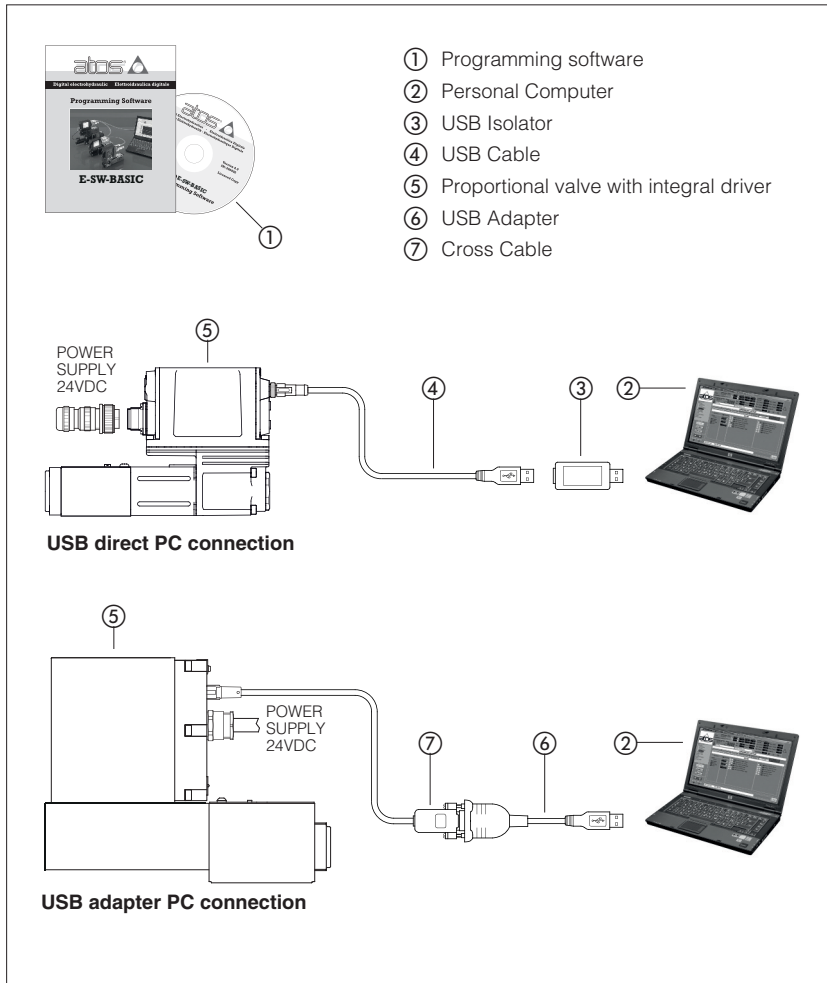


# Programming tools for digital electronics

Atos PC software, USB adapters, cables and terminators



The E-SW and Z-SW programming software are the entry door to the Atos digital technology. They are supplied in DVD format and can be easily installed on a desktop or a notebook computer. The intuitive graphic interface allows:

- set up valve's functional parameters
- verify the actual working conditions
- identify and quickly solve fault conditions
- adapt the factory preset parameters to the application requirements
- store the customized setting into the valve
- archive the customized setting into the PC

The graphic interface is organized in pages related to different specific groups of functions and parameters.

The software automatically recognizes the connected valve model and adapts the displayed parameter groups, according to the selected access level.

The software is available in different versions according to the driver and controller communication interfacing.

Fieldbus communication software includes also dedicated manuals and configuration files for user self management of the Atos electronics, using a fieldbus master.

**Features:**

- automatic valve recognition
- multilevel graphic interface
- numeric parameters settings (scale, bias, ramp, linearization, dither, etc.)
- real-time parameters modification
- diagnostic and monitor signals
- preset data storing into the digital driver and controller
- internal oscilloscope function
- internal database of customized preset

**DVD contents:**

- software installer
- user and fieldbus communication manuals
- fieldbus configuration files

**1 PROGRAMMING SOFTWARE**

Valve's functional parameters can be easily set up with Atos E-SW / Z-SW programming software using proper connection to the digital driver/controller.

<b>E - SW</b>	-	<b>BASIC</b>	/	<b>*</b>	-	<b>*</b>
<p><b>E-SW</b> = for valve drivers</p> <p>Supported communication interfaces:</p> <p><b>BASIC</b> = NP (USB)      PS (Serial)      IR (Infrared)</p> <p><b>FIELDBUS</b> = BC (CANopen)    BP (PROFIBUS DP)    EH (EtherCAT)</p> <p>EW (POWERLINK)    EI (EtherNet/IP)    EP (PROFINET IRT)</p>				<p>Option:</p> <p><b>PQ</b> = for drivers with alternated P/Q controls SP, SF, SL</p>		

**Notes:** E-SW-FIELDBUS allows EtherCAT, POWERLINK, EtherNet/IP and PROFINET IRT drivers programming only through USB or Serial communication port. E-SW-\*/PQ software supports the programming of valves without alternated P/Q control SP, SF, SL

