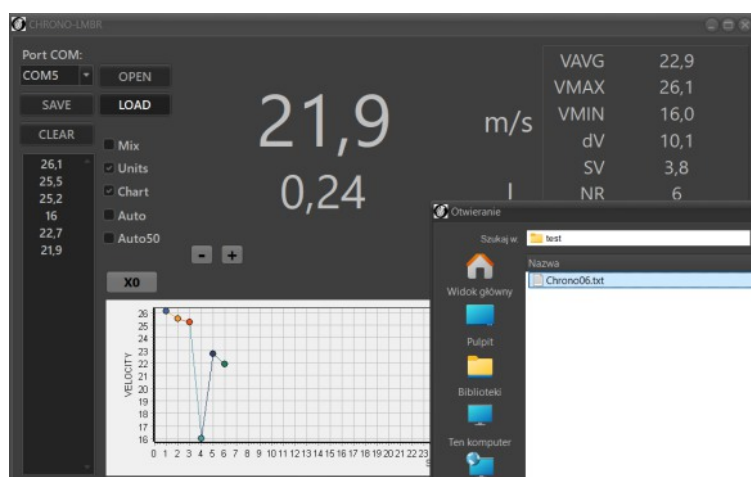


Calculations for N-series of measurements

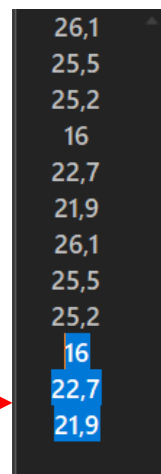
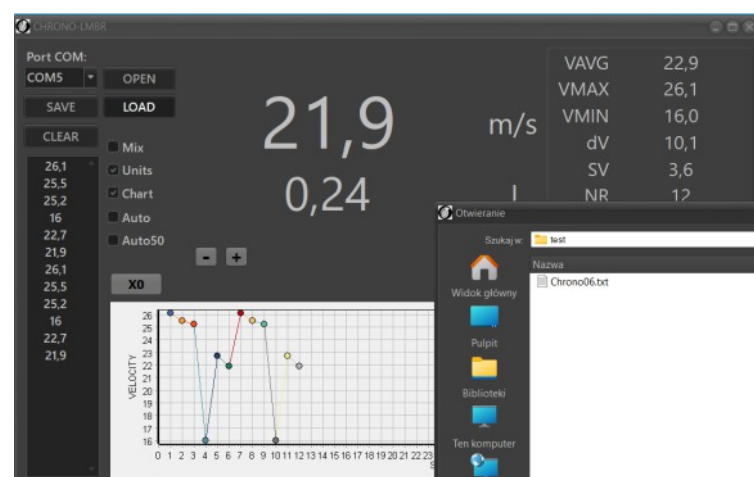
Importing N-series using the LOAD button adds a series, automatically calculates statistics, and plots the points on the graph.

Example operation for N=2

LOAD from file: first series

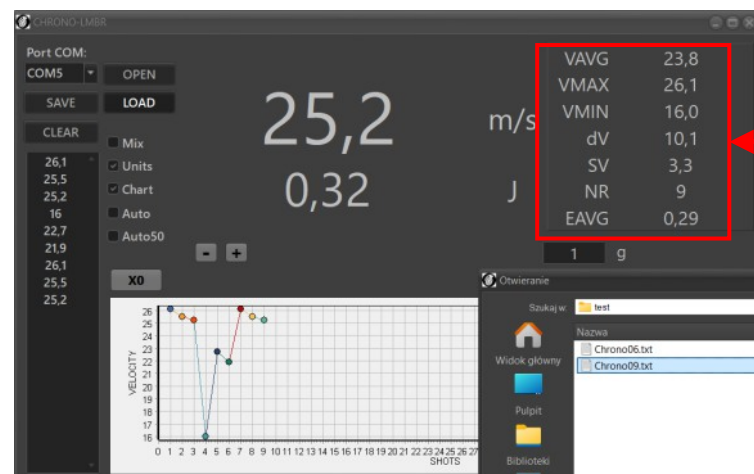


LOAD from file: second series



Editing Data

Click on a point on the chart:
The value will be highlighted in the left pane.
Change its value, delete it, or add a new one.
Use the keyboard shortcut: CTRL+R
The data will be updated.



