# EView

## HART configuration software

## PROGRAMMING INSTRUCTIONS

1.x version

Manufacturer:
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# 1. GENERAL

### The HART signal

HART ("Highway Addressable Remote Transducer") is a popular digital communication protocol designed for industrial process measurement applications. The special feature is that it uses a low-level modulation superimposed on the standard 4…20 mA current loop, which is now widely used for such measurements. Because the HART signal is small, and composed of sine waves, its average value is zero and does not significantly affect the accuracy of the analogue current signal, which can therefore still be used. This provides compatibility with existing systems, while allowing simultaneous digital communication for device configuration, status checking, diagnostics and so forth.

### *EView* (*Eview* light) software

has been designed for detection, polling and viewing data as well as remote programming of Nivelco's ultrasonic compact level transmitter EchoTREK/EasyTREK provided with HART interface (models of EchoTREK S❑❑-3❑❑-**4** or S❑❑-3❑❑-**8** / EasyTREK SCA-3❑❑-**4**). (*Eview* light is used for remote programming and viewing of - i.e. applications with - one EchoTREK/EasyTREK).

Installed in a PC the software allows the menu driven **remote programming** (device parameters + HART commands) with the exception of the access to the diagnostic, simulation and calibration functions of the EchoTREK/EasyTREK. The software supports cyclic **polling** i.e. collecting data from the EchoTREK/EasyTREK units **detected** (identified) and viewing of the measurement data.

The functions in details:

- Detection of the EchoTREK/EasyTREK (also in Multidrop operation mode)
- Universal HART commands – for viewing of primary measurement data of field devices other than EchoTREK/EasyTREK
- EchoTREK/EasyTREK device specific commands
    - Parameter: downloading from field device
    - Parameter: editing, uploading into the field device
    - Parameter: saving on hard disc
    - Linearisation table: downloading from field device
    - Linearisation table: editing, uploading into the field device
    - Linearisation table: saving on hard disc
    - Viewing Echo Map
    - Viewing informational parameter
    - Reset aggregated value TOT1
    - Use of the secret code

**Note:** Although descriptive features of the Profiler window makes setting of parameters easier in remote programming, the profound knowledge of the parameter system of the EchoTREK/EasyTREK is indispensable.

*Eview* can not be applied for data logging.

*Eview* is acting as primary master on the network. While running the programme, the use of an active secondary (hand held) master unit is forbidden.

## 2. NETWORK ARRANGEMENT

| PC | Modem | EchoTREK |
|---|---|---|
| IBM PC/AT compatible, with<br>Windows 98 and with<br>5MB hard disk capacity for Eview only | Any Hart-RS232 converter available in the market | S❑❑-3❑❑-4 or<br>S❑❑-3❑❑-8<br>**EasyTREK**<br>SCA-3 ❑❑-4 |

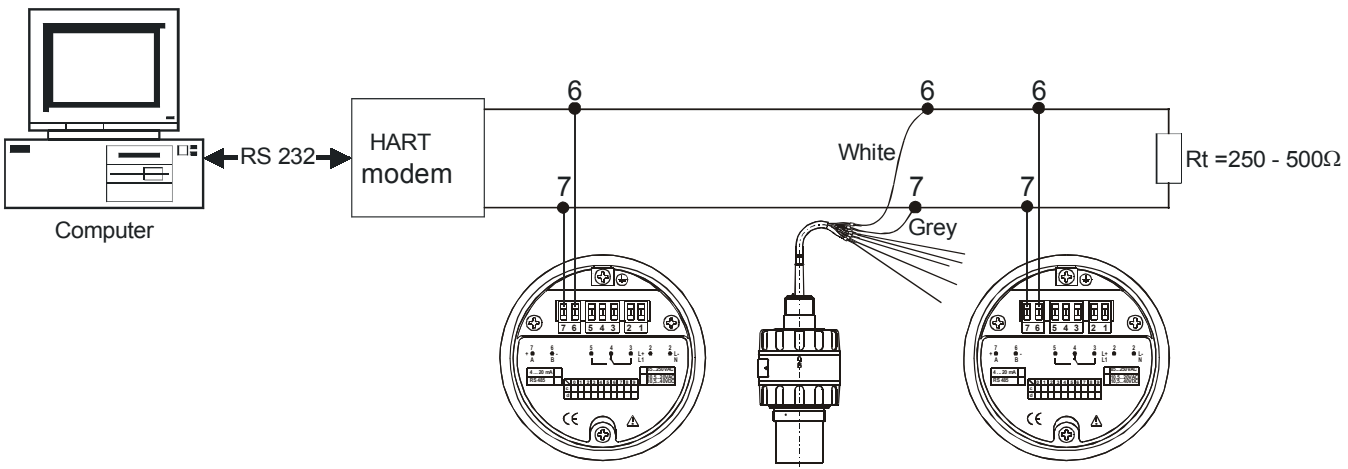


***Figure 1***

## 3. INSTALLATION OF THE SOFTWARE

Run the **Setup.exe** on the Floppy disc attached.

