Thank you for buying Data Analysis Software. In order to use this software correctly and safely and to prevent trouble, please read this manual carefully.

_________________________ Notice __________________________

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2. The contents of this manual may be altered without prior notice.
3. This manual has been documented by making assurance doubly sure. However, if any question arises or if any error, an omission, or other deficiencies are found, please contact your nearest Omega’s sales agent.
4. Omega is not responsible for any operation results of this software.

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1. Overview

Data analysis software is a software package to analyze the data acquired by the instrument of our company.

1-1 Main functions and features

- The data acquired by the instrument is displayed as trend.
- A number of data files can be compiled to one and displayed as a trend.
- Maximum 128 channels can be registered. Subtraction operations etc can also be registered.
- Acquired data can be printed, saved in CSV format or text format.
- Maximum value, minimum value, average value, standard deviation and median value can be displayed numerically and as graph.
- Two cursors can be displayed in the graph.
- Maximum value, minimum value, average value, standard deviation and median value between the cursors can be displayed as numeric value and graph.
- Graph can be magnified, reduced and partially magnified.
- Message can be inserted in the graph.
- Scale axis of graph can be logarithmically displayed.
- Trend graph can be printed. It can be saved as JPG or BMP.

1-2 Operation environment

< Hardware >

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>1GHz or above</td>
</tr>
<tr>
<td>Memory</td>
<td>256MB (512 MB or more is recommended)</td>
</tr>
<tr>
<td>Disk drive</td>
<td>CD-ROM drive: 1 drive or more (necessary during installation) Hard disk drive: 1 drive or more for items with free space that is 100MB or more</td>
</tr>
</tbody>
</table>

< Software >

OS
Windows 98/Me
Windows 2000/XP Home/XP Pro

※ Windows NT4.0 is out of scope of operation.
※ Internet Explorer 4.0 or above is necessary.
2. Installation and removal

2-1 Installation method

Click "Installation" button. Installation screen gets display.

Do as shown in the following screens.

For changing the folder for installation click the [Browse] button.

If restarting is necessary, do as per the message in the message box.

Installation starts on clicking the [Next] button.
2-2 Un-installation (Remove) method

Click “Control Panel” from “All Programs” from “Start” of Windows task bar.

At this point, folder related to data analysis software remains.

In case of deleting all, delete the “Analysis” folder from explorer etc.
3. Operation

3-1 Data analysis software block diagram

**Main menu** Screen that is initially displayed at the time of start up.

- **Trend graph** Trend graph is displayed. (Maximum 10 screens can be displayed.)
  - Initialization initializes the graph.
  - File selection selects file that is to be displayed as graph.
  - Data registration registers the channel to be displayed.
    (Subtraction operations can also be registered: Maximum 128 points)
  - Data list displays the data list. It can be printed and converted into CSV file.
  - Data between cursors displays the data between cursors A and B and the time difference. Displays whole data, maximum and minimum data between the cursors.
  - Search data can be searched.
  - Bar graph displays the data of cursor A and B as bar graph.
  - Message inserts message in the graph.
  - Alarm display registers the color, shape, size etc. of point at which alarm activates.
  - Continuous replay trend is continuously (automatically) scrolled.
  - Print screen graph can be printed, output on clipboard or saved in a file.

- **Cursor** Set cursors A and B on the graph.
- **Trend line** Sets the ‘kind of line’ color, shape etc. of trend of each channel.
- **Scale axis** Display settings of scale axis are performed.
- **Time axis** Period to be displayed on 1 screen is set.
- **Title** Title is displayed on the graph and axis.
- **Legend** Legend is displayed on the graph.
- **Supplementary settings** Back color, kind of auxiliary line, color, interval etc. can be set.
- **Magnify/reduce** Graph can be moved/magnified/reduced, partially magnified and rotated.

- **Vertical** A number of screens are arranged vertically.
- **Horizontal** A number of screens are arranged horizontally.
- **FTP** Connects to the instrument and transfers and receives the files.
- **Version information** Displays version information.
- **Help** Displays help file.
3-2 Startup method of data analysis software

It is started by clicking “Data analysis” –“Omega”-“All programs”-“Start” from Windows task bar.

3-3 Exiting data analysis software

Click “X” on the right corner of the task bar.
1. Select file
File to be analyzed is selected. Following are the methods of selecting the files.
(Select any one of the following methods)

(1) Double click
When data file (extension is krb or krf) is double clicked, analysis software starts automatically and trend graph is displayed.

(2) Drag and drop
Start analysis software and when trend screen opens, drag and drop the file.
(3) File selection

Start analysis software and when trend screen opens, click “File selection” icon. Select the file when “File selection” screen opens.

2. Trend display

If file can be selected normally, it can be displayed as trend. (Range of the all data is displayed)
3. Changing the time axis

Time axis can be expanded and the data in that time range can be displayed on 1 screen by magnifying it. Data that is out of range can be viewed by scrolling the screen. There are 2 methods of changing the time axis.

(1) Specify the range of time axis by using mouse

Drag (move the mouse) keeping the left button of the mouse pressed (starting point is fixed) from the point that is to be magnified and release the button on the point (end point is fixed); up to which it is to be magnified. (The range in black color that is rotating is magnified)

(2) Specify the range of time axis by using keyboard

Click the time axis button on the tool bar and open the following screen.

On clicking OK after entering the duration, if there is no mistake in the input, specified range is displayed.
4. Changing the scale axis

Scale axis can be expanded and the data in that time range can be displayed on 1 screen by magnifying it. There are 2 methods of changing the scale axis.

(1) Specify the range of scale axis by using mouse
Drag (move the mouse) keeping the left button of the mouse pressed (starting point is fixed) from the point (end point is fixed) that is to be magnified and release the button on the point, up to which it is to be magnified. (The range in black color that is rotating is magnified)

(2) Specify the range of scale axis by using keyboard
Click the scale axis button and open the following screen. On clicking OK button after entering Max value and Minimum value, if there is no mistake in the input, specified range is displayed.
5. Save

The contents that are edited using data analysis software can be saved.