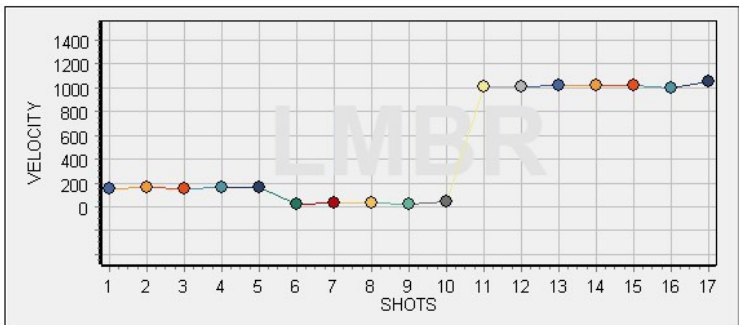
Calculations for 2 series and editing
The final results

Statistics in JPG format

IM button

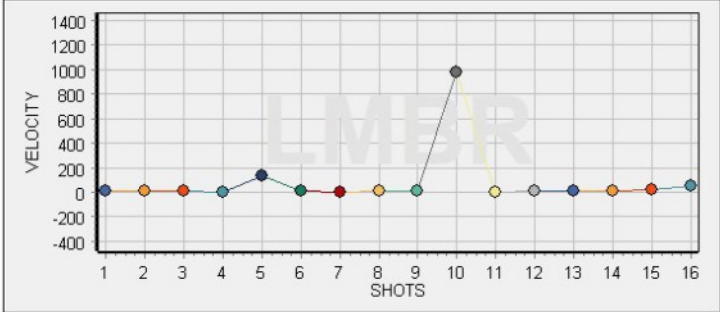
STAT [m/s] [J]

VAVG	474,6	SV	472,9
VMAX	1050,0	EAVG	217,84
VMIN	23,5	NR	17
dV	1026,5	V	1050,0
Weight	1.00 g	E	551,25



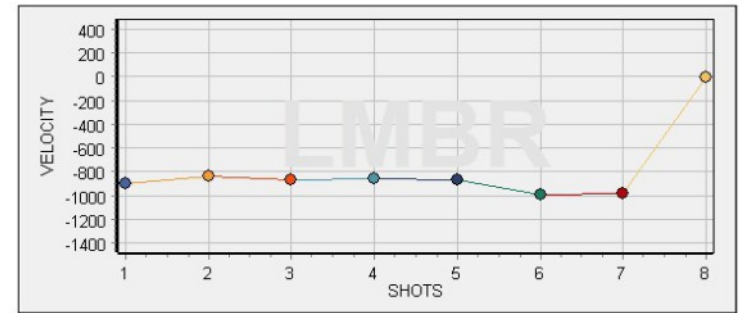
dV [m/s] [J]

VAVG	78,1	SV	241,3
VMAX	974,5	EAVG	30,34
VMIN	2,0	NR	16
dV	972,5	V	50,0
Weight	1.00 g	E	1,25



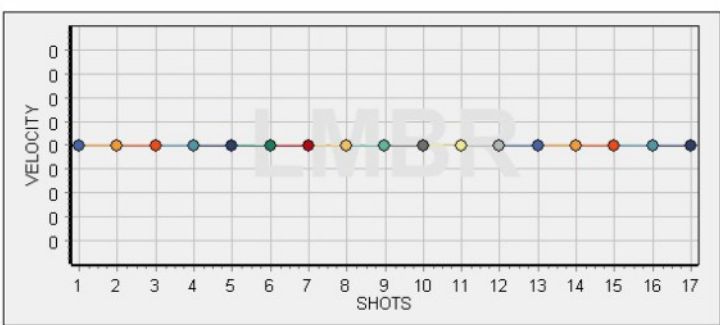
SYM [m/s] [J]

VAVG	-788,1	SV	319,9
VMAX	-8,8	EAVG	355,29
VMIN	-989,4	NR	8
dV	980,6	V	-8,8
Weight	1.00 g	E	0,04