<b>Z - SW</b>	-	<b>FULL</b>	-	<b>*</b>
<p><b>Z-SW</b> = for axis controllers</p> <p>Supported communication interfaces:</p> <p><b>FULL</b> = NP (USB)      PS (Serial)</p> <p>BC (CANopen)    BP (PROFIBUS DP)    EH (EtherCAT)</p> <p>EW (POWERLINK)    EI (EtherNet/IP)    EP (PROFINET IRT)</p>		<p>Supplies:</p> <p>- = first supply</p> <p><b>N</b> = next supply</p>		

**Note:** Z-SW-FULL allows EtherCAT, POWERLINK, EtherNet/IP and PROFINET IRT controllers programming only through USB communication port

Free programming software, **web download**:

**E-SW-BASIC**

Software can be downloaded upon web registration at [www.download atos.com](http://www.download atos.com); service and DVD not included  
 Upon web registration user receive via email the Activation Code (software free license) and login data to access Atos Download Area

The software remains active for 10 days from the installation date and then it stops until the user inputs the Activation Code

**DVD first supply** of programming software, **to be ordered separately**:

**E-SW-BASIC**

Software has to be activated via web registration at [www.download atos.com](http://www.download atos.com); 1 year service included

**E-SW-BASIC/PQ**

Upon web registration user receive via email the Activation Code (software license) and login data to access personal Atos Download Area.

**E-SW-FIELDBUS**

The software remains active for 10 days from the installation date and then it stops until the user inputs the Activation Code

**Z-SW-FULL**

**DVD next supplies** of programming software, **to be ordered separately**:

**E-SW-BASIC-N**

Only for supplies after the first; service not included, web registration not allowed

**E-SW-BASIC/PQ-N**

Software has to be activated with Activation Code received upon first supply web registration

**E-SW-FIELDBUS-N**

**E-SW-FIELDBUS/PQ-N**

**Z-SW-FULL-N**

**Note:** the software BASIC, FIELDBUS and FULL are NOT interchangeable and must be ordered separately

Programming software FIELDBUS and FULL can program digital electronics through:

- USB communication port for all standard versions of drivers/controllers
- Serial RS232 communication port for all versions of AES s30 drivers and Z-ME-KZ s10 or higher controllers

**DVD contents**

Include software installer, user manuals and fieldbus configuration files:  
 EDS for BC - GSD for BP - XML for EH - XDD for EW - EDS for EI - GSDML for EP

**Atos Download Area**

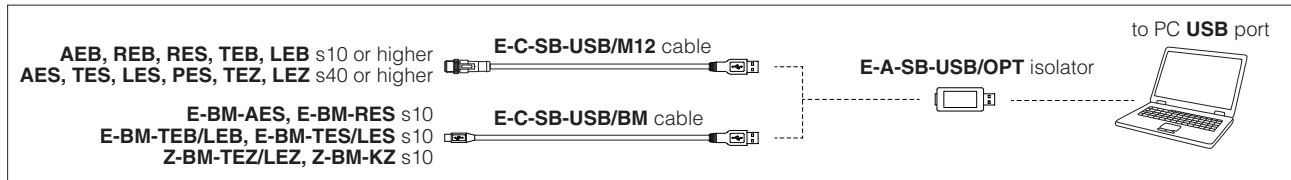
Direct access to latest releases of programming software, manuals, USB drivers and fieldbus configuration files at [www.download atos.com](http://www.download atos.com)  
 Software and USB drivers can be easily installed following the instruction contained in the "info.txt" files.  
 An automatic mailing message will inform all the registered users whenever a new software upgrade is available.

**E-SW / Z-SW minimum PC requirements**

<b>Personal Computer</b>	Pentium® processor 1GHz or equivalent	<b>Memory</b>	512 MB RAM + Hard Disk with 250MB free space
<b>Operating System</b>	Windows XP SP3	<b>Device</b>	Dvd reader
<b>Monitor Resolution</b>	1024 x 768	<b>Interface</b>	Serial RS232 port (only for PS) or USB port

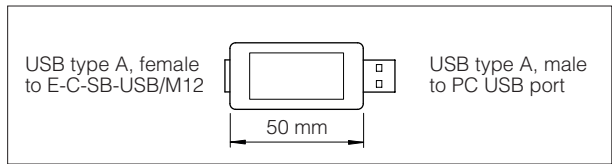
**2 USB - ISOLATOR AND CABLE**

E-SW / Z-SW software permit valve's parameterization through USB port.



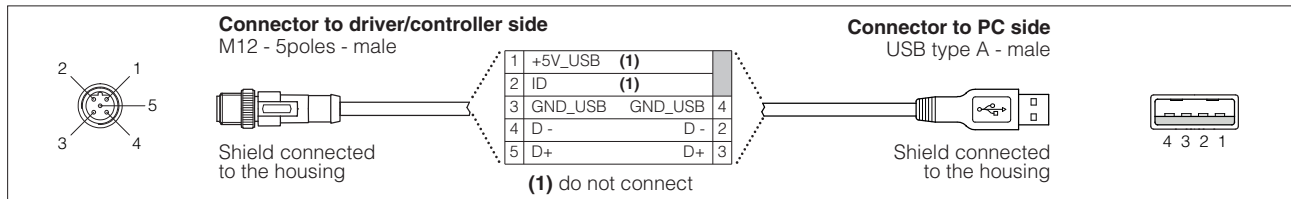
**WARNING: drivers/controllers USB port is not isolated!** Use of USB isolator adapter is highly recommended for PC protection: wrong earthing connections may cause high potential difference between GNDs, generating high currents that could damage the PC connected to drivers/controllers.