Click the save button on the tool bar and enter the name of the file. (Extension krb)

If the saved file is selected by method “1. Select file”, the status at the time of saving can be reproduced.
4. Main menu

It is the screen displayed immediately after starting.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>📊</td>
<td>Trend screen is displayed. Up to 10 groups can be displayed.</td>
</tr>
<tr>
<td>📊</td>
<td>Multiple windows are arranged vertically and displayed.</td>
</tr>
<tr>
<td>📊</td>
<td>Multiple windows are arranged horizontally and displayed.</td>
</tr>
<tr>
<td>FTP</td>
<td>File transfer and reception (FTP) with the instrument is done.</td>
</tr>
<tr>
<td>📈</td>
<td>Version information is displayed.</td>
</tr>
<tr>
<td>📜</td>
<td>Help is displayed.</td>
</tr>
</tbody>
</table>
5. Trend graph

It is the screen in which the acquired data is displayed as trend graph.

- There are 3 types of trend displays viz. “horizontal trend, vertical trend and circular chart”. Display is changed using the menu bar on the upper side of the screen. (Refer to page 35).
- In case of horizontal/vertical trend, all data is displayed on 1 screen and time axis can be magnified (Refer to Easy to use! Operation guide). Screen can be scrolled by using the scroll bar.
- In case of circular chart, data of 360 points (degrees) can be viewed in one lap. Screen is updated using previous and next buttons.
- On doing various settings using the tool bar, various screens are displayed and data analysis can be done.

<Horizontal trend>

<Menu bar>

<Tool bar>

<Circular chart>
### Tool bar: Upper

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🍃</td>
<td>Clears all the information (Initialization).</td>
</tr>
</tbody>
</table>
| 📋  | File selection screen is displayed.  
Select the data that is to be analyzed. |
| 🧳  | Saves the current status. (Extension: KRB) |
| 🕵️  | Registers the channel to be used.  
Subtraction operation and tag, units can also be registered. |
| 📊  | Data list is displayed.  
Data list of channel can be displayed, printed and file can be saved. |
| 🕒  | Data of cursors A and B, and time are displayed.  
Time difference and data difference between cursors A and B; maximum, minimum and average value between cursors AB and all data is displayed, printed and saved. |
| 🔍  | Search screen is displayed and data can be searched. |
| 📊  | Displays the data of cursors A and B as bar graph.  
Display position, thickness and direction can be set. |
| 📜  | Message can be inserted in trend graph and bar graph. |
| 📜  | Details of the inserted message are displayed and they can be edited, moved and deleted. |
| 🔍  | Shape, color and size of the point at which alarm activates can be set.  
Ignore when alarm is not displayed. |
| 🎥  | Continuous replay is displayed and trend is continuously scrolled. |
| 🎥  | Trend screen can be printed, output on clipboard or can be saved as a file. |
### Tool bar: Below

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![←] | If time axis is magnified and performed, it returns to the previous step.  
* Not displayed in case of circular chart. |
| ![🔍] | Returns time axis to default and displays 'all data' in 1 screen.  
* Not displayed in case of circular chart. |
| ![🔄] | Circular chart displays 360 points data in one lap.  
Returns to the previous lap.  
* Displayed only in case of circular chart. |
| ![➡️] | Moves to the next lap.  
* Displayed only in case of circular chart. |
| ![💰] | If this button and then the trend screen are clicked, cursor A is set at the nearest position where it is clicked.  
On clicking it once again, the setting gets released, and even when trend screen is clicked, cursor is not set.  
(Cursor that is already set is not released.) |
| ![💰] | If this button and then the trend screen are clicked, cursor B is set at the nearest position where it is clicked.  
On clicking it once again, the setting gets released, and even when trend screen is clicked, cursor is not set.  
(Cursor that is already set is not released.) |
| ![🔍] | Cursor A,B can be viewed or hidden and color, line type etc. can be set. |
| ![🔍] | Line type, color, shape etc. of trend of each channel can be set. |
| ![🔍] | Sets display of scale axis.  
Maximum/minimum value, scale display interval, logarithm display can be set. |
| ![🔍] | Performs settings of time axis.  
Period to be displayed on the screen can be entered.  
* Not displayed in case of circular chart. |
| ![🔍] | Sets display of time axis.  
Time display interval, additional scale interval etc. can be set. |
| ![🔍] | Title can be entered in the graph. |
| ![🔍] | Legend display can be set. |
| ![🔍] | Supplementary settings of graph are done.  
Back color, line type of auxiliary line, color, interval etc. can be set. |
| ![🔍] | Graph can be magnified, reduced and rotated. |
5-1 File selection
- Select a file.
- File list is displayed on the upper side of 'File selection' screen.
- On selecting the file and clicking the select button, the selected file gets added in the file column on the lower side of the screen. If the acquisition period is same, multiple files can be selected. (Only 1 file with extension KRB can be selected.)

<table>
<thead>
<tr>
<th>Select</th>
<th>Selected file gets added in the file column on the lower side of the screen.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undo</td>
<td>Selected file is deleted from the selected file column.</td>
</tr>
<tr>
<td>Read</td>
<td>Data of selected file is read.</td>
</tr>
</tbody>
</table>

5-2 Data registration
- Registers the channel to be used. (Maximum 128 points).
- Subtraction operation can be registered.
- Tag, unit and exponential display can be registered.
- Registration is done automatically but in case of performing an operation registration is done manually.

“Operation method”
- Reference CH is registered in, A: Reference channel.
- Channel to be subtracted is registered in B.
- In case of subtracting a fixed value, input numeric value in, B: value to be subtracted.
- Scale axis can be switched single mode or multiplex mode.

