

User's manual for OPTO-RS cable connections

General

The OPTO-RS cable enables a direct connection with most of the Sylvac measuring instruments to a personal computer, a dedicated printer or to a Sylvac display unit.

It is not only a cable, but an interface which converts the data output of the instrument to a compatible RS232 signal. The periphery instrument connection must be able to supply power to the OPTO-RS plug.

Definition



RS232 communication parameters

4800 baudrate, even parity, 7 data bits, 2 stop bits

Data format

Data

[Sign ; E1-En ; "*" ; F1-Fn ; CR]

Sign : « + », « - », or « space »
E1-En: integer
F1-Fn: fractional
n: depends on used unit and resolution

Errors

["ERR" ; Number ; CR]

0: sensor error (e.g. speed, scale distance) 1: incorrect command
2: parity error (duplex instruments only) 3: exceeded measurement range

Identification

["SY" ; Instr. ; "*" ; OPT1 ; "*" ; OPT2 ; CR]

SY: Sylvac
Instr: 203, 235, 233, etc
OPT1: version option
OPT2: additional version options (according to instrument used)
Note: The id. transmission is done only when switching ON the instrument

Connection description

Two different types of OPTO-RS plug connections are available: Simplex and Duplex

Simplex cable

First generation of OPTO-RS cable connection, designed for instruments which were not able to receive RS232 commands. Data requests are made by LED status change (e.g. by turning off the DTR signal line for a minimum of 110ms).
The OPTO-RS simplex cable can also be used with duplex instruments, however remote commands will be ignored.

The simplex cable can be directly connected to any standard program as "HyperTerminal" provided with Windows.

Connections

Line definition	Name	Sub-D 9 pin	Cable color	Line status
Positive power supply :	RTS	7	white	ON (HIGH)
Negative power supply	TXD	3	brown	OFF (LOW)
Data (instrument to periphery)	RXD	2	yellow	INPUT
Data request:	DTR	4	green	ON (HIGH) OFF (LOW) during min. 110m sec.

Duplex cable

The duplex cable allows a 2-way communication between an instrument and a PC in half-duplex mode (e.g. 2-way communication but not simultaneously).

Important: Only Duplex instruments have the ability to receive RS232 commands. If you use a Duplex cable with a simplex instrument, all commands other than "*" will be seen as a data request.

The pin assignment of a duplex cable is different to the one of a simplex cable.

Connections

Line definition	Name	Sub-D 9 pin	Cable color	Line status
Positive power supply :	DTR	4	white	ON (HIGH)
Negative power supply	RTS	7	brown	OFF (LOW)
Data (instrument to periphery)	RXD	2	yellow	INPUT
Data request:	TXD	3	green	"*" <- CR >

Note: In case of data sending from the instrument, the hold mode will be active. To disable the Hold mode simply do a new data request.

Remote commands

Format

[C1-Cn ; { S1-Sn } ; CR]

C1-Cn: command of 2 to 3 characters
S1-Sn: 0/1 : command disabled/activated
? : status request
+XXX.YYY: entering numerical values

List of remote commands

This list shows the main remote commands applied using DUPLEX instruments.

<NOR>	Places the instrument in Measuring mode (or in Reference mode if the keyboard is disabled)
<MOD?>	The instrument sends its operating mode (NOR, REF, MIN, MAX, DEL, TOL1)
<STO0>, <STO1>	Disables, enables measuring value freeze
<RST>	Resets the instrument to its initial parameters
<SET?>	The instrument sends its main parameters: (MM RES2 REF1 etc) Note: B1 battery OK, B0 replace the battery
<ID?>	The instrument sends its identification code:
<OUT0>, <OUT1>	Disables, enables continuous transfer of the displayed value
<OFF>	Switches off the instrument
<ON>	Switches on the instrument (No command echo when the instrument is switched on!)
<PRI>, <?>	The instrument sends the displayed value. Note: in tolerance mode, the value is followed by the symbols '<', '=' or '>'.
<MM>, <IN>	Changes the measurement unit
<RES2>, <RES3>	Changes the resolution: <RES2>: 0.001 mm, <RES3>: 0.01 mm
<REF1>, <REF2>	Changes the reference
<PRE>	Recalls the preset

<PRE?>	The instrument sends the preset value of the active reference
<PRE +123.45>	Enter preset. Numeric values must always be preceded by a sign.
<PRE +0>	

Refer to the user's manual of the specific instrument for special applications.