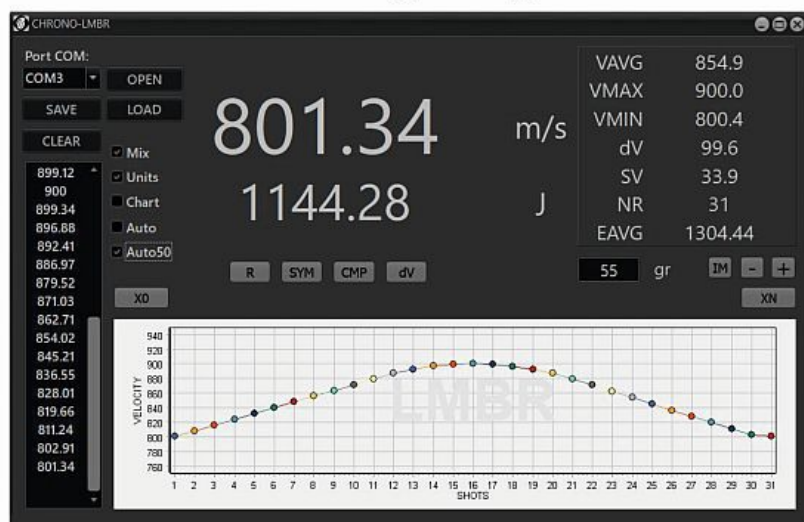
CMP [m/s] [J]

VAVG	0,0	SV	0,0
VMAX	0,0	EAVG	0,00
VMIN	0,0	NR	17
dV	0,0	V	0,0
Weight	1.00 g	E	0,00