“Single mode” Data value of each channel is displayed in the same scale axis.
“Multiplex mode” Data value of each channel is displayed by scaling of the maximum/minimum scale value. *Cannot use logarithmic scale. *Cannot display standard deviation
### 5-3 Data list

- Data list is displayed in table format.
- The point at which alarm is activated is displayed in red.
- If the mouse is moved to that cell, details of the warning are displayed.
- Data list can be output as file.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL</strong></td>
<td>Displays all data as a list.</td>
</tr>
<tr>
<td><strong>A B</strong></td>
<td>Displays data between cursor A and B as list. Ignore when cursor A and B are not set.</td>
</tr>
<tr>
<td>****</td>
<td>Displays the period that is currently shown. ※ Not displayed in case of circular chart.</td>
</tr>
<tr>
<td><strong>Print settings are done.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Print</strong></td>
<td>Prints.</td>
</tr>
<tr>
<td><strong>Outputs the file.</strong> Formats like CSV and text format (Tab delimiter) can be selected.</td>
<td></td>
</tr>
<tr>
<td><strong>Export to Excel.</strong></td>
<td>Auto-launch Excel, and display a graph. ※Excel is necessary for display.</td>
</tr>
</tbody>
</table>

---

**Data List**

<table>
<thead>
<tr>
<th>Day/Time</th>
<th>No1</th>
<th>No2</th>
<th>No3</th>
<th>No4</th>
<th>No5</th>
<th>No6</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/03/2005 11:30:23</td>
<td>-20.02</td>
<td>-17.02</td>
<td>-14.02</td>
<td>-11.02</td>
<td>-8.02</td>
<td>-5.02</td>
</tr>
<tr>
<td>12/03/2005 11:30:28</td>
<td>-24.64</td>
<td>-21.64</td>
<td>-18.64</td>
<td>-15.64</td>
<td>-12.64</td>
<td>-9.64</td>
</tr>
<tr>
<td>12/03/2005 11:30:29</td>
<td>-24.08</td>
<td>-21.08</td>
<td>-18.08</td>
<td>-15.08</td>
<td>-12.08</td>
<td>-9.08</td>
</tr>
<tr>
<td>12/03/2005 11:30:30</td>
<td>-24.84</td>
<td>-21.84</td>
<td>-18.84</td>
<td>-15.84</td>
<td>-12.84</td>
<td>-9.84</td>
</tr>
<tr>
<td>12/03/2005 11:30:31</td>
<td>-24.54</td>
<td>-21.54</td>
<td>-18.54</td>
<td>-15.54</td>
<td>-12.54</td>
<td>-9.54</td>
</tr>
<tr>
<td>12/03/2005 11:30:33</td>
<td>-23.16</td>
<td>-20.16</td>
<td>-17.16</td>
<td>-14.16</td>
<td>-11.16</td>
<td>-8.16</td>
</tr>
</tbody>
</table>
5-4 Data between cursors

- Data of cursors A and B, and time are displayed. Time difference and data difference between cursors A and B; maximum, minimum, average, standard deviation, median value between cursors AB and all data is displayed as list, printed and saved.
- Cursors A and B can be moved. (As it is moved one by one, fine adjustment is possible.)
- Points in data of cursors A and B at which alarm is activated is displayed in red.
- If the data difference of cursor A and B (A-B) is minus, it is displayed in red.
- Calculation between cursors A and B is displayed on click.
- On clicking auto calculation of menu bar to ON, the calculations are made for every change of cursor AB. ※ The larger the data the longer it takes for calculation.
- Operation result between all data and between cursors AB can be displayed in trend screen.

Move cursor A one step to the left.

Move cursor A one step to the right.

Move cursor B one step to the left.

Move cursor B one step to the right.

In case of displaying computation calculation result of data as trend, register the color, line type etc. of trend.

Calculation of the computation between the cursors is made.
※ Ignore when cursors A and B are not set.

Do the print settings.

Print preview is displayed.

Prints.

Outputs the file.
5-5 Search

- Search screen is displayed and data can be searched.
- Search result is displayed as list in table format and on clicking it, that point is displayed by cursor.
  - When it is not displayed in trend screen, auto scrolling is done and that point is displayed by cursor.

<table>
<thead>
<tr>
<th>Search mode</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max value</td>
<td>Searches the maximum value of the objective channel.</td>
</tr>
<tr>
<td>Min value</td>
<td>Searches the minimum value of the objective channel.</td>
</tr>
<tr>
<td>Average</td>
<td>Searches value that is equal to, greater than or less than the average value of the objective channel.</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>Searches the value that is within the range and outside the range (average value ±σ) of standard deviation of objective channel.</td>
</tr>
<tr>
<td>Median</td>
<td>Searches value that is equal to, greater than or less than the median value of the objective channel.</td>
</tr>
<tr>
<td>Manual input</td>
<td>Enters manually the value to be searched. It can be searched by specifying the value that is equal to, greater than, less than or by specifying the range.</td>
</tr>
<tr>
<td>Day / Time</td>
<td>Enter the time to be searched. It can be searched by specifying the time equal to, greater than or less than the entered time or by specifying the range. In case of specifying the range, enter the range of time to be searched.</td>
</tr>
<tr>
<td>Cursor</td>
<td>Searches the maximum value, minimum value, average value, standard deviation or median value between the cursors. Searches cursors A and B.</td>
</tr>
<tr>
<td>Message</td>
<td>Searches a point that has a message.</td>
</tr>
<tr>
<td>All</td>
<td>&quot;All&quot; searches all messages.</td>
</tr>
<tr>
<td>Match with letters</td>
<td>&quot;Match with letters&quot; searches only the message that has a string that matches completely with the entered letter.</td>
</tr>
<tr>
<td>Including letters</td>
<td>&quot;Including letters&quot; searches the message that contains the entered letter.</td>
</tr>
<tr>
<td>Excluding letters</td>
<td>&quot;Excluding letters&quot; searches the message that does not contain the entered letter.</td>
</tr>
<tr>
<td>Alarm</td>
<td>Searches the point at which alarm of the objective channel is displayed. Can be searched from 'all' or level 1-4.</td>
</tr>
</tbody>
</table>
5-6 Bar graph
Displays the data of cursors A and B as bar graph.
Graph type, display position, direction etc. can be set.

| Graph       | Selects between show/hide.
|-------------|--------------------------
|             | In case of display, select the position of arrangement from one of ‘above’, ‘below’, ‘left’ and ‘right’.

| Chart type       | It can be selected from bar graph, multilayer graph and Data. (Refer to figure below)
|------------------|----------------------------------------------------------------------------------------------------------------------------------
|                  | Bar graph displays cursors A and B in adjacent manner. (left)  
|                  | In case of multilayer graph, cursors A and B are displayed as multilayered graph in 1 bar graph. (right)  
|                  | In case of Data, Data of cursors A and B, and time are displayed. Time difference and data difference between cursors A and B are displayed.

| Direction       | Direction of graph can be selected from “Horizontal direction/Vertical direction”.

| Overlap         | Overlapping of graph can be set. * Ignore in case of multilayer graph.

| Width           | Width of the bar can be set.

