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Catalogue

DIAGNOSTIC TOOLS



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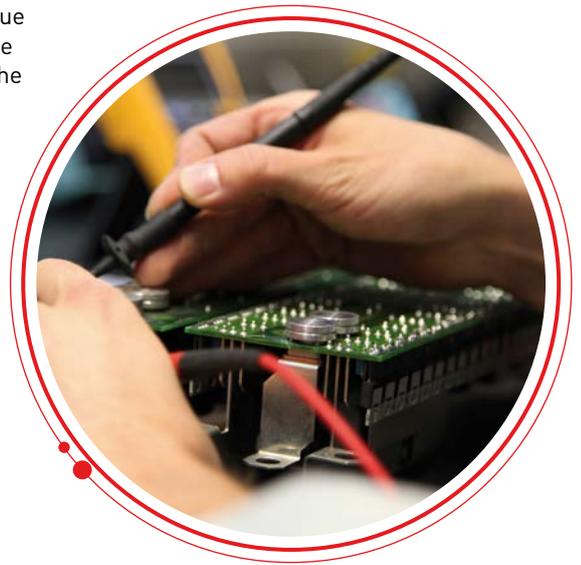




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- REF 39423578 Consumables & accessories
- REF 29193029 Attachments & handling equipment
- REF 25564923 Batteries, chargers & accessories
- REF 20177702 Brushes
- REF 37474860 Chains & accessories
- REF 10185471 Contactors & contacts
- REF 39427595 Electronic accessories
- REF 31072159 Energic Plus
- REF 34167446 Engine parts
- REF 10727802 Exhaust systems
- REF 33113100 Fluke
- REF 20177906 Fuses & fuse holders
- REF 29127398 Grammer seats
- REF 31331437 Hydraulic parts & accessories
- REF 19949421 Key switches
- REF 12594102 Labels & decals
- REF 31072165 Lights & bulbs
- REF 22802499 LPG system parts
- REF 7872482 Mast rollers
- REF 26501928 Paint & accessories
- REF 31072162 Pallet truck parts
- REF 7835233 Potentiometers & encoders
- REF 7083552 Relays
- REF 12726578 Replacement parts for Genie
- REF 15069637 Replacement parts for Haulotte
- REF 12613028 Replacement parts for JLG
- REF 20769251 Replacement parts for scrubbers & sweepers
- REF 24154086 Replacement parts for tail lifts
- REF 27506014 Seats & accessories
- REF 6252659 Starters & alternators
- REF 34744204 Tracks & undercarriage parts
- REF 24337660 Tyres, rims & accessories
- REF 7072186 Wheel brake & master cylinders
- REF 31072155 Wheels, rollers & castors
- REF 34609026 Windshields & glazing

Range of filters available in MyProductSearch, MyPartsFinder and via tvh.com/downloads



Product specials

We gladly keep you informed of our extensive product range. In addition to our catalogues we present you our 'product specials': useful brochures that will guide you within specific product categories.

- REF 31346611 Air conditioning
- REF 14372877 Document & accessories holders
- REF 21735662 Drum handling & accessories
- REF 31642339 Electronic accessories
- REF 22835159 Force professional tools
- REF 38742387 Forks & accessories
- REF 21720627 Hardware special
- REF 21713854 Hydraulic power units
- REF 18178749 Jacks & supports
- REF 22775197 LED lights
- REF 38088053 LED lights & consumables for trailer-mounted equipment
- REF 21841408 Lubrication & accessories
- REF 20778928 Mirrors
- REF 37575584 Personal care & cleaning products
- REF 17868205 Press special
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- REF 20963014 Skips, scoops & crane jibs
- REF 33349886 Stainless steel handling products
- REF 36108454 Summertime products
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NOTES

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NICE TO KNOW

NICE TO KNOW

Introduction

As a result of the fast growth of the number of electronic components used in various machines, as well as the complexity of the electronic systems, there is an increasing need for specific diagnostic equipment. This equipment can assist in the troubleshooting process and can help to set newly installed components in order to get the machine up and running again. Depending on the electronic system used in the machine, you have the possibility to access the electronic components either via the built-in dashboard, or via a handset or software interface.

TVH offers a wide variety of diagnostic equipment for various makes used in the segments in which TVH is active. This catalogue was composed in order to provide a better overview of the diagnostic equipment we can offer. The mentioned diagnostic devices specifically focus on diagnostics and setting of electronic components and systems.

Structure of the catalogue

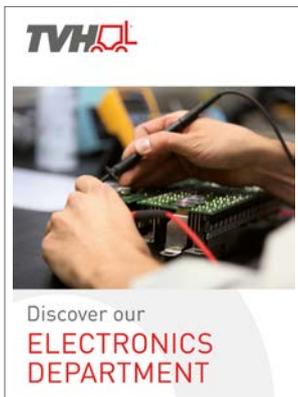
The first part of this catalogue will give you a general overview of parts such as breakout boxes, cables, USB to can interfaces, USB to serial converters etc. After that you will find an overview of OPM and OFM brands, arranged in an alphabetical order. To easily find the correct diagnostic equipment, you can start by searching by machine manufacturer. If you can't find the correct tools in this way, then it might be necessary to search by the manufacturer of the electronic components in the machine. TVH also rents specific diagnostic equipment. Ask your sales advisor for more info.

