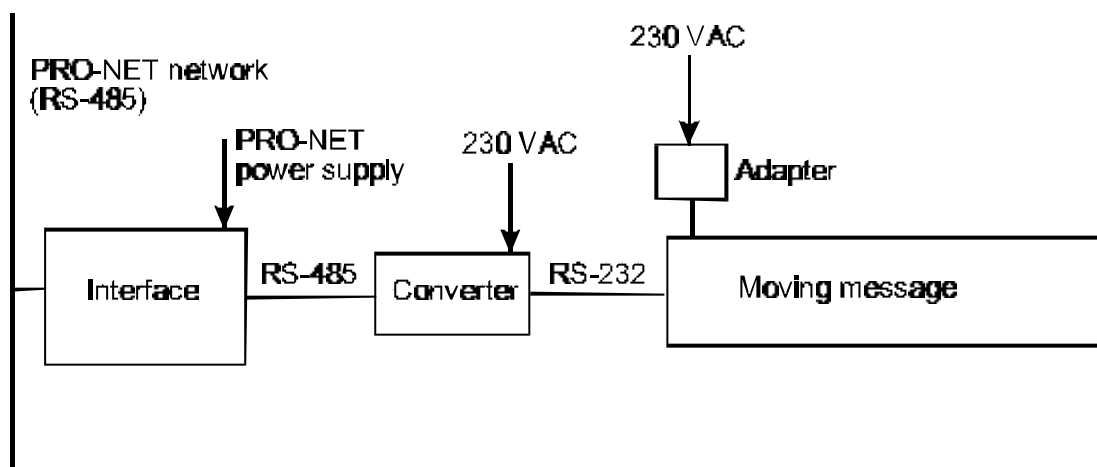


## PRO-NET Moving Message

A moving message display can show measured values and text. It is programmable through the PRO-NET application program.

A moving message is connected to the PRO-NET network through an interface board. This interface board has two RS-485 ports. With one port, it communicates with the PRO-NET master through the PRO-NET RS-485 network, and through the other port it sends information to the moving message. A converter is supplied with the moving message to convert the RS-485 signals to RS-232 at the site of the moving message.

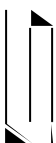


A moving message interface can be connected anywhere on the PRO-NET network.

## How it works

The moving message has a memory of 64 lines of 15 characters each. The first 63 lines are shown one by one at a preset rate. Empty lines are skipped. When all lines (1..63) have been processed, the process starts all over again. The rate at which the lines are shown (the scan speed) can be programmed in the application program. It is independent from the sample period of the PRO-NET system.

Line 64 takes no part in the showing sequence. It can be shown immediately when required. Line 64 can be used to overrule the fixed sequence in which the first 63 lines are presented.



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The texts and/or numbers that appear on the moving message are programmable. There are instructions to print text to a certain line and character position of the moving message. All formatting instructions that are available for the printer as described in the PRO-NET manual, are also available for the moving message texts and numbers. Furthermore the way in which the lines appear on the display can be set for each line (scrolling up, down, left, right, opening from the middle of the line etc.)

The moving message keeps showing the first 63 lines at the set rate, independent of the programming of the lines. The timing of the actual appearance of the information is not related to the moment that the lines are programmed into the display by the application program. Information that must be shown immediately can be programmed to line 64. Line 64 can be activated immediately when programmed. It is shown until it is deactivated again by the application program. How this is done is described below.

With SELLCD and SELPRN instructions the output channel is switched between moving message display and the printer. There must be a SELLCD instruction in the application program before the moving message is programmed.

It is possible to connect both a moving message display interface and a printer interface to the same PRO-NET system. The SELLCD and SELPRN instruction must be used to direct the output.

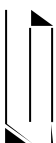
## **Programming the moving message**

Text is programmed with the PLINE instruction. Text must be placed between quotes. Example:  
Print "hello" on the current line.