<table>
<thead>
<tr>
<th>Bar graph</th>
<th>Multilayer graph</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Bar graph image" /></td>
<td><img src="image2.png" alt="Multilayer graph image" /></td>
</tr>
</tbody>
</table>

**Chart type options:**
- Bar graph
- Multilayer graph
- Data

**Settings:**
- Graph: Show/Hide
- Chart type: Bar graph, Multilayer graph, Data
- Direction: Horizontal/Vertical
- Overlap: E.g., ignore in multilayer graph
- Width: Width of the bar can be set

![Settings dialog](image3.png)
5-7 Insert message
- Message can be inserted in the data on the graph.
- Message is inserted at the nearest data point when it is dragged and dropped.
- Font color, font and background color of the message can be specified.

"Method of inserting message"
(1) Input a message. Select font color and font back color. (Button on the right)
(2) Click the insert button and move the message that is input, to the trend screen by keeping the right button of the mouse pressed (Drag).
(3) If mouse is moved in the trend screen, the frame is highlighted and displayed. Hence release the left button of the mouse. (Drop).

5-8 Edit message
Details of the inserted messages can be edited, moved and deleted.

<table>
<thead>
<tr>
<th>Edit</th>
<th>Message can be edited. Enter the message directly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete</td>
<td>Right click on the message to be deleted and select delete option.</td>
</tr>
<tr>
<td>Move</td>
<td>“Trend graph”</td>
</tr>
<tr>
<td></td>
<td>On clicking the right and left buttons, it can be moved to the right and left.</td>
</tr>
<tr>
<td></td>
<td>On clicking the up and down buttons, one can move between the channels.</td>
</tr>
<tr>
<td></td>
<td>“Bar graph”</td>
</tr>
<tr>
<td></td>
<td>On clicking the right and left buttons, one can move between the channels.</td>
</tr>
<tr>
<td></td>
<td>On clicking the up and down buttons, one can move between cursors A,B.</td>
</tr>
</tbody>
</table>
5-9 Alarm display

- Display on the trend graph, the points of every level at which warning appears.
- Shape, color, size etc. of each point at which alarm activates can be set.
- Ignore it although it is set, when alarm is not activated.

<table>
<thead>
<tr>
<th>Style</th>
<th>Select the style to be displayed for the point for which alarm activates. (Select from the list.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Select the color to be displayed for the point for which alarm activates. (Click and select.)</td>
</tr>
<tr>
<td>Size</td>
<td>Enter the size of the style. (Enter a numeric value.)</td>
</tr>
</tbody>
</table>

5-10 Continuous replay

Trend is continuously (automatically) scrolled. Scroll changes depending on the change in speed of scrolling and on, changing the updated data count.

- “Menu”
  - When endless is selected as “Mode”, if data is scrolled till the end, it returns to the beginning and starts scrolling. When endless is not selected, the scrolling stops when data is scrolled till the end.

- “Button”
  - “Start” Starts scrolling
  - “Stop” Pauses. Click ‘Start’ for restart.
  - “Available” Reflects the current status in the trend graph.

- “Set”
  1. Scrolling speed can be adjusted. The more it is moved to the right, the more the speed.
  2. Scrolling ratio can be adjusted. The more it is moved to the right, the higher the ratio and the ratio of updating the screen in 1 scroll becomes higher.
  3. Updated data count can be adjusted. It is the data count to be updated by scrolling once.
  4. Screen data count can be adjusted. It is the data count to be displayed in 1 screen.

* In case of circular chart only (1) is displayed.
* In case of circular chart the data count displayed in 1 screen is 360 points.
5-11 Print screen
Trend screen can be printed, output on clipboard or saved in a file.

<table>
<thead>
<tr>
<th>Prints</th>
<th>Outputs on clipboard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selects one of trend graph and bar graph when both are displayed.</td>
<td></td>
</tr>
<tr>
<td>Outputs to file in BMP and JPG format.</td>
<td></td>
</tr>
</tbody>
</table>

5-12 View cursor
Show/hide, color, kind of line etc. of cursor A,B can be set.

<table>
<thead>
<tr>
<th>Show</th>
<th>Click and select show/hide.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Select the color to be displayed.</td>
</tr>
<tr>
<td>Kind of line</td>
<td>Select 'Kind of line’ to be displayed, from the list. It can be selected from “Solid line/dotted line/chain line”.</td>
</tr>
<tr>
<td>Width</td>
<td>Enter a numeric value for line width of the cursor to be displayed. The larger the size the wider the cursor.</td>
</tr>
</tbody>
</table>
## 5-13 Trend line
Set the kind of line, color, shape etc. of trend of each channel.