**2.1 E-A-SB-USB/OPT - isolator adapter from PC USB port to USB cables**

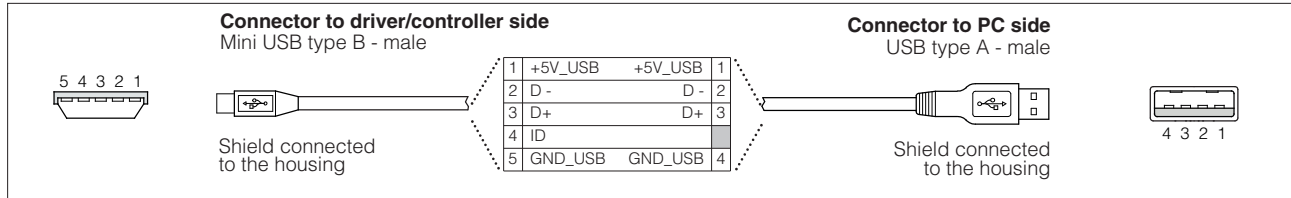


- USB 2.0 Full speed (12 MBps)
- electrical isolation 1 kV
- temperature range, -40° ÷ +50° (relative humidity 25% ÷ 75%)
- external power supply not required (power 400 mA output, 5 V ± 10%)
- MTBF > 1,2 million hours (MIL standard)

**2.2 E-C-SB-USB/M12 - 4 m cable**



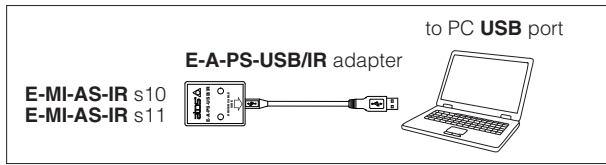
**2.3 E-C-SB-USB/BM - 3 m cable**



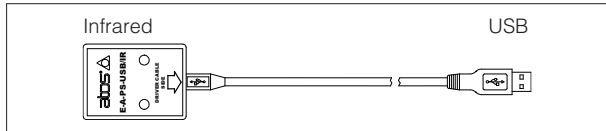
### 3 IR infrared - USB COMMUNICATION ADAPTER

The adapter have to be connected to the USB communication port of PC to activate the IR infrared communication interface towards Atos digital electrohydraulics.

#### 3.1 Connection tools



#### 3.2 E-A-PS-USB/IR - 3 m adapter

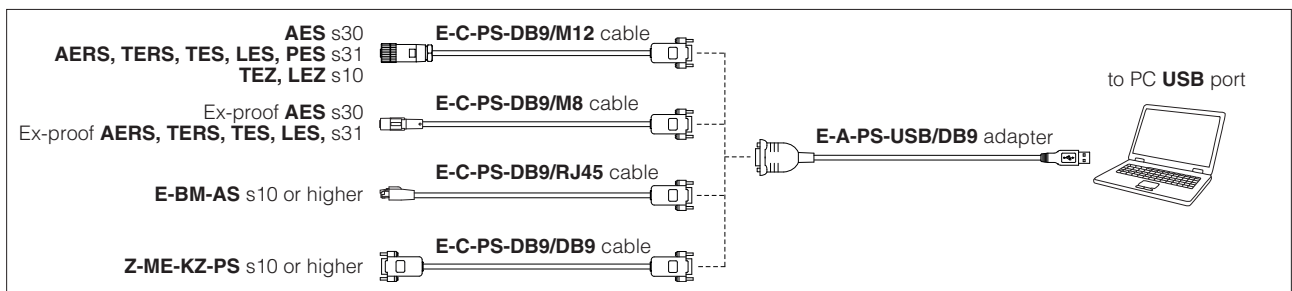


- direct infrared communication with the driver
- USB male connector, type A
- plug-in format for direct infrared connection on the driver
- transmission rate 9,6 kbit/s
- external power supply not required (USB supply)

### 4 PS serial RS232 - USB COMMUNICATION ADAPTER AND CROSS CABLES

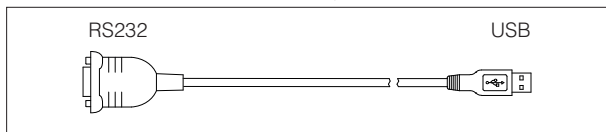
The adapter have to be connected to the USB communication port of PC to activate the PS serial RS232 communication interface towards Atos digital electrohydraulics. The cross cables connect the relevant connector of the USB adapter with the communication port of the digital drivers/controllers.