Program samples

Standard Basic

Simplex cable

Serial port opening and parameters	OPEN "COM1:4800,E,7,2,PE"
Power supply setting (RTS=ON, DTR = ON) &H3FC register address (COM2: &H2FC)	OUT &H3FC,&H0B
Set DTR line OFF (RTS=ON, DTR = OFF)	OUT &H3FC,&H0A
Data reading	Line input #1,a\$

Duplex cable

Serial port opening and parameters	OPEN "COM1:4800, E, 7, 2, PE"
Power supply setting (RTS=OFF, DTR = ON) &H3FC register address (COM2: &H2FC)	OUT &H3FC,&H09
Data request (<CR> will be automatic using this command)	PRINT #1, "?"
Data reading	LINE INPUT #1,a\$

Visual Basic

The communication control (MsComm) of VisualBasic must be applied :

Port opening	' Use COM1. Comm1.CommPort = 1 ' 4800 baud, even parity, 7 data, and 2 stop bit. Comm1.Settings = "4800,E,7,2" ' Open the port. Comm1.PortOpen = True
Power supply setting	' Simplex Cable' Form1.MSComm1.DTREnable = True Form1.MSComm1.RTSEnable = True ' Duplex Cable' Form1.MSComm1.DTREnable = True Form1.MSComm1.RTSEnable = False
Data request	' Simplex Cable' MSComm1.DTREnable = False Timer1.Interval = 150 Timer1.Enabled = True ' Duplex cable + duplex instrument' MSComm1.Output = "?" + Chr\$(13) ' Duplex cable + simplex instrument' MSComm1.Break = True ' Incremente Timer1.Interval in case of no transmission' Timer1.Interval = 10 Timer1.Enabled = True MSComm1.Break = False
Data reading	InString\$ = Comm1.Input

For more information, refer to the help menu of MSComm in Visual Basic. Program available on www.sylvac.ch web site.

Application program

OPTO-RS test

This program is available free of charge on the Sylvac web site or at your distributor. It is a Visual Basic program with all source files for testing connections and transmission.

WinWedge

WinWedge is designed to transfer any data obtained using Sylvac measuring instruments to a computer application program running under Windows.

Different versions of the WinWedge program are available (light, professional, Windows CE). For more information contact TAL Technologies, Inc. or consult the www.taltech.com web site.

A light version of WinWedge named GageWedge is available free of charge on the Sylvac web site or at your distributor. However, this program version has restrictions regarding data transfer from the instrument.

Hyperterminal

This program is available as standard with Windows 95, 98, 2000 and Me (millenium). It can only be used with a simplex cable and as data transmission from the instrument.

Parameter:

- In menu [connect to], select	[connection using]	Directed to {n}
- In menu [parameter], select	[terminal keyboard] [emulation]	Suppr. ANSI
- In menu [port parameters], select :	[bits/sec] [data bits] [parity] [stop bits] [Flux control]	4800 7 Even 2 None

Specifications

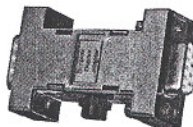
Connection.....	RS232 compatible, Dsub 9p female or open from periphery, with TXD, DTR and RTS lines
Power supply	4800 bds, even parity, 7 data bits, 2 stop bits
Data transmission parameters.....	15 m according to IEC standards
Max. cable length.....	4-8/sec (depends on the instrument connected)
Number of transmissions /sec.....	[Sign E1-En ** F1-Fn CR]
Data transmission format.....	["ERR" Number CR]

Option

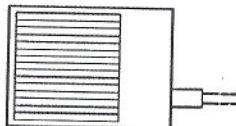
Model						
	Standard		Left		Right	
Connection cable	Simplex	Duplex	Simplex	Duplex	Simplex	Duplex
PC-AT 2m (Dsub 9p)	✓	✓	---	✓	---	✓
PC-AT 15m (Dsub 9p)	✓	✓	---	✓	---	✓
Open 2m		✓		✓		✓
Open 15m		✓		✓		✓
PC-AT + foot pedal input (2m)	---	✓	---	---	---	---

Important : always check the cable output depending on used measuring instrument.

Accessories



Simplex-Duplex adaptor with foot pedal input (Binder plug 719)
The foot pedal input must be software aided (CTS input).
See OPTO-RS demo program on site www.sylvac.ch



Foot pedal with Binder plug

Please check web site www.sylvac.ch for available accessories.



Modifications reserved