Partnerships

TVH's electronics department already has partnership agreements with the following manufacturers:



Electronics brochure



The electronics department is one of the fastest growing departments of TVH. TVH also offers service exchange printed circuit boards, controllers, displays, joysticks, accelerators, drive switches, chargers and contactors. Definitely have a look in our 'Electronics department' brochure (REF 33118931) for more info about the products and functioning of our electronics department.

Fluke



Have a look in our Fluke catalogue (REF 33113100) and discover a selection from the extensive range of measuring equipment. We keep all references from the catalogue in stock. Other articles are available on a short lead time.



BREAKOUT BOXES

BREAKOUT BOX



Breakout box 16-pole
 · Type: ICE/electric machines
 · Type of connector: AMP 16P

REF 164TA8181

BREAKOUT BOX



Breakout box 25-pole
 · Type: ICE/electric machines
 · Direct I/O
 · Type of connector: AMP 25P
 · Cables not included [REF 118TA2040](#)
 / [REF 118TA2349](#) / [REF 122TA8868](#) /
[REF 122TA8867](#)

REF 122TA8863

Cables



Adapter cable for breakout box 25-pole
 with multiple connectors
 · Type of connector: 2/4/6/10/25-pole

REF 118TA2040



Adapter cable for breakout box 25-pole
 with 25-pole breakout box
 · Type of connector: 25-pole

REF 118TA2349



Adapter cable for breakout box 25-pole
 with 16-pole breakout box
 · Type of connector: 16/25-pole

REF 122TA8868



Adapter cable for breakout box 25-pole
 with multiple connectors
 · Type of connector: 2/3/4/7/25-pole

REF 122TA8867



BREAKOUT BOX



- Breakout box 42-pole
- Type: ICE/electric machines
- Direct I/O
- Type of connector: AMP 42P

REF 122TA8865

BREAKOUT BOX



- Breakout box 55-pole
- Type: ICE/electric machines
- Direct I/O
- Type of connector: AMP 55P

REF 122TA8866

BREAKOUT BOX



- Breakout box 70-pole
- Type: ICE/electric machines
- Direct I/O
- Type of connector: AMP 70P

REF 164TA8182

BREAKOUT BOX



Breakout box 121-pole
· Type: ICE/electric machines
· Direct I/O
· Type of connector: AMP 121P

REF 123TA6821

Cables



Adapter cable for breakout box 121-pole
· Type: connector: 4-pole/banana plugs



REF 164TA8183

BREAKOUT BOX



Breakout box 29-pole
· Type: ICE/electric machines
· Direct I/O
· Type of connector: AMP 29P

REF 122TA8864

BREAKOUT BOX



Breakout box 154-pole
· Type: ICE/electric machines
· Direct I/O
· Type of connector: AMP 154P

REF 164TA8184

BREAKOUT BOX

Breakout box kit with [REF 164TA8186](#) and [REF 164TA8187](#)

- Type: ICE/electric machines
- Direct I/O

[REF 164TA8185](#)

BREAKOUT BOX

Breakout box for connectors type DT

- Type: ICE/electric machines
- Direct I/O
- Type of connector: DT

[REF 164TA8186](#)

BREAKOUT BOX

Breakout box for connectors type DTM

- Type: ICE/electric machines
- Direct I/O
- Type of connector: DTM

[REF 164TA8187](#)

BREAKOUT BOX

OBD test box

- Type: ICE machines
- Direct I/O
- Type of connector: OBD

[REF 164TA8188](#)

NOTES

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CABLES

SERIAL CABLE DB9F-DB9M



- Type of connector: DB9F-DB9M, straight 1 to 1, length 1,8 m

REF 164TA2507

SERIAL CABLE DB9F-DB9M



- Type of connector: DB9F - DB9M, straight 1 to 1, length 3 m

REF 118TA3143

SERIAL CABLE DB9F-DB9F



- Type of connector: DB9F-DB9F, straight 1 to 1, length 2 m

REF 131TA8668

SERIAL CABLE DB9F-DB9F



- Type of connector: DB9F-DB9F, straight 1 to 1, length 5 m

REF 164TA8200

SERIAL CABLE DB9F-DB9F, NULL MODEM



- Type of connector: DB9F-DB9F, length: 6 m

REF 164TA8198

SERIAL CABLE DB9M – DB9M



- Type of connector: DB9M – DB9M, straight 1 to 1, length 1,8 m

REF 165TA2852

SERIAL CABLE DB9M – DB9M



- Type of connector: DB9M – DB9M, straight 1 to 1, length 5 m

REF 164TA8199

DB9 GENDER CHANGER M-M



· Type of connector: DB9M-DB9M

REF 164TA8201

DB9 GENDER CHANGER F-F



· Type of connector: DB9F-DB9F

REF 164TA8202

ADAPTER DB25F TO DB9M



· Type of connector: DB25F-DB9M

REF 164TA8203



USB TO CAN INTERFACES

USB TO CAN INTERFACE



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB-9

REF 164TA8192

USB TO CAN INTERFACE - GALVANIC ISOLATION



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB-9

REF 140TA8962

USB TO CAN INTERFACE - WITHOUT GALVANIC ISOLATION



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB-9

REF 164TA8193

USB TO CAN INTERFACE - GALVANIC ISOLATION



- Controller makes: Zapi, Sevcon
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB-9