Functions dV, SYM, CMP

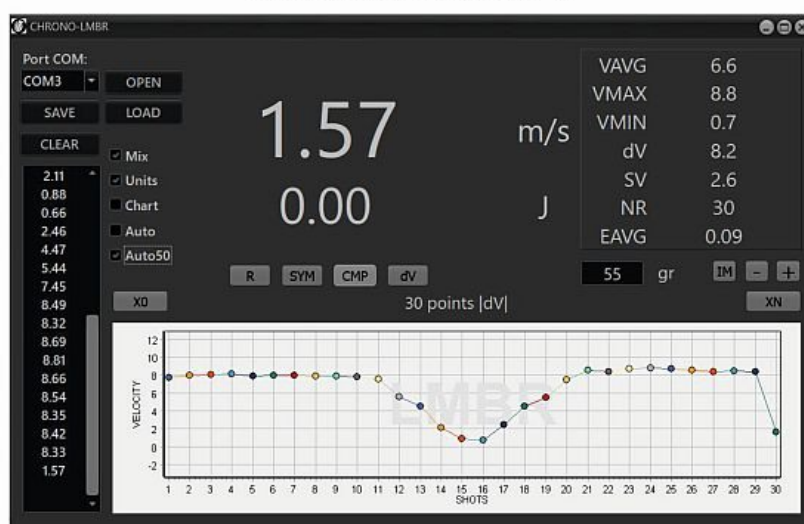
Shooting string A



Shooting string B



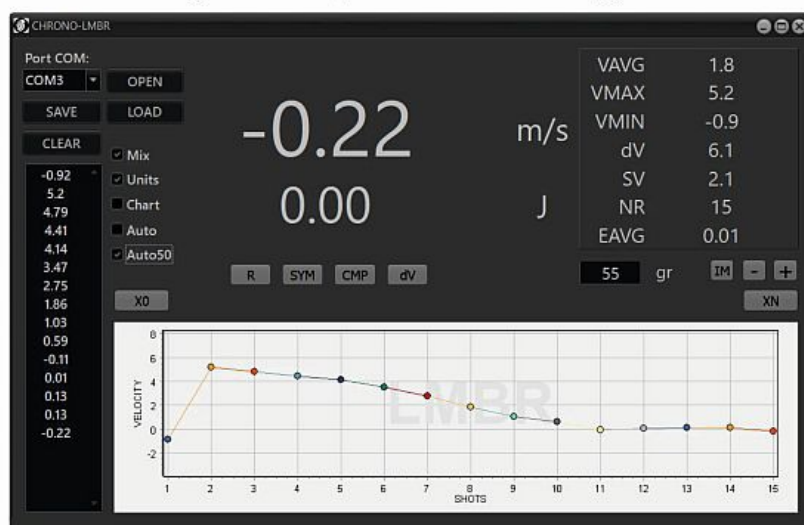
Absolute Delta-V



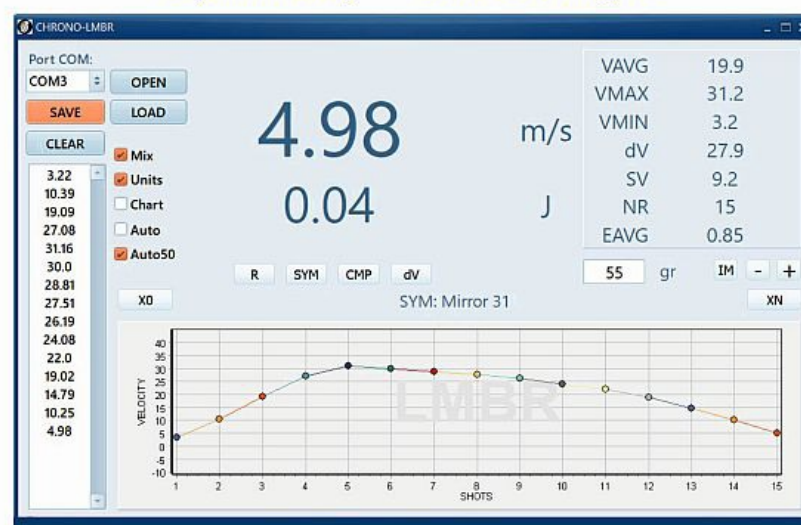
Absolute Delta-V



Symmetry – Shot string A



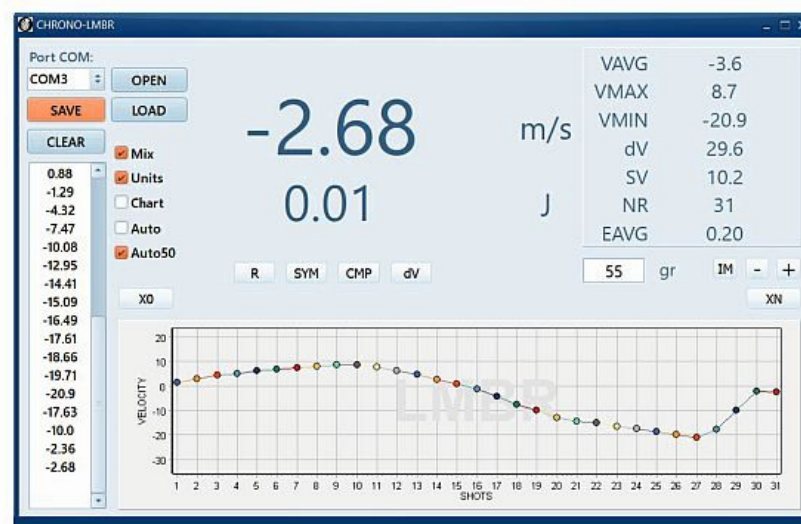
Symmetry – Shot string B



Difference A - B



Difference B - A



Hybrid Data Filtration System (Velocity & Shots)

The application features an advanced filtration system that allows for data selection based on both velocity and shot numbers. Configuration is done in the .ini file within the [FILTER] section.

1. **Filter Activation (Filter Parameter)**

In the [FILTER] section of the INI file:

- * **Filter=1**: The filter is globally enabled (works for both COM port data and loaded files).
- * **Filter=0**: The filter is inactive for automatic reading, but it can always be forced manually via the CTRL+F shortcut on loaded data.

2. **Defining filters**

Filters are defined using the **Velocity** (for velocity) and **Shots** (for shot numbers) keys. Format: `Prefix(A~B)`

- * **Prefix**: **V** for velocity, **S** for shots.
- * **Value Separator**: The tilde `~` separates the lower (A) and upper (B) bounds.
- * **Decimal Separator**: Within the filter, always use a dot `.`, regardless of system settings.
- * **COM Option (+)**: Adding a `+` at the end (e.g., `V(...)+`) activates the filter specifically for the COM port.

3. **Range definition (brackets)**

The type of bracket determines whether the boundary is strict (greater than/less than) or inclusive (greater-than-or-equal-to/less-than-or-equal-to):

- * `(` – Value greater than A ($>A$)
- * `<` – Value greater than or equal to A ($\geq A$)
- * `)` – Value less than B ($<B$)
- * `>` – Value less than or equal to B ($\leq B$)

4. **Operating modes (A and B Logic)**

The system automatically detects the operating mode based on the relation between numbers A and B:

A. Internal (standard) Filter: when $A < B$

The value must be between A and B.