*PLINE "hello"*

The moving message has 64 lines. The lines are numbered 32 through 95. Each line has 15 characters, numbered 32 through 46. (These numbers are found by adding 31 to the logical line and position numbers.)

Text can be printed on a specified line and a specified position on that line (called the cursor position). To do this, a code must precede the text. The general form of the code is:  
27,"Y",line number, character position



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Example:

Print hello on line 2, position 3 and further.

```
PLINE 27,"Y",33,34,"hello"
```

Numbers are printed to the moving message with the PVALUE instruction. PVALUE prints the last value on stack to the current line and character position. The format of the number can be set with the DIGITS command (refer to the manual for details).

Example:

Print the last value on stack formatted 999.99 at line 43, position 8:

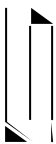
```
DIGITS 3,2
```

```
PLINE 27,"Y",74,39
```

```
PVALUE
```

There is a number of codes that control the cursor position. The moving message display accepts the following codes for the cursor position:

Code	function	remarks
27,"A"	cursor up	has no effect if the cursor is on line 1
27,"B"	cursor down	has no effect if the cursor is on line 64
27,"C"	cursor right	has no effect if the cursor is at position 15
27,"D"	cursor left	has no effect if the cursor is at position 1
27,"E"	cursor on	cursor is made visible
27,"F"	cursor off	cursor is made invisible
27,"H"	cursor home	home is at line 1, position 1
1	cursor home	home is at line 1, position 1
8	backspace	no effect if the cursor is at position 1
10	line feed	goto next line, position 1 if the cursor was on line 63, the display scrolls
13	carriage return	the cursor moves to position 1 on the line
12	reset	display cleared, cursor home, display not blinking
27,"J"	clear rest of display	the display is cleared from the current cursor positon to the end of line 63.
27,"K"	clear rest of line	the line is cleared from the current cursor



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positon to the end of the line

These codes can all be programmed as follows:

PLINE code

Example:

Go to next line, position 1:

*PLINE 10*

Example:

Cursor down one line (position on the line remains the same):

*PLINE 27,"B"*

The codes that make the text blink or displayed steady are:

Code	function	remarks
24	start blinking	the display line where the cursor is placed starts blinking
25	stop blinking	the display line where the cursor is placed stops blinking

Example:

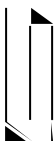
Make line 4 hello, blinking:

*PLINE 27,"Y",35,32,24,"hello"*

As described above, line 64 can be used to overrule the normal display sequence. The codes that make line 64 appear and disappear are:

Code	function	remarks
27,"M"	show line 64	shows line 64 as soon as possible
27,"N"	stop line 64	sets the display back to the showing sequence of the first 63 lines

Example:



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Make line 64 FIRE ALARM, blinking and make it appear as soon as possible:

*PLINE 27,"Y",95,32,24,"FIRE ALARM",27,"M"*

The rate at which lines 1 through 63 are displayed is set with the following code:

Code	function
27,"S",scanspeed	Sets the scanspeed of the showing sequence The scanspeed range is 1 to 10 seconds.The default value is 3 seconds.

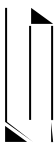
Example:

Set the scanspeed to 5 seconds for each line:

*PLINE 27,"S",5*

There are several ways in which the text can appear on the display. Each line can be programmed to appear in its own specific way. The codes are:

Code	function
27,"L",leadcode	the leadcode determines how a line appears on the display. The range of the leadcode is 1 through 12. 1 = shift left 2 = shift right 3 = scroll up 4 = scroll down 5 = appear (default) 6 = jump on 7 = open left 8 = open right 9 = open up 10 = open down



11 = open <>

12 = open ><

27,"P",leadcodespeed

Sets the speed for the leadcode for all lines. It determines how fast a line will shift, scroll, jump on or open. The range of leadcodespeed is 1 through 5. The highest speed is 5, the lowest is 1. The default value is 3.