REF 164TA8194

USB TO CAN INTERFACE



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB-9

REF 164TA8195

NOTES

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USB TO SERIAL CONVERTER

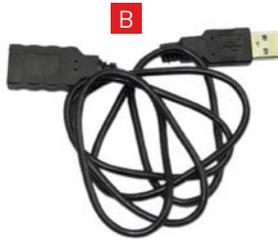
USB TO SERIAL CONVERTER



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- Serial communication
- Type of connector: DB-9

REF 164TA8196

USB TO SERIAL CONVERTER



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- Serial communication
- Type of connector: DB-9

REF 164TA8197



USED ON
**BT, CESAB, RAYMOND,
TOYOTA**

USB TO CAN INTERFACE



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication

REF 164TA8208



- CAN cable to machine

REF 164TA8209

CAN KEY FOR BT



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication

REF 140TA8961

CAN KEY FOR CESAB



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication

REF 152TA1928

CAN KEY FOR RAYMOND



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication

REF 164TA8210

CAN KEY FOR TOYOTA



- Controller makes: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication

REF 140TA8963

NOTES

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USED ON
**CATERPILLAR-
MITSUBISHI**

GSE CABLE FC



- Machine types: fingertip control on GP/DP15-35, GP/DP15K-35K, EP16KT-20KT, EP16K-20KC
- Type: ICE/electric machines

REF 164TA8237

GSE CABLE MERCURY



- Machine types: EP10KRT-15KRT PAC, EP16NT-20NT, EP16N-20CN, EP20K-35K, EP20K-35K PAC, EC15N-30N, GP/DP15N-35N, GP/DP15N-35N, GP/DP40N-55N, DP80N-160N, GC15N-33N, EP13PNT-20PNT, EP13PN-20PN, FB20-35K, FB20K PAC -35K PAC
- Controller types: 16A60-X10XX (traction), 16A60-X303X (hydraulic), 16A62-X001X
- Type: ICE/electric machines

REF 164TA8238

GSE CABLE BANDIT



- Machine types: fingertip control on GP/DP40K-50K, DP60-70 main controllers on EP16KT-20KT, EP16K-20KC
- Type: ICE/electric machines

REF 164TA8239



CURTIS

HANDHELD 1313 PROGRAMMER



- Controller types: all, with additional cables
- Type: electric machines
- Serial communication
- Type of connector: Molex/DB9 Mini-Fit 4P
- Cables for 1207 and mobility controllers not included

REF 164TA8167 – Kit user access level
REF 164TA8168 – Kit OEM access level

Cables



- Controller types: all, except 1207, AC F2A and mobility controllers
- Type of connector: Molex Mini-Fit 4P
- 4-pin Molex cable for 1313 programmer

REF 152TA1909



- Controller types: mobility controllers
- Type of connector: XLR
- XLR cable for 1313 programmer

REF 152TA1910



- Controller types: 1207 controllers
- Type of connector: RJ11
- RJ11 cable for 1313 programmer

REF 152TA1908



- Controller types: AC F2A controllers
- DB9 cable for 1313 programmer

REF 164TA8169

Description

The Curtis model 1313 handheld programmer is a powerful and intuitive programming and diagnostics tool. Model 1313 enables parameter files to be created and edited online or offline, transferred to another controller for cloning, or saved onto a PC or SD card.

Features

- Large high-resolution colour display shows multiple parameters simultaneously for quick adjustment.
- Backlight for easy viewing in low-light environments.
- Cloning feature and 64 MB internal memory allows multiple parameter files to be stored on the handheld programmer making it easy to transfer settings to other vehicles.
- Advanced troubleshooting capabilities for all vehicles that use Curtis programmable motor controllers or control systems.
- AA battery compartment allows programs to be edited without having to be connected to a system.
- Multiple language support includes English, German, Spanish, French and Italian.
- Monitoring function allows real-time viewing of controller activity.

Application

The model 1313 performs comprehensive programming and troubleshooting tasks for all vehicles that use Curtis programmable motor controllers or control systems.

- Icon-based graphical user interface allows for quick and intuitive menu navigation.
- Dedicated buttons for “help” and “favourites” provide for direct access to commonly used features.
- Soft keys (located under the LCD) change function as indicated by screen text to provide quick access to the most commonly used functions.
- Comprehensive help text offers solutions and information at the touch of a button.
- Easily upgradeable via USB to ensure compatibility with future products and features.
- The model 1313 programmer is easily portable, with a tough rubber protective perimeter strip.
- Programming kit comes complete with handheld programmer, Molex cable, zippered case, quick-start guide.

WINDOWS PC 1314 SOFTWARE TOOL



- Controller types: all, with additional cables
- Type: electric machines
- Serial communication
- Type of connector: Molex Mini-Fit 4P
- Cables for 1207, AC F2A and mobility controllers not included

REF 152TA1911 – Kit user access level
REF 152TA1914 – Kit OEM access level

Interfaces



- USB interface user access level
- Extra cables needed

REF 163TA8614



- USB interface OEM access level
- Extra cables needed

REF 163TA8615

Cables



- 4-pin Molex cable for windows PC software tool programmer
- Controller types: all, except 1207, AC F2A and mobility controllers
- Type of connector: Molex Mini-Fit 4P

REF 152TA1916



- XLR cable for windows PC software tool
- Controller types: mobility controllers
- Type of connector: XLR

REF 163TA8617



- RJ11 cable for windows PC software tool
- Controller types: 1207 controllers
- Type of connector: RJ11

REF 163TA8616

Description

The 1314 Windows PC Software Tool provides comprehensive and intuitive PC-based programming, monitoring and system diagnostics for all Curtis programmable motor speed controllers and control systems.