#### 4.1 Connection tools



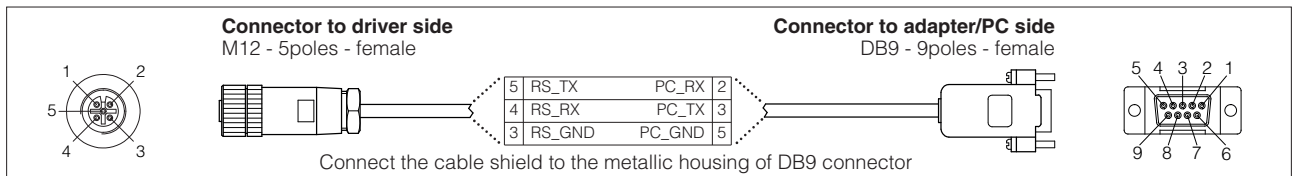
**Note:** the adapter is not required if PC is already equipped with a serial RS232 communication port

#### 4.2 E-A-PS-USB/DB9 - 0,45 m adapter

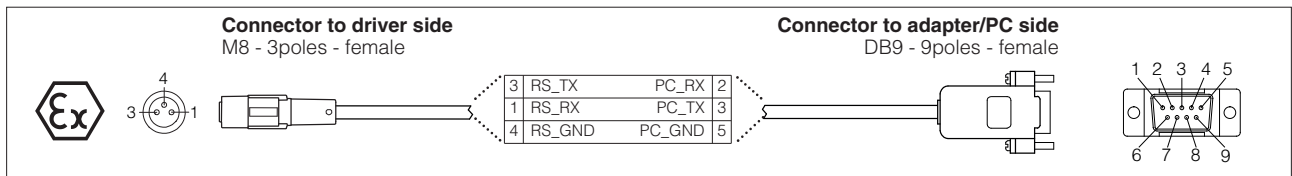


- DB9 male connector according to serial RS232 specification
- USB male connector, type A
- transmission rate from 1,6 kbit/s up to 225 kbit/s
- external power supply not required (USB supply)

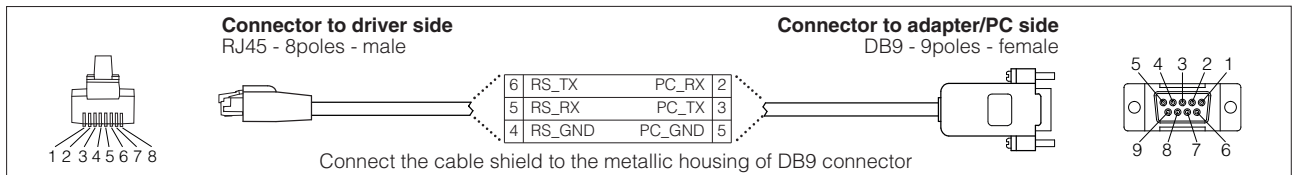
#### 4.3 E-C-PS-DB9/M12 - 4 m cable



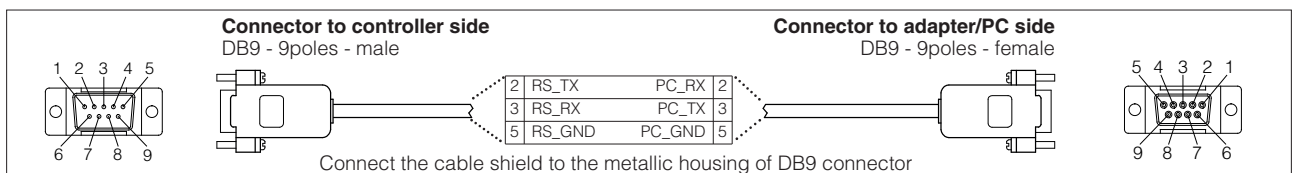
#### 4.4 E-C-PS-DB9/M8 - 4 m cable



#### 4.5 E-C-PS-DB9/RJ45 - 2,5 m cable



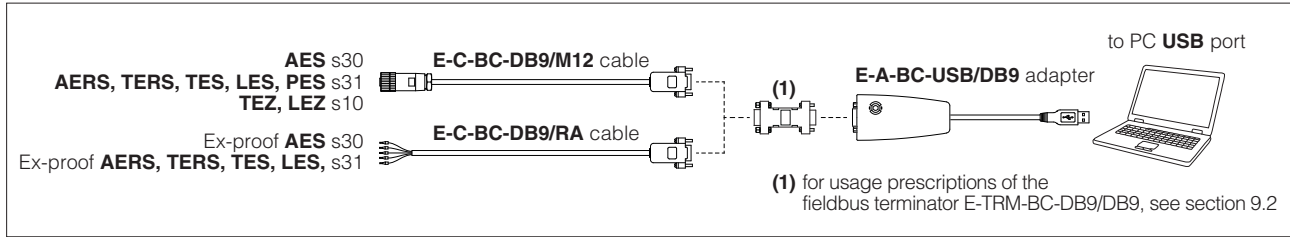
#### 4.6 E-C-PS-DB9/DB9 - 4 m cable



## 5 BC CANbus - USB COMMUNICATION ADAPTER AND CROSS CABLES

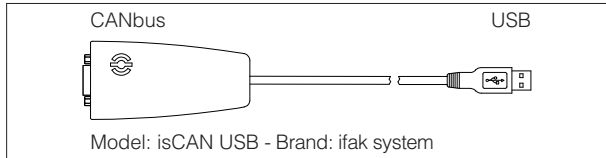
The adapter have to be connected to the USB communication port of PC to activate the BC CANbus communication interface towards Atos digital electrohydraulics. The cross cables connect the relevant connector of the USB adapter with the communication port of the digital drivers/controllers.