**Note!** For correct operation of the HART modem, the software will change the windows serial driver called "serial.vxd". The original driver will be renamed to "serial.vx". The new driver handles the RS232 serial port handshake line (RTS) differently from standard applications. If you have any problem with this serial port in another application, then change back the serial driver to the original one and restart your Windows.

# 4. INTRODUCTION OF THE SOFTWARE

## 3.1 Start running:

For starting follow the standard windows procedure: enter Windows, Start menu ⇒Program/Nivelco/Eview.

## 3.2 Arrangement of and information on the main window

After start up the following screen (Figure 2 ) will be seen

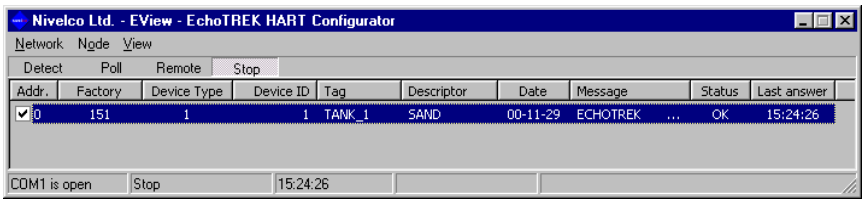


***Figure 2***

Fields of the main window:

- Menu bar (Network, Node, View)
- Speed buttons (Detect, Poll, Remote, Stop)
- Network node list (Addr., Factor, Device type etc)
- Status bar (Status of com. port, programme etc)

Information of the node list:

- **Address**: of the field device, "0" for single device 1 ... 15 for network with more than one device
- **Factory**: code assigned to Nivelco by HART Communication Foundation (fixed: 151)
  **Device type**: Nivelco's device No1 with HART communication (for EchoTREK fixed 1, for EasyTREK fixed 2)
- **Device ID**: electronic serial No of the device type (assigned by the factory)
- **Tag**: 8 byte field provided for the user to identify device within the process
- **Descriptor**: 16 byte field offered to the user to identify the process medium
- **Date**: Timestamp of the last change of Tag or Descriptor
- **Message**: 32 byte field offered to the user to edit any message
- **Status**: Result of the last device query or programming attempt
- **Last answer**: Timestamp of the last device query

*Note: The relevant data of the node list are stored in the field device.*

Operation modes, menus, speed buttons:

| Menu | Speed button | Function |
|---|---|---|
| Network \| Detect | *Detect* | Scanning and detection of EchoTREKs/EasyTREKs by address |
| Network \| Poll | *Poll* | Continuous polling of checked devices |
| Node \| Remote Programming | *Remote* | Remote programming of the highlighted device |
| Network \| Stop | *Stop* | Stop |

# 5. OPERATION OF THE NETWORK

## 5.1 Addressing devices

Establishing a new network, devices have to be addressed first either through HART or in Parameter P19 of the EchoTREK (Please note that this parameter can be accessed by the plug-in programming module SAP-100). EasyTREK can only be addressed through HART only.
Up to 15 devices can be integrated in a network with addresses from 1 to 15.
It is recommended to assign address "0" to the single device (if using one EchoTREK/EasyTREK and ***Eview* light**) and not assign "0" in a network with more than one device, becausea unit with address "0" found first by the programme, will be considered as the only one and detection as completed.
Analogue signal of a device with address "0" provide output information while the analogue signal of devices with address other than "0" will be fixed to 4 mA.
**Note: Do not assign the same address to more than one device!**

## 5.2 Programming and access to the features of the operation:

After addressing let device(s) be identified by clicking on the speed button *Detect* or pressing key F5. In case of successful detection, node list of all field devices will appear in the window. For programming select the field device (to be programmed) and Remote Programming by clicking on the relevant node list and speed button *Remote.* The following groups called by pressing the relevant tabs are used for programming and viewing.

- HART Standard: process data of the actual application (Figure 3)
- Parameters: setting parameters of the field devices (Figure 4 and 5)
- Linearisation Table(Figure 6)
- Echo Map viewing(Figure 7)
- Informational parameters (viewing), Reset TOT1, using Secret Code (Figure 8)

### Setting Hart Standard

Chose Hart Standard by pressing the relevant tab (Figure 3). Select devices by the use of (combo box) *Polling address* and write (or overwrite) Tag, Descriptor, Date and Message for all EchoTREKs/EasyTREK according to the actual application. Text and data can be entered here and saved by pressing button *Write Tag, Descriptor* etc. Since these data are part of the node list they will be sent to and stored in the field device.
The two buttons *Read ...* are useful for checking, whether the proper text/data have been saved in the field device.