Features

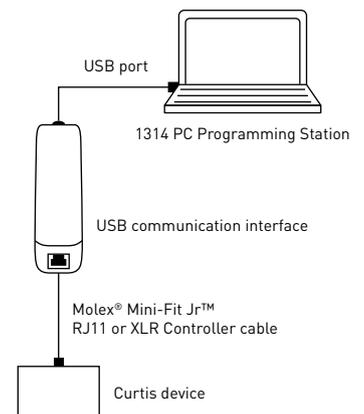
- View and adjust controller programmable parameters.
- Real-time monitoring of system variables such as voltage, temperature and current.
- Saves all data – parameter values, monitor values, history logs etc., in a single file.
- Edit, rename, export or print files online or offline.
- Clone data between controllers.
- View active fault codes and system timers.
- View and clear controller fault history log.
- Online help and automatic update function (with active internet connection).

Application

The 1314 Windows PC Software Tool is intended for use by vehicle OEMs, dealers and service engineers. It provides a powerful Windows interface for adjusting settings, troubleshooting and recording the parameters of any Curtis speed controller or auxiliary device.

System requirements

- The minimum requirements for the PC hardware are:
- Processor Pentium III 833MHz
 - Windows® XP/Vista/7
 - 512 MB memory (1024 MB recommended)
 - USB port



CABLES FOR 1307 PROGRAMMER



4-pin Molex cable for 1307 programmer

[REF 152TA1916](#)



RJ11 cable for 1307 programmer

[REF 152TA1915](#)

CABLES FOR 1311 PROGRAMMER



4-pin Molex cable for 1311 programmer

[REF 123TA9614](#)



RJ11 cable for 1311 programmer

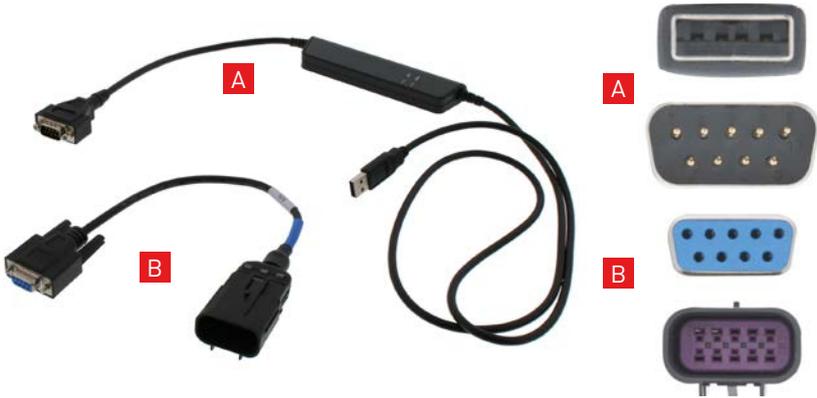
[REF 123TA9615](#)



USED ON
DAEWOO-DOOSAN

INTERFACE/CABLE

CAN INTERFACE WITH ADAPTER CABLE



- Controller type: SECM
- Type: ICE machines
- CAN communication

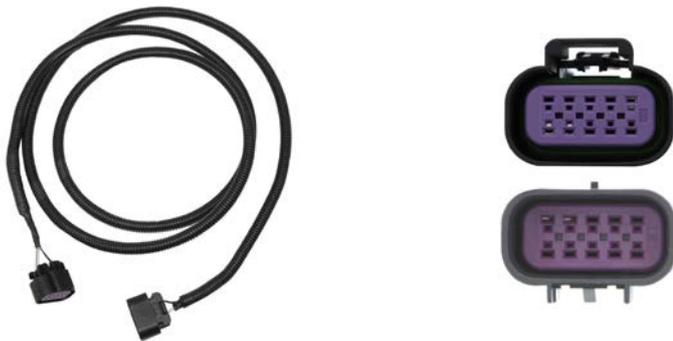
REF 164TA8234

ADAPTER CABLE



REF 164TA8235

EXTENSION CABLE - 2 METRES



REF 164TA8236



ELEKTROSISTEM

UMP HANDSET



- Controller types: SECU, MC-B, 4QBIG, 4QCOMBI, 4QHF2D, PM-04B
- Type: electric machines
- Serial communication

REF 163TA8857

IGS TERMINAL I3.XX



- Controller types: IMC twin motor controllers
- Type: electric machines
- Serial communication

REF 163TA8858

IGS TERMINAL I6.XX



- Controller types: IMC traction (except twin motor controllers), IMC pump and Phoenix controllers
- Type: electric machines
- Serial communication

REF 163TA8859

IGS KEY INTERFACE



- For use with IGS terminal
- Controller types: IMC and Phoenix controllers
- Type: electric machines
- Serial communication

REF 163TA8860

SOFTWARE AND INTERFACE USB-2006



- Controller types: SECU, MC-B, 4QBIG, 4QCOMBI, 4QHF2D, PM-04B
- Type: electric machines
- Serial communication