### 5.1 Connection tools



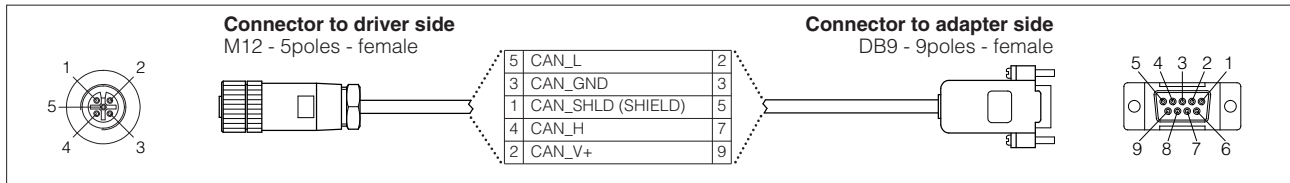
**Note:** for AES s30 drivers the CANbus adapter and cable are not required since driver programming can be performed via serial RS232 communication port, see 4.1

### 5.2 E-A-BC-USB/DB9 - 2 m adapter

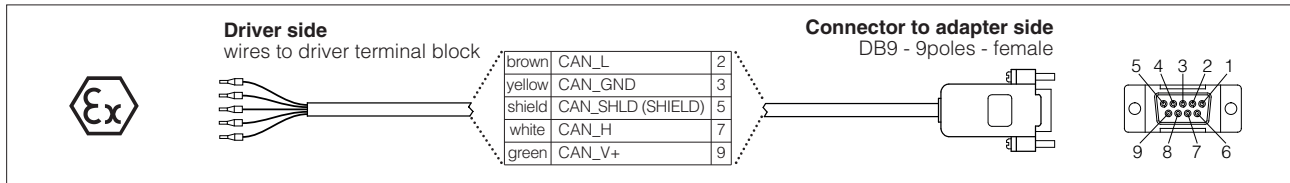


- DB9 male connector according to the CiA specification DR303-1
- USB male connector, type A
- transmission rate from 10 kbit/s to 1 Mbit/s
- external power supply not required (USB supply)
- LEDs indicate the actual working condition

### 5.3 E-C-BC-DB9/M12 - 2 m cable



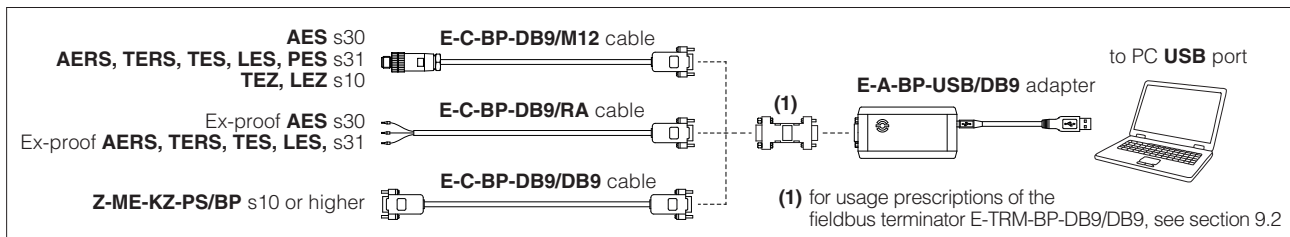
### 5.4 E-C-BC-DB9/RA - 2 m cable



## 6 BP PROFIBUS - USB COMMUNICATION ADAPTER AND CROSS CABLES

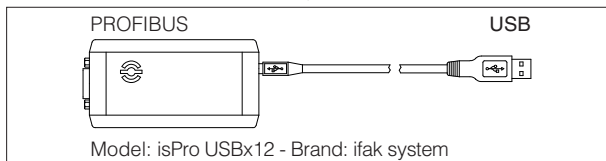
The adapter have to be connected to the USB communication port of PC to activate the BP PROFIBUS communication interface towards Atos digital electrohydraulics. The cross cables connect the relevant connector of the USB adapter with the communication port of the digital drivers/controllers.

### 6.1 Connection tools



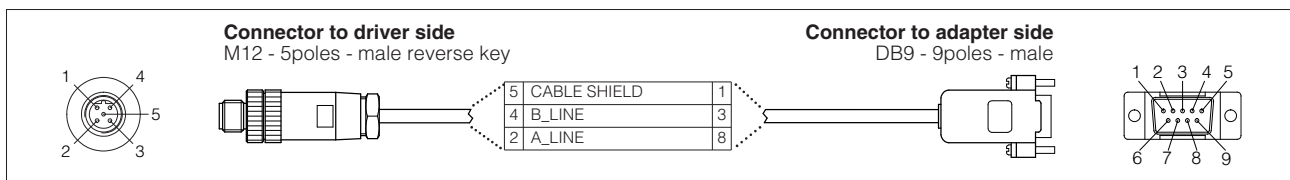
**Note:** for AES s30 drivers and Z-ME-KZ-PS/BP controllers, the PROFIBUS adapter and cable are not required since driver programming can be performed via serial RS232 communication port, see 4.1