<table>
<thead>
<tr>
<th>Chart type</th>
<th>Line</th>
<th>Displays by connecting by a line in between the data as shown in pen type recorder.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dot</td>
<td>Dot</td>
<td>Displays data by dots as shown in dotting recorder.</td>
</tr>
<tr>
<td>Line + dot</td>
<td>Line + dot</td>
<td>Displays a combination of pen type and dotting type. Displays the data by dots and by connecting by a line in between the data.</td>
</tr>
</tbody>
</table>

| Line color | Select the color of the line. (*) Ignore if dot is selected as graph type. |
| Width      | Enter the line width. The larger the size the thicker it is displayed. (*) Ignore if dot is selected as graph type. |
| Kind of line | Select from the list the kind of line to be displayed. It can be selected from “Solid line/dotted line/chain line”. (*) Ignore if dot is selected as graph type. |
| Dot color  | Select the color of dots. (*) Ignore if line is selected as graph type. |
| Size       | Enter the size of dot to be displayed. The larger the size the larger is the dot. (*) Ignore if line is selected as graph type. |
| Shape      | Select from the list the shape of the dot to be displayed. (*) Ignore if line is selected as graph type. |

![Trend Line](image-url)
### 5-14 Set scale axis

Maximum value, minimum value, scale display interval, logarithm display etc. of scale can be displayed.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Set maximum value/minimum value of scale. &quot;Optimization&quot; Optimizes maximum/minimum value of scale automatically such that all the data is displayed. Normally this is used. &quot;Manual&quot; The value entered in maximum/minimum value of scale is reflected in scale. Use in case of magnifying and reducing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max value</td>
<td>Sets maximum value of scale. Ignore, as it is automatically adjusted in case of “Optimization”.</td>
</tr>
<tr>
<td>Min value</td>
<td>Sets the minimum value of scale. Ignore, as it is automatically adjusted in case of “Optimization”.</td>
</tr>
<tr>
<td>Scaling</td>
<td>Selects the interval to display the scale. Displays the value in specified interval. &quot;Optimization&quot; Optimizes the value to be displayed and displays it on scale axis. &quot;Manual&quot; Displays in scale axis, the value on label display interval.</td>
</tr>
<tr>
<td>Label display interval</td>
<td>Specifies the interval of displaying the value in scale axis. Ignore as it is automatically adjusted in case of “Optimization”.</td>
</tr>
<tr>
<td>Label inclination</td>
<td>Specifies the numeric inclination of label that is displayed. (0-359°)</td>
</tr>
<tr>
<td>Additional scale interval</td>
<td>Specifies the interval of additional scale. Auxiliary line can be drawn in scale axis at specified interval. (Value is not displayed.) Ignore as it is automatically adjusted in case of “Optimization”.</td>
</tr>
<tr>
<td>Logarithmic scale.</td>
<td>On keeping the check ON, logarithmic scale is displayed. ※Displayed only on the single mode.</td>
</tr>
<tr>
<td>Rotate the axis.</td>
<td>Rotate the top and the bottom of the scale axis.</td>
</tr>
<tr>
<td>100% overlapping</td>
<td>All the graphs are of same height and are adjusted such that the total of cursors AB is 100%. (Displayed only when multilayer graph is selected in graph type.)</td>
</tr>
<tr>
<td>Cross point with time axis</td>
<td>Selects the cross point with time axis. ※Not displayed in circular chart.</td>
</tr>
<tr>
<td></td>
<td><strong>0</strong></td>
</tr>
<tr>
<td></td>
<td>Minimum value</td>
</tr>
<tr>
<td></td>
<td>Maximum value</td>
</tr>
</tbody>
</table>

Left: 100% overlapping
Right: Multilayer (Not 100% overlapping)
5-15 Set time axis
Period to be displayed in 1 screen can be entered.
There are 2 methods viz. ‘Specify hours’ method that displays the data from ‘Beginning Date/Time’ to a ‘Specific period’ in 1 screen; and ‘Specify range’ method that displays the data of specified period in 1 screen. Thus time axis can be changed as per the requirement.
※ If the entered duration is much smaller than the acquisition cycle; and if the period is very long, an error message is displayed and duration cannot be displayed.
(Not displayed in case of circular chart.)

<table>
<thead>
<tr>
<th>Specify hours</th>
<th>Displays in 1 screen the data from ‘Beginning Date/Time’ to the ‘Specific period’.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify range</td>
<td>Displays in 1 screen the data of specified period.</td>
</tr>
</tbody>
</table>

5-16 Set time display interval
Sets time display interval, additional scale interval etc.

<table>
<thead>
<tr>
<th>Time interval</th>
<th>“Automatic” Displays time interval which is optimum. Normally this is easy to understand. If the time axis is magnified/reduced, it is changed to the interval that is most easy to understand.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Data” Displays time in the data interval that is specified. Even when time axis is magnified/reduced, display interval does not change.</td>
</tr>
<tr>
<td>Additional scale</td>
<td>“None” Additional scale is not displayed. “Data” Displays additional scale in the data interval that is specified. If time display interval is “Automatic”, it cannot be selected.</td>
</tr>
<tr>
<td>interval</td>
<td></td>
</tr>
<tr>
<td>Option display</td>
<td>Set time display. Display font, character color and inclination can be set. If small intervals of display are overlapping, incline the characters.</td>
</tr>
</tbody>
</table>
5-17 Title
Displays title in graph and axis.
What the graph and axis explains becomes clear when title is inserted.
"Header/Footer" Title can be entered in header and footer of the graph.

<table>
<thead>
<tr>
<th>Style</th>
<th>&quot;None&quot; Display the title without enclosing it in a frame. &quot;Plane&quot; Displays the title by enclosing it in a frame. &quot;Cubic&quot; Displays the title by enclosing it in a cubic frame.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>Sets the frame width. Ignore in case of &quot;None&quot;.</td>
</tr>
<tr>
<td>Back color</td>
<td>Sets the back color of title.</td>
</tr>
<tr>
<td>Character color</td>
<td>Sets the character color of the title.</td>
</tr>
</tbody>
</table>

"Time axis" Title can be entered in time axis.
※ It cannot be set in case of circular chart.
※ Items displayed in gray cannot be changed.

<table>
<thead>
<tr>
<th>Title</th>
<th>Characters are entered. Font can also be set.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclination</td>
<td>Inclination of display characters is selected from the list.</td>
</tr>
</tbody>
</table>

"Scale axis" Title can be entered in scale axis.
( It cannot be set in case of circular chart.
( Items displayed in gray cannot be changed.

<table>
<thead>
<tr>
<th>Title</th>
<th>Characters are entered. Font can also be set.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclination</td>
<td>Inclination of display characters is selected from the list.</td>
</tr>
</tbody>
</table>
5-18 Legend
Legend display can be set.