REF 163TA8861



GENERAL ELECTRIC

LX HANDSET



- Controller types: EV100/200LX, EV100ZX, EVT100ZX, SX Gen II and SX Gen III
- Type: electric machines
- Serial communication
- Type of connector: See below

Handsets

Description	Controller types	REF
LX handset	EV100/200LX, EV100ZX and EVT100ZX	105TA4792
LX handset 8-pin plug	SX Gen II	152TA1917
LX handset 12-pin plug	SX Gen II	152TA1918
LX handset 8- and 12-pin plug	SX Gen II	152TA1919
LX handset	SX Gen III	152TA1920
LX handset	EV-T6	152TA1921
LX handset – handset only		123TA6813



LX handset only

REF 123TA6813

Cables



- LX handset cable
- Controller type: EV100/200LX, EV100ZX and EVT100ZX

REF 123TA6814



- LX handset cable
- Controller type: SX Gen III

REF 123TA6817



- LX handset cable 8 pins plug
- Controller type: SX Gen II

REF 152TA1923



- LX handset cable
- Controller type: EV-T6

REF 123TA6815



- LX handset cable 12-pin plug
- Controller type: SX Gen II

REF 123TA6816



LX handset case

REF 152TA1922

Description

The General Electric handset is a multifunctional tool to be used on electric machines with the LX-, ZX- and SX-series General Electric solid state controls. The handset consists of an LED display and a keyboard for data entry.

Features

The purpose of the handset is to allow authorised personnel to perform the following functions of the SX family of controls:

- Monitor existing system fault codes
- Monitor intermittent random fault codes
- Monitor battery state of charge on systems with BDI
- Monitor hourmeter reading
- Monitor or adjust the following control functions:
 - Creep speed
 - Armature-controlled acceleration and 1A time
 - Regenerative braking current limit and disable

Application

The handset is used to monitor traction or pump motor system functions and status or to adjust the settings of the control cards through serial communication.

- Armature and field current limit
- Plugging distance (current)
- Pedal position plug range or disable
- 1A drop-out current or disable
- Speed limit points
- Truck management fault speed limit
- Internal resistance compensation for battery state of charge indication
- Battery voltage (36/48 volts is auto-ranging)
- Selection of card operation type

GE PROGRAMMING KIT



- Controller types: EV100/200LX, EV100ZX, EVT100ZX, SX Gen II and SX Gen III
- Type: electric machines
- Serial communication
- Type of connector: DB-9 to 3 controller types
- Including interface cable and GE Sentry software

REF 152TA1924

Cables



- Adapter cable for use with General Electric Sentry software
- Controller types: EV100/200LX, EV100ZX and EVT100ZX

REF 118TA3142



- Adapter cable for use with General Electric Sentry software
- Controller types: SX Gen III

REF 163TA8740



- Adapter cable for use with General Electric Sentry software 12-pin plug
- Controller types: SX Gen II

REF 163TA8739

NOTES

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Genie®

USED ON
GENIE

WEBGPI SOFTWARE



- WebGPI software
- Machine types: most boom models
- Type: ICE machines

REF 165TA1420

ADAPTER CABLE



- Adapter cable to connect with WebGPI software to the controllers on Super Booms
- Machine types: S100, S105, S120, S125
- Type: ICE machines
- Type of connector: multiple
- Software: 165TA1420

REF 128TA3091

ADAPTER CABLE



- Adapter cable to connect a computer with WebGPI software to the SCON
- Machine types: Z135, ZX135, All SX machines
- Type: ICE machines
- Software: 165TA1420

REF 160TA9987

USB TO CAN INTERFACE



- USB to CAN interface for plus 1 systems
- Machine types: Z40N
- Controller brand: Sauer Danfoss, Zapi
- CAN communication
- Type of connector: DB9
- Cable interface: [REF 161TA3108](#)

REF 161TA3109

ADAPTER CABLE



- Adapter cable for plus 1 systems
- Machine types: Z40N
- Controller brand: Sauer Danfoss, Zapi
- Cable interface: [REF 161TA3109](#)

REF 161TA3108

NOTES

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USED ON
HAULOTTE

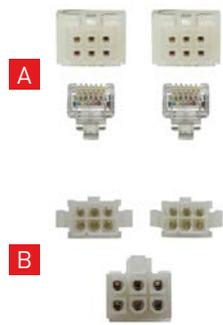
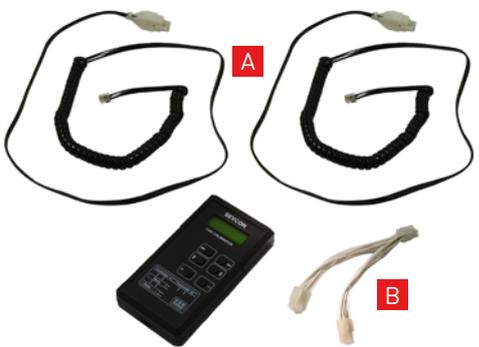
CALIBRATION MODULE



- Controller brand: BPE electronics
- Controller type: load control boards
- Type: electric machines
- Direct I/O
- Type of connector: 8-pin

REF 164TA8233

HANDSET POWERPAK KIT



- Used on Haulotte, Manitou
- Controller types: PowerpaK, MicropaK
- Type: electric machines
- CAN communication
- 2 x PowerpaK/MicropaK cable = with 6-pole Molex connector, splitter cable