Be aware that the scanspeed can be set so fast that the appearance of the text is not completed before the next line appears. Adjust the lead code speed or the scan speed if this is the case.

The moving message can display special characters, as listed below:

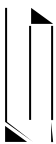
Code

function

27,"W",charcode

The character codes are:

1	Ä
2	ß
3	ç
4	§
5	É
6	£
7	Å
8	Ø
9	ø
10	ì
11	è
12	Æ
13	ä
14	ò
15	Ö
16	ö
17	é
18	æ
19	â



```

20  ù
21  Ü
22  ü
23  ¤
24  °
25  à
26  å
192 |¯
193 ^
194 Ñ
195 ñ
196 0
197 ^
198 =
199
200 i
201 ç

```

## Example program

An example of the use of the moving message in an application program is listed below.

\* PRO-NET application program text.

\* set the sample period

```

PSHI 1
POP stime

```

\* select the moving message rather than the printer

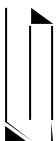
```
SELLCD
```

```
PLINE 27,"S",3          |set scan speed to 3 seconds
```

\* fill some lines that contain fixed text

\* note that this is done only once, when the program starts up

```
initdisplay    PLINE 27,"Y",34,32          |enter fixed display text line 3
```



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```
PLINE "*** PRO-NET ***"  
PLINE 27,"K"          |clear rest of line to make sure  
                      |there are no characters left  
                      |on this line by a former message
```

```
PLINE 27,"Y",35,32    |line 4  
PLINE "MOVING MESSAGE"  
PLINE 27,"K"
```

```
PLINE 27,"Y",36,32    |line 5  
PLINE "more text"  
PLINE 27,"K"
```

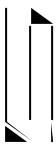
```
PLINE 27,"Y",37,32    |line 6  
PLINE "even more"  
PLINE 27,"K"
```

\* then start the program loop

```
mainloop    WAIT  
           MEASURE
```

\* now fill display with real-time data

```
display    PLINE 27,"Y",32,32    |line 1 is the current date  
           PDATE  
  
           PLINE 27,"Y",33,32    |line 2 the time  
           PTIME  
  
           PLINE 27,"Y",38,32    |line 7 "Temperature:"  
           PLINE "Temperature: "  
  
           PLINE 27,"Y",39,32    |line 8 the real time value  
           GET temperature       |note that this must be a declared  
                                 |and connected signal  
                                 |refer to the manual for details  
  
           DIGITS 2,0
```



```
PVALUE
PLINE " "
PLINE 27,"W",24          |in degrees centigrade
PLINE "C"
PLINE 27,"K"

JMP mainloop            |do this forever

end
```

## Hardware installation

The interface board must be placed in a PRO-NET station. This can be an existing station or a new one. If it is a new station, at least a power supply, PPS, is required.

### Power:

Connect the power terminals of the interface board, numbers 1, 2 and 3 to terminals 1, 2 and 3 of the power supply.

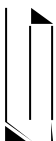
### PRO-NET network:

Connect the network terminals of the interface board, numbers 4, 5 and 6 to the PRO-NET network. The PRO-NET network is always connected to terminals 4, 5 and 6 of the power supply, I/O controller, master and inverter interface boards. See what is installed in the station and add the interface board to the network.

### Connection to the moving message RS-485 to RS-232 converter:

Connect terminals 9 and 11 to terminals 1 and 3 respectively of the DIN connector on the converter.

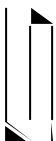
### Connecting the moving message to the RS-485 to RS-232 converter:



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Use the supplied RS-232 cables to connect the moving message. This cable may be extended to a total length of 15 m. max.

PPS	Moving message interface	RS-485 to RS-232 converter	Moving message
1 ⇒	1		
2 ⇒	2		
3 ⇒	3		
4 ⇒	4		
5 ⇒	5		
6 ⇒	6		
	9 ⇒	DIN plug 1	
	11 ⇒	DIN plug 3	
		RS-232 D connector ⇒	RS-232 D connector



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