<table>
<thead>
<tr>
<th>Show</th>
<th>Selection of show/hide of Legend display.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style</td>
<td>Sets the style for the Legend display.</td>
</tr>
<tr>
<td>Position</td>
<td>Position to be displayed of the Legend can be selected in list.</td>
</tr>
<tr>
<td>Direction</td>
<td>Direction of Legend can be displayed in list.</td>
</tr>
<tr>
<td>Frame</td>
<td>Frame enclosing the Legend can be displayed in list.</td>
</tr>
<tr>
<td>Back color</td>
<td>Back color of Legend can be selected.</td>
</tr>
<tr>
<td>Character</td>
<td>Character color of Legend can be selected.</td>
</tr>
<tr>
<td>Title</td>
<td>Title for Legend can be displayed.</td>
</tr>
</tbody>
</table>

5-19 Supplementary settings
Executes the supplementary settings for graph. Back color, types of supplementary line, color and interval can be set.

<Color> Display color of graph is set.

<table>
<thead>
<tr>
<th>Graph background</th>
<th>Back color of graph can be selected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph frames</td>
<td>Color of graph frame can be selected.</td>
</tr>
<tr>
<td>Time axis</td>
<td>Color of time axis can be selected.</td>
</tr>
<tr>
<td>Scale axis</td>
<td>Color of scale axis can be selected.</td>
</tr>
</tbody>
</table>

<Wall paper> Wall paper at the background of graph can be displayed.

<table>
<thead>
<tr>
<th>Wall paper</th>
<th>When “Use” is selected, select the image (BMP or WMF format) to be used for the wall paper.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>When “Stretch” is displayed, the image gets enlarged and is displayed on the screen.</td>
</tr>
<tr>
<td></td>
<td>When “Center” is selected, image is displayed at the center of the screen.</td>
</tr>
<tr>
<td></td>
<td>When “Tile stile” is selected, image is displayed in tile pattern.</td>
</tr>
</tbody>
</table>

<Auxiliary line> Auxiliary line can be displayed in graph.

<Time axis>

<table>
<thead>
<tr>
<th>Match with display</th>
<th>Displays the auxiliary line for the period specified in time display period.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of line</td>
<td>Kind of line for auxiliary line can be selected.</td>
</tr>
<tr>
<td>Color</td>
<td>Color of the auxiliary line can be selected.</td>
</tr>
<tr>
<td>Width</td>
<td>Width of the auxiliary line can be selected. Larger the width larger will be its thickness.</td>
</tr>
<tr>
<td>Display period</td>
<td>Display period of auxiliary line can be entered.</td>
</tr>
<tr>
<td></td>
<td>※ It is disabled in case of “Match with display”.</td>
</tr>
<tr>
<td>Front</td>
<td>Select whether to display the auxiliary line at the front of the graph.</td>
</tr>
</tbody>
</table>
<Scale axis>

<table>
<thead>
<tr>
<th>Optimization</th>
<th>Displays the auxiliary line for the period specified in scale axis display period.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind of line</td>
<td>Kind of line for the auxiliary line can be selected in list.</td>
</tr>
<tr>
<td>Color</td>
<td>Color of auxiliary line can be selected.</td>
</tr>
<tr>
<td>Width</td>
<td>Width of auxiliary line can be entered. Larger the width larger will be its thickness.</td>
</tr>
<tr>
<td>Display period</td>
<td>Display period of the auxiliary line can be entered. It is disabled in case of “Optimization”.</td>
</tr>
<tr>
<td>Front</td>
<td>Whether to display the auxiliary line at the front of graph.</td>
</tr>
</tbody>
</table>

5-20 Magnify/Reduce/Rotate

Graph can be moved/magnified/reduced/zoomed/rotated with the help of interactive operations using mouse.

<table>
<thead>
<tr>
<th>Move</th>
<th>Graph can be moved.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnify/Reduce</td>
<td>Graph can be magnified/reduced.</td>
</tr>
<tr>
<td>Partially magnify</td>
<td>Graph can be magnified by specifying the range. (Frame is displayed.)</td>
</tr>
<tr>
<td>Rotation</td>
<td>Set the depth and on rotating the graph is displayed as 3D as though it is seen from some angle.</td>
</tr>
<tr>
<td></td>
<td>× Cannot be selected in circular chart.</td>
</tr>
</tbody>
</table>
6. FTP

Transfer and reception between file and instrument is done. Connect the instrument after entering the IP address.

- Exits.
- Connects to the instrument.
- Instrument is disconnected.
- File is uploaded.
- File is downloaded.

※FTP (File Transfer Protocol)

It is the protocol used for file transfer in the TCP/IP network such as Internet etc.
## 7. FAQ

Please refer to the frequently asked questions and answers listed below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To change the time axis.</td>
</tr>
<tr>
<td>2</td>
<td>To maximize the graph by changing the scale.</td>
</tr>
<tr>
<td>3</td>
<td>To display several scale axes on one graph.</td>
</tr>
<tr>
<td>4</td>
<td>To save the current status and then again reproduce that status.</td>
</tr>
<tr>
<td>5</td>
<td>To change the Trend display.</td>
</tr>
<tr>
<td>6</td>
<td>To convert the data to CSV. (To be used in software’s such as excel etc.)</td>
</tr>
<tr>
<td>7</td>
<td>To search maximum value/minimum value.</td>
</tr>
<tr>
<td>8</td>
<td>To display a cursor in the graph and to display the data of that point.</td>
</tr>
<tr>
<td>9</td>
<td>To display only 1 channel as it is difficult to understand, if a number of channels are displayed in 1 screen.</td>
</tr>
<tr>
<td>10</td>
<td>To enter the title on the graph.</td>
</tr>
<tr>
<td>11</td>
<td>To enter the message in the data on the graph.</td>
</tr>
<tr>
<td>12</td>
<td>To create the daily/monthly reports.</td>
</tr>
</tbody>
</table>
To change the time axis.