REF 160TA3859



USED ON
HYSTER, YALE

USB TO CAN INTERFACE



A

B

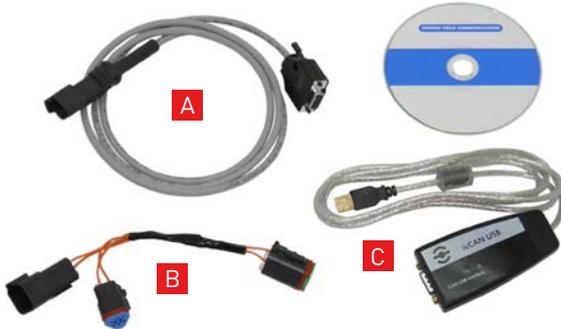
B



- Controller brands: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- With extra cable to plug into the machine

REF 152TA1966

USB TO CAN INTERFACE + SPLITTER CABLE



A

C

A

B

C



- Controller brands: multiple
- Controller types: multiple
- Type: ICE/electric machines
- CAN communication
- With extra CAN splitter cable

REF 164TA8225

ADAPTER CABLE



- For use with USB to can interface
- DB9 to Deutsch connector

REF 164TA8226

ADAPTER CABLE



- For use with USB to can interface
- CAN splitter cable

REF 164TA8227

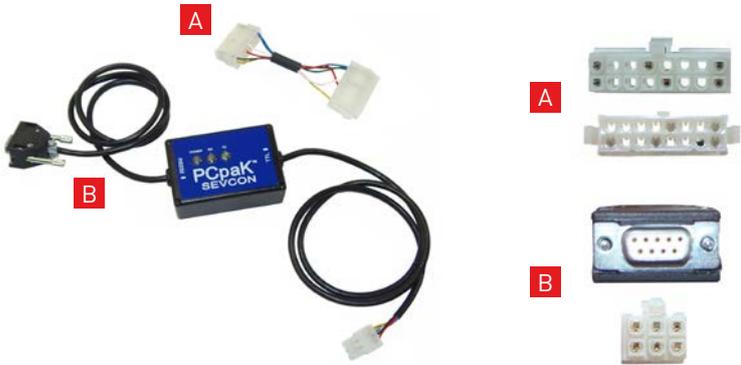
ADAPTER CABLE



- Controller brand: Curtis
- Controller types: multiple
- Type: electric machines
- Connects Curtis programmer or interface to the machine service connector

REF 164TA8228

MILLIPAK PCPAK USED ON HYSTER/YALE



- Machine types: Hyster A1.00-1.50XL (C203), Yale ERC/ERP101-151RCF (A888), ERP10-15RCF (A888)
- Controller type: Millipak
- Type: electric machines
- Serial communication

REF 163TA8741

NOTES

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USED ON
ICEM

ICEM CONSOLE



- Controller brands: Iskra, Letrika, Mahle
- Controller types: multiple
- Type: electric machines
- CAN communication
- Type of connector: Molex Mini-Fit 4P

REF 164TA8232



IMPCO, ECONTROLS

ECOM INTERFACE GEN 3 COMMUNICATIONS CABLE



- Controller makes: Impco, EControls
- Controller type: Gen 3 ECU's/ECM's
- Type: ICE machines
- CAN communication

REF 164TA8221

ADAPTER CABLE GEN 2/3 TO GEN 1 ADAPTER



- Controller makes: Impco, EControls
- Controller type: Gen 1 ECU's/ECM's
- Type: ICE machines

REF 164TA8222

ADAPTER CABLE GEN 4 COMMUNICATIONS CABLE



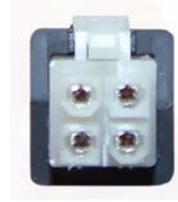
- Controller makes: Impco, EControls
- Controller type: Gen 4 ECU's/ECM's
- Type: ICE machines
- Cable/interface: for use with iFak or Kvaser CAN interface

REF 164TA8223



ITALSEA

HANDHELD PROGRAMMER



Allows for the setting of parameters, the display of alarms and in the tester mode, the visualisation of the main working functions (motor current, voltage ...)

- Controller types: all
- Type: electric machines
- Serial communication
- Type of connector: Molex Mini-Fit 4P

REF 163TA8742



USED ON
JLG

EZCAL HANDSET FOR JLG



To program JLG machines

The analyser kit is essential for programming and troubleshooting JLG aerial work platforms. This is a must-have tool for any service technician.

Features/benefits:

- Compact-size tool that you can carry with you to your job site
- Quick diagnostic for fault codes
- Adjust machine parameters on-site
- Enable and disable machine features
- Configure new options
- High-contrast LCD screen

REF 126TA5316

CABLE FOR EZCAL HANDSET



- Replacement cable

REF 164TA8212

MOS90 HANDSET FOR JLG



For the programming of JLG machines that are equipped with Sevcon MOS90 controllers.

- Controller type: MOS90
- Type: electric machines
- Serial communication

REF 129TA9941

OPTIMIZER OPTZ-8 USED ON JLG



- Controller brands: OEM controls
- Type: ICE machines
- Serial communication

Calibrate and configure settings on OEM controllers utilised on JLG 600SC machines

Features/benefits:

- Separate adjustments for all four channels
- Separate adjustments for each direction of handle movement
- Default settings with the touch of a button
- Adjustments can be made from the platform or ground
- Pre ADE

REF 164TA8216

USB ADAPTER CABLE



USB to machine cable

The USB plug cable can be used on all JLG AWP's to download software or for PC analyser software.