- * **Example**: `V<200~300>` → Velocity from 200 to 300, inclusive.
- * **Use case**: Displaying only the correct measurement range.

B. External (Excluding) Filter: when $A > B$

The value must be *outside* the range B..A (i.e., greater than A OR less than B).

- * **Example**: `V(1000~50)` → Velocity greater than 1000 OR less than 50.
- * **Use case**: Rejecting the middle range (e.g., ignoring typical velocities, searching only for extreme errors).

C. One-Sided Filter: One of the values can be omitted by leaving an empty space around the tilde.

- * **Example**: `V<320~)` → Only values 320 and higher.
- * **Example**: `S(~10>` → Only the first 10 shots.

D. Equality (A = B)

- * For strict brackets (`~`): Empty set (nothing passes).
- * For inclusive brackets (`< ~ >`): Only the value exactly equal to A.

E. Disable (Bypass)

The notation `V(~)` or the absence of an entry means the filter allows everything to pass.

Example filter configurations in the INI File

Range from 300 to 400 m/s (inclusive). Works only on data displayed in the form.
Activated using the CTRL+F shortcut.

```
[FILTER]
Filter=0
Velocity=V<300~400>
Shots=S(~)
```

Range from 800 to 900 m/s. The filter works for both COM port data and data loaded from a file.

```
[FILTER]
F=1
Velocity=V(800~900)+
```

Range from 800 to 900. The filter works for data loaded from a file.

```
[FILTER]
F=1
Velocity=V(800~900)
```

Shots greater than 5 (i.e., from 6 upwards).

```
[FILTER]
Shots=S(5~)
Velocity=V(~)
```

Range from 1000 upwards, inclusive of 1000.

```
[FILTER]
Velocity=V<1000~)
```

Range for numbers greater than 450 OR less than 250 (excluding 250 and 450).

```
[FILTER]
Velocity=V(450~250)
```

Range from 100 to 2000 (inclusive of 100 and 2000). The '+' sign activates the filter for the COM

```
[FILTER]
Filter=1
Velocity=V<100~2000>+
```

Shots from number 51 upwards and velocities from 850 to 950.

```
[FILTER]
Shots=S(50~)
Velocity=V<850~950>
```

Filter disabled for both COM port and files (everything passes through).

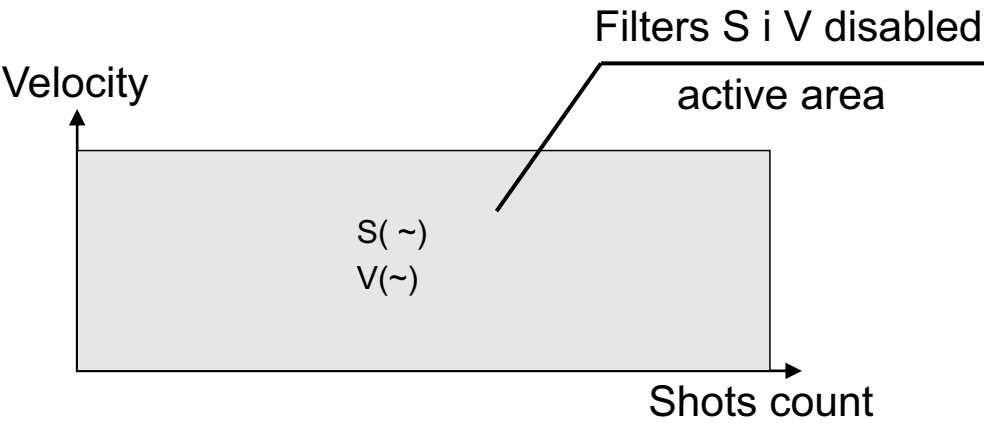
```
[FILTER]
Velocity=V(~)
Shots=S(~)
```

Note:

The keyboard shortcut CTRL+F activates the filter in the form, performs calculations and draws a graph on the screen data.

Filtering V and S

The following diagrams and rules define the active areas where data is allowed to pass through the filter.
Data points falling outside these defined areas are automatically rejected



Filtering examples