In case of horizontal/vertical trend graph

There are 2 methods; (1) Magnification of time axis by using mouse and (2) Specify the range of time axis by using keyboard.

※ In case of circular chart, display is fixed to 360 points in one lap.

(1) Magnification of time axis by using mouse

Drag (move the mouse) keeping the left button of the mouse pressed (starting point is fixed) from the point that is to be magnified and release the button on the point (end point is fixed), up to which it is to be magnified. (The range in black color that is rotating is magnified)

(2) Specify the range of time axis by using keyboard

Following screen is opened on clicking the time axis button on the tool bar. After entering the time axis, when OK button is clicked, specified range is displayed, if there is no error in the input contents.
To maximize the graph by changing the scale.

In case of horizontal/vertical trend of trend graph

There are 2 methods; (1) Change of scale by using the mouse and (2) Change of scale by using the keyboard.
   × In case of circular chart, scale can be changed only by using the keyboard (2).
   × It is also possible to magnify the graph without changing the scale.

(1) Change of scale by using mouse
   Drag (move the mouse) keeping the left button of the mouse pressed (starting point is fixed) from the point that is to be magnified and release the button on the point (end point is fixed), up to which it is to be magnified. (The range in black color that is rotating is magnified)

(2) Specify the range of scale by using keyboard
   Click the scale axis button on the tool bar and open the following screen.
   After entering the maximum and minimum value of scale, when OK button is clicked, specified range is displayed, if there is no error in the input contents.
To display several scale axes on one graph.

Scale axes are displayed up to 2 on left and right, and up and down.

“Show method”

Click of the tool bar. Switch to the [Multiplex].

Change the scale maximum and minimum value is possible.

[Multiplex mode]

2 scale axes are displayed. ×Displayed only one in circular chart.

Click of the tool bar when switching the display channel on scale axis.

Click and register the displaying channel (Possible to register in the left and right one by one).
To save the current status and then again reproduce that status.

Click Save on the tool menu.

"Save method"
Enter the file name and save the file in the following screen. Extension will be added automatically.

“Read method”
There are 3 methods to read the saved file.
Select any of the one method. (Refer to Easy to Use! Operation Guide)

(1) If the file is double clicked in the status where the analysis software is not started, then the analysis software is started automatically and trend is displayed.

(2) Drag and drop
Start analysis software and when trend screen opens, drag & drop the file.

(3) File selection
Start the analysis software and when the trend screen opens, click.
To change the Trend.

“Horizontal, Vertical, and Circular Chart” are the 3 types included in ‘Trend’

Any of these types can be changed from the status bar.

To convert the data to CSV (or to print the data.).

Open data list for converting the data to CSV.

“Convert to CSV”

Data can be saved in the file on clicking the ‘Floppy’ icon.

Data can also be converted to Text format (Tab delimiter) other than CSV format.

“Print”

Prints on clicking the ‘Printer’ icon.
To change the Maximum value/minimum value.

Click search on the tool bar.

Select the “Maximum value” and “Minimum value” from the screen displayed below. In Objective CH, select the channel to be searched. On selecting “All”, all the channels are searched. Search is started on clicking the Search button.


Search result is displayed in list and when that list is clicked, cursor is displayed on that point and the position can be understood. List is not displayed in case of irrelevant search results.
To display a cursor in the graph and to display the data of that point.

2 cursors can be displayed. Here, these cursors are called as Cursor A and Cursor B.

Click the Cursor A and B button. If clicked on Trend screen, Cursor A and Cursor B are placed on the nearest point from the clicked position.

Detailed information of the cursor is displayed on clicking on the tool bar.

Data deviation or maximum, minimum, average value between the cursors is displayed.

Moreover, Cursor A and B can be displayed in bar graph.

Click on the tool bar.

Displays the graph and on selecting the position to be displayed, bar graph is displayed.

In the same channel, left is the Cursor A value and right is the Cursor B value.
To display only 1 channel.
(Only 1 channel is displayed, as it is difficult to understand when multiple channels are displayed on 1 screen.)

Includes ‘Method to select 1 channel’ and ‘Method to delete the registered channel’.

“Selection method”
Displays only the channel selected from the list as shown in the following screen.
(Scale is also automatically changed)
When there are multiple channels on 1 screen and it is difficult to view, it can be displayed by switching over.
Returns to ‘All channel’ display if uppermost list “----” is selected.

“Method to delete the registered channel”
In case of multiple registrations, if only 1 channel is registered, only that channel is displayed. Only one channel is displayed on 1 screen. Multiple channels cannot be displayed by switching. Click ‘Register channel’ on the tool bar.
Registration gets deleted, if Reference CH “---” is Nil as in figure below.
To insert the title in the graph.

Click title 📌 on the tool bar.

Enter the title in the following screen. Header and footer are displayed at the top and bottom of the screen.

Title can be entered even for time axis and scale axis. (It is excluded in case of circular chart)

× What the graph and axis explains becomes clear when title is inserted.
To insert the message in the graph.

Click message icon for inserting the message.

Enter the message to be displayed in the following screen.
It is also possible to change the character color, font and the back color.

On clicking the Insert button, the entered message moves to the trend screen by clicking
the left button of the mouse. (Drag)
On placing the mouse on trend screen, as the frame is highlighted, release the left button of
the mouse (Drop).
Message is inserted at the point nearest to the data.
To create the daily/monthly reports.

Daily / Monthly reports can be created by using the report application included in CD. Installation operations on the PC are required for using this application. Moreover, Excel (97 or higher) should be installed. CSV format file can be used for the data.

(1) Open data list for converting the data to CSV. "Convert to CSV"

Data can be saved in the file on clicking the ‘Floppy’ icon. A file name is automatic. Please do not change it.

(2) Report Application start.
Report Application (Sample)

This Application is the Sample Application. Queries related to usage method and defects cannot be answered. Please understand it before using.

Main screen

On activating main screen is displayed. Various operations are carried out considering this screen as base point.

- Select the group to be operated. Group name based on the data of the specified acquired data folder by settings is registered in list. Enter the group by using keyboard when there is no group to be selected.