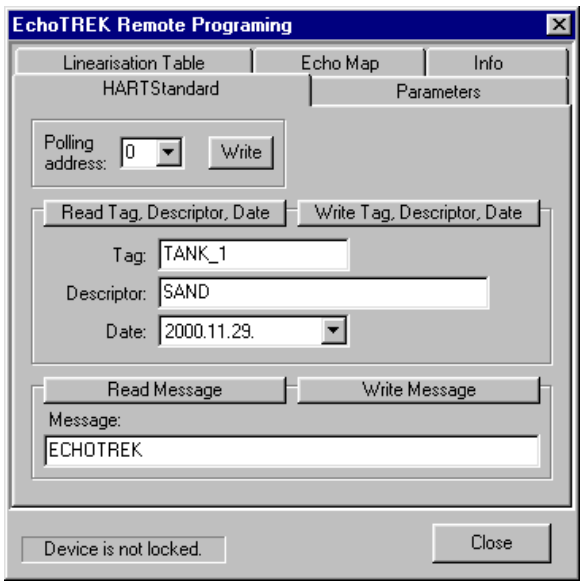


***Figure 3***

## Setting EchoTREK/EasyTREK parameters

Setting parameters can be made either directly or using the window Profiler.

Setting parameters directly (Figure 4) means to click twice on the parameter to be changed resulting in the appearance of an editing window. Modification of the parameter will be made by clicking on the OK button of the editing window. Is the attempt refused (e.g. due to value being out of the range or invalid code for the parameter) Error indication appears under Status and the previous value will not be changed.

Profiler windows (Figure 5), based on the Programming Manual of EchoTREK/EasyTREK, represent descriptive environment of the parameters, and provide possibility of easy setting. By the use of the five tabs (representing parameter groups) parameters can be accessed and modified. Closing Profiler window, parameters can be viewed (and possibly checked) in the Remote Programme window (Figure 4) before sending to the field devices by pressing speed button *Send*. Is the attempt refused (e.g. due to value being out of the range or invalid code for the parameter) Error indication appears under Status and the previous value will not be modified.

**Note**: setting Parameter P00 represents a special handling since changing of this parameter will result in loading factory default with the correspondent engineering unit.

Parameters set in the window can be saved in file, so that they can be used for sending whole parameter table to field devices with the same application i.e. same parameters. For speed buttons *Load, Save, Profiler, Get* and *Send* and their functions see table below

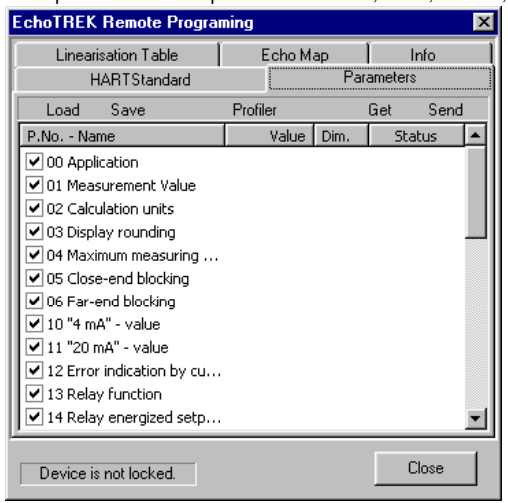


***Figure 4***

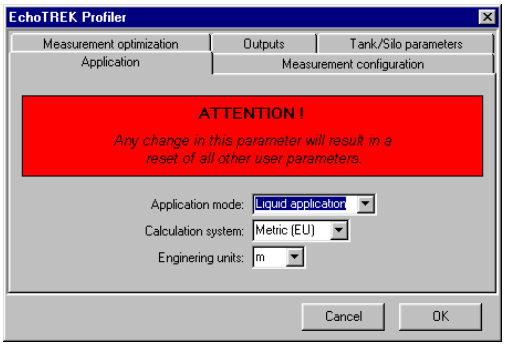


***Figure 5***

| Button | Function |
|---|---|
| *Load* | Loading parameter table from file |
| *Save* | Saving parameter table in file |
| *Profiler* | Series of datasheets for parameter setting |
| ***Get*** | Loading parameter table from field device |
| ***Send*** | Sending parameter table to field device |

## Linearisation table.

Clicking on the relevant tab the *Linearisation* Table can be accessed (Figure 6). Left- or right-value of data-pairs can be accessed by clicking twice on the appropriate row. Values modified in the *Editing* Window has to be sent to the field device, which is checking the modification for correctness. Is the modification not correct, Error indication appears under Status and the previous value will not be changed. Is the modification correct, OK appears under Status and the table can be loaded and saved in file for further use.