### 6.2 E-A-BP-USB/DB9 - 2 m adapter

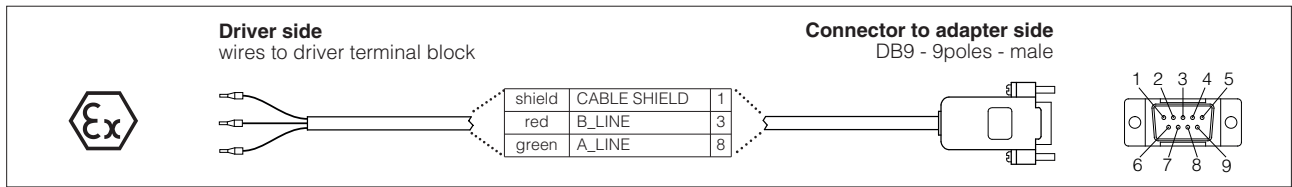


- DB9 female connector according to the PROFIBUS RS485 specification
- USB male connector, type A
- transmission rate from 1,6 kbit/s to 12 Mbit/s
- external power supply not required (USB supply)
- LEDs indicate the actual working condition

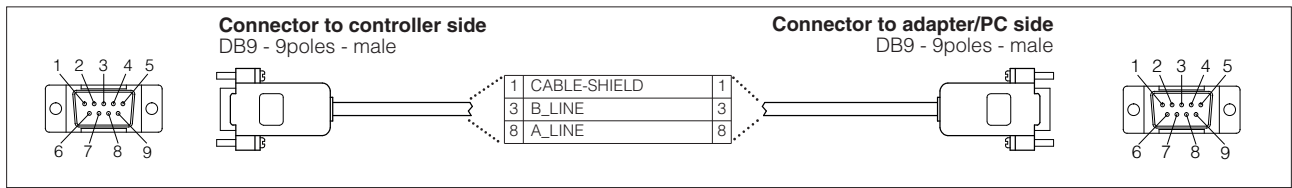
### 6.3 E-C-BP-DB9/M12 - 2 m cable



**6.3 E-C-BP-DB9/RA - 2 m cable**

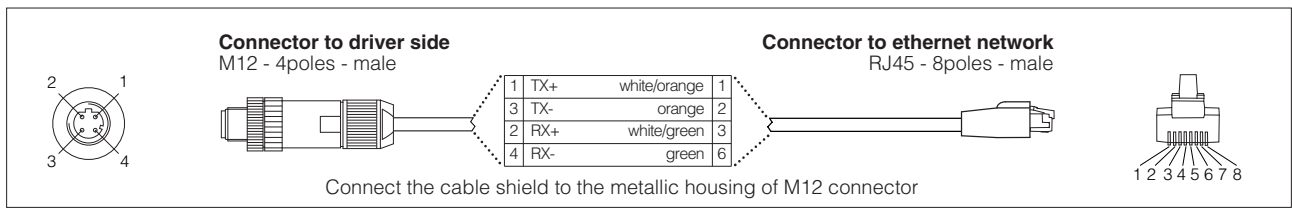


**6.4 E-C-BP-DB9/DB9 - 2 m cable**



**7 ETHERNET CABLE WIRING DIAGRAM - only for EH, EW, EI and EP**

Typical ethernet cable wiring diagram from industrial M12 connectors to standard RJ45 ethernet connectors.



**8 FIRMWARE UPDATE**

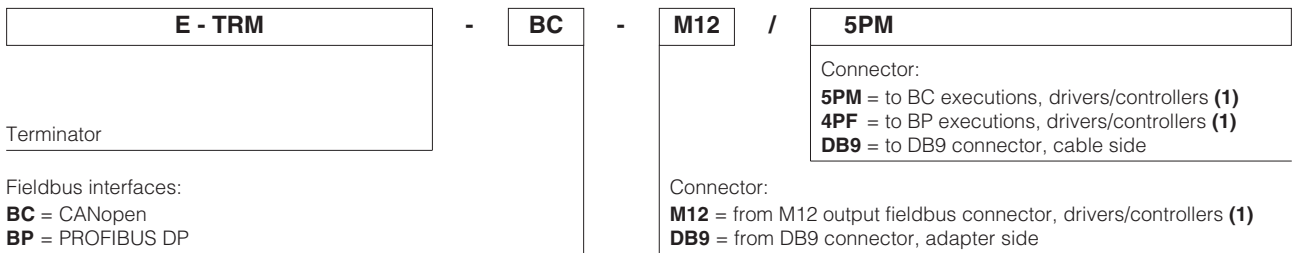
It is possible to update the firmware of the following digital drivers and controllers, using proper USB communication port. The firmware update is allowed starting from electronics series listed into the table or higher series:

E-RI-AEB s10	E-RI-REB s10	E-BM-AES s10	E-RI-TEB s10	E-BM-TEB s10	E-RI-TES s40	E-BM-TES s10	E-RI-TES-S s40	E-BM-TES-S s10	E-RI-PES-S s40
E-RI-AES s40	E-RI-RES s10	E-BM-RES s10	E-RI-LEB s10	E-BM-LEB s10	E-RI-LES s40	E-BM-LES s10	E-RI-LES-S s40	E-BM-LES-S s10	
Z-RI-TEZ s40	Z-BM-KZ s10	Z-BM-TEZ s10							
Z-RI-LEZ s40		Z-BM-LEZ s10							

**Note:** for AES s30 drivers and Z-ME-KZ s10 or higher controllers the firmware update can be performed using serial RS232 communication port

**9 FIELDBUS TERMINATORS - only for BC and BP**

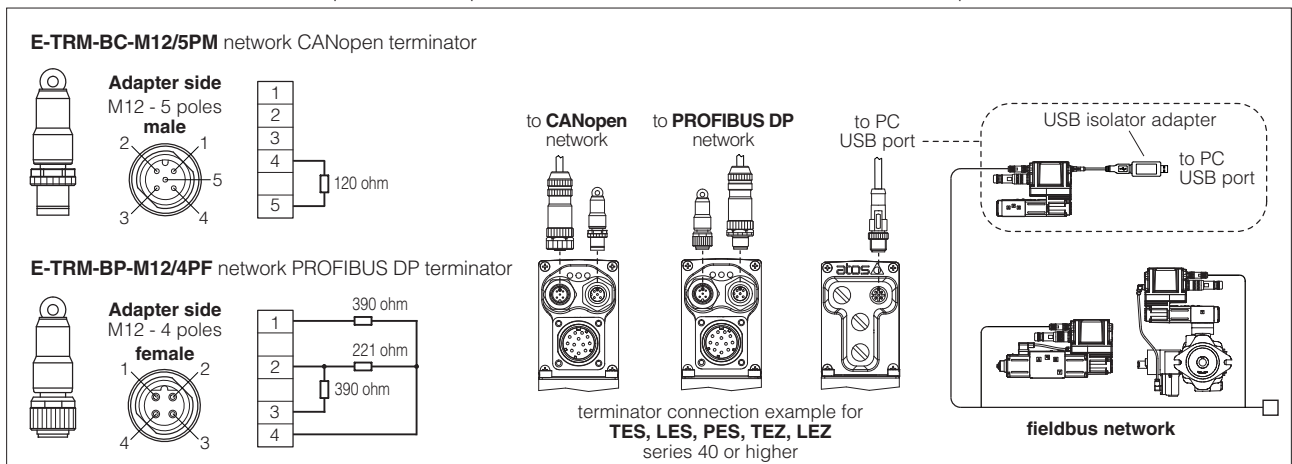
For drivers/controllers in BC and BP executions, the fieldbus terminator has to be used.



**(1)** for TES, LES, PES, TEZ, LEZ series 40 or higher

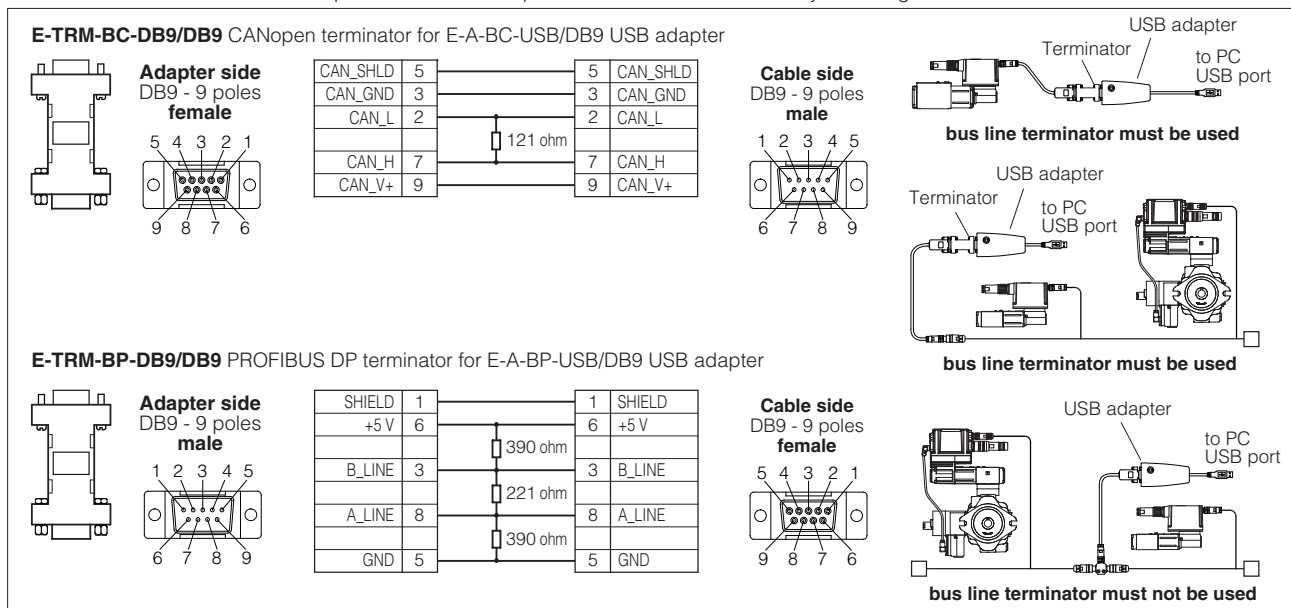
**9.1 M12 - terminators for fieldbus network**

The fieldbus terminators are required when output fieldbus connector has to be used as network end point.



