CHECK·LINE®
BY ELECTROMATIC

# J-CC Data Cable

## Operating Instructions

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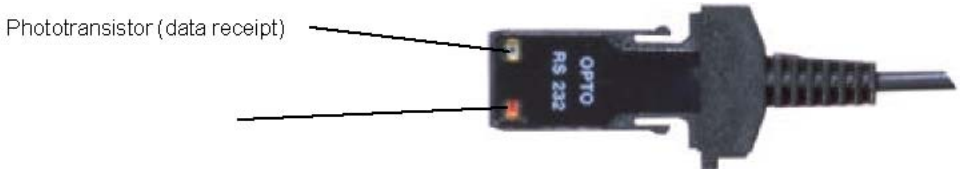
# User's manual for OPTO-RS cable connections

## *General*

The OPTO-RS cable enables a direct connection with most of the Käfer measuring instruments to a personal computer, a dedicated printer or to a Käfer 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: Standard status 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 simultanuously).
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)<br>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>**<br>**<PRE +0>** | Enter preset. Numeric values must always be preceded by a sign. |

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<br>*(RTS=ON, DTR = ON)*<br>*&H3FC register addresse (COM2: &H2FC*) | OUT &H3FC,&H0B |
| Set DTR line OFF<br>*(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<br>*(RTS=OFF, DTR = ON)*<br>*&H3FC register addresse (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.<br>Comm1.CommPort = 1<br>' 4800 baud, even parity, 7 data, and 2 stop bit. Comm1.Settings = "4800,E,7,2"<br><br>' Open the port. Comm1.PortOpen = True |
| Power supply setting | ' Simplex Cable' Form1.MSComm1.DTREnable = True<br><br>Form1.MSComm1.RTSEnable = True<br>' Duplex Cable' Form1.MSComm1.DTREnable = True<br><br>Form1.MSComm1.RTSEnable = False |
| Data request | ' Simplex Cable' MSComm1.DTREnable = False<br><br>Timer1.Interval = 150<br>Timer1.Enabled = True<br><br>'Duplex cable + duplex instrument' MSComm1.Output = "?" + Chr$(13)<br><br>'Duplex cable + simplex instrument' MSComm1.Break = True<br>'Incremente Timer1.Interval in case of no transmission'<br>Timer1.Interval = 10<br>Timer1.Enabled = True<br>MSComm1.Break = False |
| Data reading | InString$ = 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 Käfer 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 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] **Suppr.** [emulation] **ANSI**
-In menu [port parameters], select :

| | |
|---|---|
| [bits/sec] | **4800** |
| [data bits] | **7** |
| [parity] | **Even** |
| [stop bits] | **2** |
| [Flux control] | **None** |

## *Specifications*

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

[ "ERR" ¦ Number ¦ CR ]

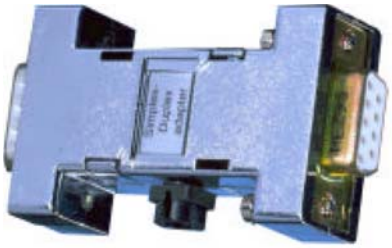
***Option***

| 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 (Binderplug 719)
The foot pedal input must be software aided (CTS input).
Foot pedal with Binder plug



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