- The created report file with the specified conditions, is displayed in the list box given below.

- Update the contents from the following list box to the latest status.

- Operations such as “Open/Print/Delete” can be executed for the file selected in the list box on the left.

- In the specified folder, the date and time of the daily report file that matches with the conditions specified in the above combo box is displayed in list.
Menu structure

**File**
- Export project: Compress the configuration contents and save it as 1 file.
- Import project: Reads the saved project file.
- Close: Closes the application.

**Setup**
- Report setup: Executes various settings related to this software.
- Report Management: Specifies the flag of Create or Print report for each group.

**Edit Template**
- Open Template Folder: Opens the sheet folder.

**Create**
- Create Daily Report: Creates / Outputs the daily report.
- Create Monthly Report: Creates / Outputs the monthly report.
- Create Batch Report: Creates / Outputs the batch report.
Exporting Project

Specify the save destination and the file.
File is created by saving the compressed file.

Importing project

Confirmation dialog box for overwriting the configuration is displayed. Click "OK".

Select the file to be read. Read the file.
Report settings

Setting tab for type, acquired data, output, print, date origin and password is displayed. Respective tab contents are described below.

Type
Select the report type to be used from the following 3 patterns.
(1) Daily report and Monthly report
(2) Batch report
(3) Daily report, Monthly report and Batch report

Daily report...Create by collecting the acquired data of 1 day.
Monthly report...Create by collecting the daily report of 1 month.
Batch report...Create the batch report corresponding to the acquired data file.

Recorded data
Specify the folder in which the acquired data is saved.
Use the folder selection screen by clicking "Browse" for setting.
Only the CSV format file can be used for the acquired data.
Output

Specify the output destination (save destination) of the report file. Use the folder selection by clicking the "Browse" for setting. Required setting items are displayed by selecting the "Type" tab. Following figure is the case of Daily report / Monthly report.

Start Date/Time

Set the time of the 1st day in case to create the daily report and the date of the starting of the month in case to create monthly report. Decide whether to use which time range by using these settings while creating daily or monthly report.

Password

Register the password when the report sheet is locked with password. Use the same password for all the sheets. When the sheet is locked, password is not set or in case of error settings, it cannot be created.
Report Management

Specify whether to create report for each group.
Changes from * → (Blank) → P on clicking each frame.
"-" indicates that the sheet is not created.
Report is not created for the group for which the sheet is not created.
Report is created for the group having * mark and not created for the group having (Blank) mark.
For the group with P mark, report is created and then printed.

Create daily report

Daily report of the groups marked with * mark in the daily report column of report management is created on the basis of the contents in daily report sheet.
(1) Specify the period for creating the daily report. Select the start date and the end date.
(2) Daily report is created after reading the acquired data.
(3) On creating the daily report, it is added in the "Created Reports" list.
Create monthly report

The monthly report of the groups marked with * mark in the monthly report column of the report management are created on the basis of contents on monthly report sheet.

(1) Specify the period for creating the monthly report.
   Select the start month and the end month.

(2) Create a monthly report after reading the daily report.
(3) On creating the monthly report, it is added in the "Created Reports" list.

Edit Report Sheet

Each report is created on the respective sheets.
Frame of the table, formula, fixed character indicating the cell contents and settings related to printing should be created for the sheet beforehand.

Edit Daily Report

In daily report sheet, the contents created on "daily report" sheet are output as daily report.
(1) Create frame, fixed character string etc. for the daily report.
(2) Open the input screen by double-clicking on the cell where the data is to be pasted.

Select the data channel. If "Recording time" is selected, the time is computed in place of data. Use this for displaying time in the report.

Use this area when the input setup is to be input consecutively in the time or channel direction.

Select the function applied to inserted data.

Select whether the computations such as averaging or maximum are applied to the entire day or to the data of specified time range.

When this is checked and the computation result is an error, the result is displayed as a blank instead of an error indication.

(3) After setting each item, Formula is written in the cell on clicking "OK".

(4) After the creation is complete, "Save as" the file and then close it.
Edit monthly report sheet

In monthly report sheet, the contents created on "monthly report" sheet are output as monthly report.

(1) Create frame, fixed character string etc. for the monthly report.

(2) Open the input screen by double-clicking on the cell where the data is to be pasted.

Specify the position of daily report data to be used. When the cursor is placed here, the daily report contents are displayed; click on the desired cell.

Use this area when the input setup is to be input consecutively in the time or channel direction.

Select whether a computation such as averaging or maximum is applied to the entire month or to the data of the specified days. When [Specified days] is selected, it is not permitted to select the function type but the data in the specified position of the specified day is loaded simply.

When this is checked and the computation result is an error, the result is displayed as a blank instead of an error indication.

(3) After setting each item, Formula is written in the cell on clicking "OK".

(4) After the creation is complete, "Save as" the file and then close it.
OMEGAnet® Online Service
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Servicing North America:

U.S.A.:
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Stamford, CT 06907-0047
TEL: (203) 359-1660
FAX: (203) 359-7700
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Canada:
976 Bergar
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FAX: (514) 856-6886
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Mexico:
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 FAX: (01) 203-359-7807
 e-mail: espanol@omega.com
 info@omega.com.mx

Servicing Europe:

Czech Republic:
Frystatska 184, 733 01 Karvina, Czech Republic
TEL: +420 (0)59 6311899
FAX: +420 (0)59 6311114
Toll Free: 0800-1-66342
 e-mail: info@omegashop.cz

Germany/Austria:
Daimlerstrasse 26, D-75392 Deckenpfronn, Germany
TEL: +49 (0)7056 9398-0
FAX: +49 (0)7056 9398-29
Toll Free in Germany: 0800 639 7678
 e-mail: info@omega.de

United Kingdom:
One Omega Drive, River Bend Technology Centre
Northbank, Irlam, Manchester
M44 5BD United Kingdom
TEL: +44 (0)161 777 6611
FAX: +44 (0)161 777 6622
Toll Free in United Kingdom: 0800-488-488
 e-mail: sales@omega.co.uk

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