For speed buttons *Load, Save, Get* and *Send* and their functions see table below.

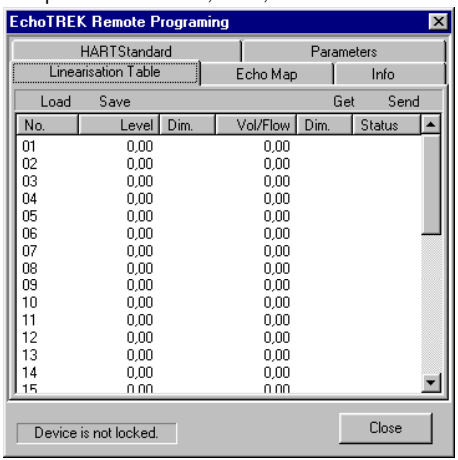


*Figure 6*

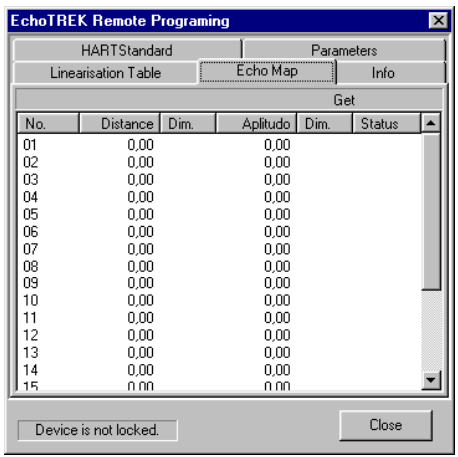


*Figure 7*

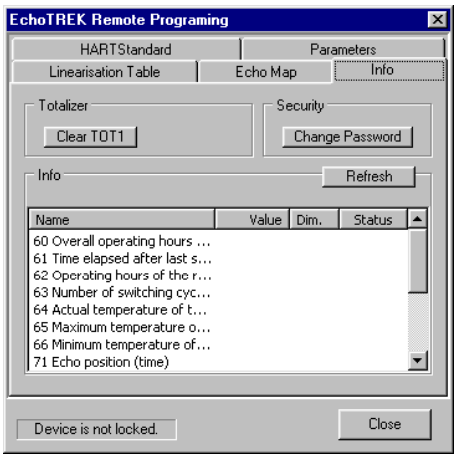


*Figure 8*

| Button | Function |
|---|---|
| *Load* | Loading linearisation table from file |
| *Save* | Saving linearisation table in file |
| ***Get*** | Loading linearisation table from field device |
| ***Send*** | Sending linearisation table to field device |

## Viewing Echo Map

Clicking on the relevant tab the blank table of the Echo-Map will appear (Figure 7). For viewing actual Echo-Map of the relevant field device click on speed button *Get*.

## Informational parameters – Resetting TOT1 – Secret Code

Clicking on the Info tab the table of the informational parameters can be accessed (Figure 8). For viewing actual information of the relevant field device click on the *Refresh* button.

Clicking on box Clear TOT1 will reset the aggregate value to 0.
The use of the window appearing after clicking on box Change Password is self-explanatory.

## 5.3 Measuring

Measurement results can be accessed in the Main window (Figure 2). Let the device(s) be identified by clicking on the speed button *Detect* or pressing key F5. In case of successful detection, node list of all field devices will appear in the Main window.

Each device has a measurement window, for viewing the main data of the measurement (Figure 9). Putting/removing stroke into/from the plain window at the left end of the node list (see Figure 2) will result in appearing/disappearing of the measurement window on/from the screen.

| Number on Fig 9 | Explanation |
|---|---|
| 1 | Analogue signal |
| 2 | Level measured (LEV) |
| 3 | Button for switch over btw.TOT1 and TOT2 in operation mode FLOW |
| 4 | Operation mode selected |
| 5 | Relay status |
| 6 | Place for warning of *Pt Error* |
| 7 | Measured value |

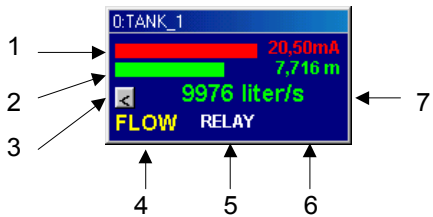


***Figure 9***