Features/benefits:

- Needed tool to connect PC to the JLG AWP
- This cable is a must-have to be able to configure machine settings and options

REF 164TA8213

SERIAL ADAPTER CABLE



RS232 to machine cable

The serial plug cable can be used on all JLG AWP's to download software or for PC analyser software.

Features/benefits:

- Needed tool to connect PC to the JLG AWP
- This cable is a must-have to be able to configure machine settings and options

REF 164TA8214

MOBILE ANALYSER



The JLG mobile analyser is a Wi-Fi enabled evolution of the handheld analyser kit, allowing technicians to do the same analysis they are currently doing with the handheld kit. However, this new tool for Apple and Google operating system devices, allows for an extended operating range of up to 150 ft.

Features/benefits:

- Compatible with Apple iOS 5.0 and up, plus Android API 8 and up
- Works with JLG products that are equipped with Advanced Design Electronics (ADE)
- Allows for extended operator range of up to 150 ft
- Available in multiple languages, with more languages to be added
- Interchangeable between machines (Note: it can only be connected to one mobile device at a time)
- Analyser training is included as part of all JLG factory training
- Displays full description read-outs instead of abbreviated scrolling text

REF 152TA1931



**USED
ON
LINDE**

PROGRAMMER



- Master version
- Type: ICE/electric machines
- OBD communication
- Type of connector: 4-pole

REF 124TA2625

You can use the tester for the following fork trucks:

- Electric lift trucks:
 - 324-02 (from 06/99): drive control (LDC)
 - 335-01 (from 02/97): drive control (LDC)
 - 335-02: drive control (LDC) and lift control (LLC)
 - 336-01 (from 02/97): drive control (LDC)
 - 336-02: drive control (LDC) and lift control (LLC)
 - 337-02 (from 07/98): drive control (LDC)
- Pallet trucks:
 - 360 (from 03/97): drive control (LDC)
 - 144 (from 06/98); drive control (LDC)
 - 140 (from 01/99): drive control (LDC)
 - 141AP (from 04/99): drive control (LDC)
 - 141: drive control (LDC)
- R-type:
 - 113-01 (from 06/98): drive control (LDC) and lift control (LLC)
- L-type:
 - 379 (from 09/98): drive control (LDC)
 - 141 (L12L/L12LP) (from 12/99): drive control (LDC)
 - 372: drive control (LDC)
 - 141 (L16AS): drive control (LDC)
- N-type:
 - 377 (from 01/98): drive control (LDC)
 - 149: drive control (LDC) and steering control
- ICE machines:
 - Type 350 with control (LHC to SN 350R03587)

Cables



- Adapter cable
- For use with programmer on LPG truck
 - Type: ICE machines
 - Controller types: multiple

REF 118TA2236



- Adapter cable
- For use with programmer
 - Type: ICE/electric machines
 - Controller types: multiple

REF 109TA4523

ADAPTER CABLE



- To connect computer to truck
- Controller types: multiple
- Type: ICE/electric machines
- OBD communication
- Type of connector: DB9, 4-pole, 6-pole

REF 164TA8171

ADAPTER CABLE



Adapter cable

- For use with [REF 164TA8171](#)
- Controller types: multiple
- Type: ICE/electric machines
- Type of connector: DB9, 6-pole

REF 164TA8172

Cables



- Adapter cable
- CAN box to truck CH1, 4-pole 0,5 m
 - Type: ICE/electric machines
 - Type of connector: 7-pole CAN connector

REF 164TA8173



- Adapter cable
- CAN box to truck CH2, 8-pole 0,5 m truck + engine (Deutz, Ford, Kubota)
 - Type: ICE/electric machines

REF 164TA8174



- Adapter cable
- CAN box to truck CH2, 8-pole 2 m truck + engine (Deutz, Ford, Kubota)
 - Type: ICE/electric machines

REF 164TA8175



- CAN box to truck CH1, 4-pole 2 m
- Type: ICE/electric machines
- Type of connector: CAN connector 7-pole

REF 118TA3284



- Adapter cable
- CAN box to truck
 - Type: electric machines
 - Type of connector: AMP 1826511

REF 164TA8180



- Adapter cable
- For LPG engines with IMPCO controller
 - Controller brand: Impco
 - Controller types: multiple
 - Type: ICE machines
 - Serial communication
 - Type of connector: DB9, 7-pole

REF 164TA8179



- Adapter cable
- For VW diesel engines
 - Controller brand: VW
 - Controller types: multiple
 - Type: ICE machines
 - Serial communication
 - Type controller: DB9, 7-pole

REF 118TA3438



NAVITAS

PROBIT PB-200 PROGRAMMER STANDARD VERSION



- Controller brands: SRE controls, Navitas
- Controller types: TSE, PSE, DSE
- Type: electric machines
- Serial communication

REF 164TA8189

PROBIT SOFTWARE AND INTERFACE



- Controller brand: Navitas
- Controller type: TPM-400
- Type: electric machines
- CAN communication