## 9.2 DB9 - terminators for USB adapter connection

The fieldbus terminators are required when USB adapter has to be connected directly to the digital driver/controller.



## 10 RECOMMENDED TOOLS SELECTION

### 10.1 Standard electronics

	Model Code	Series	Software	Cable	USB Adapter	Terminator
IR	E-MI-AS-IR	11			E-A-PS-USB/IR	
PS	E-BM-AS	10 or higher		E-C-PS-DB9/RJ45	E-A-PS-USB/DB9	
NP	E-BM-AES, E-BM-RES	10	E-SW-BASIC	E-C-SB-USB/BM	E-A-SB-USB/OPT	
	E-BM-TEB, E-BM-LEB, E-BM-TES, E-BM-LES	10				
	AEB, REB	10				
	TEB, LEB	10 or higher				
	TES, LES	40 or higher	E-C-SB-USB/M12			
	TES, LES, PES with SP, SF, SL options	40 or higher	E-SW-BASIC/PQ	E-C-SB-USB/BM		
	E-BM-RES, E-BM-LES with SP, SF, SL options	10	Z-SW-FULL	E-C-SB-USB/M12		
TEZ, LEZ	40 or higher	E-C-SB-USB/BM				
Z-BM-KZ, Z-BM-TEZ, Z-BM-LEZ	10					
BP	E-BM-AES, E-BM-RES	10	E-SW-FIELDBUS	E-C-SB-USB/BM	E-A-SB-USB/OPT	
BC	RES	10		E-C-SB-USB/M12		
EH	AES	40				
BC	E-BM-RES, E-BM-LES	10	E-SW-FIELDBUS	E-C-SB-USB/BM	E-A-SB-USB/OPT	
BP	TES, LES	40 or higher		E-C-SB-USB/M12		
EH	E-BM-RES, E-BM-LES with SP, SF, SL options	10	E-SW-FIELDBUS/PQ	E-C-SB-USB/BM		
EI	TES, LES, PES with SP, SF, SL options	40 or higher		E-C-SB-USB/M12		
EW	TEZ, LEZ	40 or higher	Z-SW-FULL	E-C-SB-USB/M12		
EP	Z-BM-KZ, Z-BM-TEZ, Z-BM-LEZ	10		E-C-SB-USB/BM		

### 10.2 Ex-proof electronics

	Model Code	Series	Software	Cable	USB Adapter	Terminator
PS	AES	30	E-SW-BASIC	E-C-PS-DB9/M8	E-A-PS-USB/DB9	
	AERS, TERS, TES, LES	31				
BP	AES	30	E-SW-FIELDBUS	E-C-PS-DB9/M8	E-A-PS-USB/DB9	E-TRM-BP-DB9/DB9
	AERS, TERS, TES, LES	31				
BC	AES	30	E-SW-FIELDBUS	E-C-PS-DB9/M8	E-A-PS-USB/DB9	E-TRM-BC-DB9/DB9
	AERS, TERS, TES, LES	31				

### 10.3 Phase out electronics

	Model Code	Series	Software	Cable	USB Adapter	Terminator
IR	E-MI-AS-IR	10	E-SW-IR		E-A-PS-USB/IR	
PS	AES	30	E-SW-BASIC	E-C-PS-DB9/M12	E-A-PS-USB/DB9	
	AERS, TERS, TES, LES	31				
	TES, LES, PES with SP, SF, SL options	31	E-SW-BASIC/PQ			
	TEZ, LEZ	10	Z-SW-FULL			
Z-ME-KZ-PS	10 or higher	E-C-PS-DB9/DB9				
BP	AES	30	E-SW-FIELDBUS	E-C-PS-DB9/M12	E-A-PS-USB/DB9	E-TRM-BP-DB9/DB9
	AERS, TERS, TES, LES	31				
	TES, LES, PES with SP, SF, SL options	31	E-SW-FIELDBUS/PQ	E-C-BP-DB9/M12		
	TEZ, LEZ	10	Z-SW-FULL	E-C-PS-DB9/DB9		
Z-ME-KZ-PS/BP	10 or higher	E-A-PS-USB/DB9				
BC	AES	30	E-SW-FIELDBUS	E-C-PS-DB9/M12	E-A-PS-USB/DB9	E-TRM-BC-DB9/DB9
	AERS, TERS, TES, LES	31				
	TES, LES, PES with SP, SF, SL options	31	E-SW-FIELDBUS/PQ	E-C-BC-DB9/M12		
	TEZ, LEZ	10	Z-SW-FULL	E-C-PS-DB9/DB9		
EH	AES	30	E-SW-FIELDBUS	E-C-PS-DB9/M12	E-A-PS-USB/DB9	