REF 164TA8191



NUOVA ELETTRA

CONSOLE WITH DISPLAY



- Controller types: MOS MICRO
- Type: electric machines
- Serial communication

REF 164TA1112

CONSOLE WITHOUT DISPLAY



- Controller types: MOS MICRO
- Type: electric machines
- Serial communication

REF 164TA1113



OEM CONTROLS

OPTIMIZER OPTZ-4



- Controller brands: OEM controls
- Controller types: Superflex 4 SB controllers
- Type: ICE machines
- Serial communication

REF 164TA8215

OPTIMIZER OPTZ-8 USED ON JLG



A



B



- Controller brand: OEM controls
 - Type: ICE machines
 - Serial communication
- Calibrate and configure settings on OEM controllers utilised on JLG 600SC machines

Features/benefits:

- Separate adjustments for all four channels
- Separate adjustments for each direction of handle movement
- Default settings with the touch of a button
- Adjustments can be made from the platform or ground
- Pre ADE machines

REF 164TA8216



PERKINS

EDD - ELECTRONIC DIAGNOSTIC DEVICE



- Controller brand: Perkins
- Controller types: 1100, 2300, 2800 series motors
- Type: ICE machines
- CAN communication

REF 152TA9321



PG DRIVES TECHNOLOGY

SIGMADRIVE HANDHELD PROGRAMMER



The Sigmadrive handheld programmer is a powerful programming tool used to configure all Sigmadrive controllers and the Sigmagaugage LCD vehicle display. It allows simple and easy matching of motors to the controllers to produce the desired vehicle driving characteristics. It also has a built-in RS232 interface which allows it to re-flash the Sigmadrive controllers, I/O modules and Sigmagaugage LCD in the field to update the operating system and software.

- Controller type: Sigmadrive
- Type: electric machines
- CAN communication
- Type of connector: Molex Micro-Fit 6P

REF 164TA8218

I-DRIVE PC PROGRAMMER KIT



- Controller brand: PG Drives Technology
- Controller type: I-Drive
- Type: electric machines
- Serial communication
- With software (OEM), interface and cable

REF 164TA8219

TRIO + AND ACCESS PC PROGRAMMER KIT



- Controller brand: PG Drives Technology
- Controller type: Trio+ and Access
- Type: electric machines
- Serial communication
- With software (OEM), interface and cable

REF 165TA1074

ADAPTER CABLE



- Replacement cable

REF 164TA8220

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POCLAIN

HANDHELD TERMINAL



- Used on BT, Cesab, Fantuzzi
- Controller types: EQ TCS hydraulics controller
- Type: ICE machines
- CAN communication
- Supplied with cable for EQ TCS hydraulics controllers

REF 164TA1115

Cables



- Controller types: SMARTDRIVE hydraulics controller
- Type of connector: 14-pins

REF 164TA1114



- Controller types: EQ TCS hydraulics controller
- Type of connector: 24-pins

REF 164TA2510

ADAPTER CABLE



- For connecting PC to EQ TCS hydraulics controller
- Controller types: EQ TCS hydraulics controller
- Tune TCS software not included

REF 164TA1116

ADAPTER CABLE



- For connecting PC to Smartdrive hydraulics controller
- Controller types: Smartdrive hydraulics controller
- Type of connector: 14-pins

REF 165TA2346



USED ON
PRAMAC

TDA2 HANDSET



- Machine types: Lifter GX en CX
- Controller brand: Reghel
- Type: electric machines
- Serial communication

REF 164TA1111



SAUER-DANFOSS

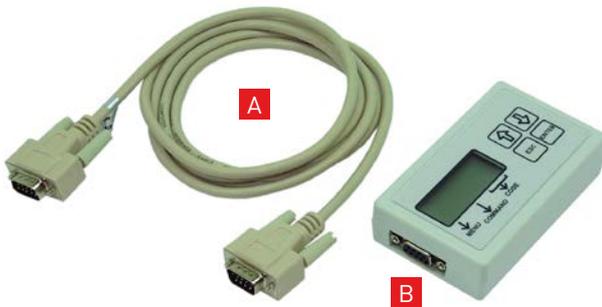
DACI BPK HANDSET



- Controller brands: Sauer-Danfoss, Schwarzmüller-Inverter
- Controller types: All dACi motor controllers except controllers used in Jungheinrich machines
- Type: electric machines
- Serial communication
- Type of connector: 4-pin Molex Mini-Fit Jr male

REF 164TA8204

SUSMIC-DIA 1 HANDSET



- Controller brand: Sauer-Danfoss
- Controller type: Susmic 12
- Type: ICE machines
- Serial communication
- Type of connector: DB9M-DB9M

REF 164TA8205

ADAPTER CABLE FOR SUSMIC-DIA 3 HANDSET OR PC WITH WINGPI



- Controller brand: Sauer-Danfoss
- Controller types: S1X, S5X and SUSMIC
- Type: ICE machines
- Type of connector: DB9F – Deutsch DT06-4S

REF 118TA2163

USB TO CAN INTERFACE



- Controller brand: Sauer-Danfoss
- Controller type: Plus +1
- Type: ICE/electric machines
- CAN communication
- Type of connector: DB9

REF 161TA3109



SEVCON (NOW: BORGWARNER)

MILLIPAK HANDSET



- Controller type: Millipak
- Type: electric machines
- Serial communication
- Type of connector: 6-pole Molex connector

REF 145TA2489

MOS90 HANDSET



- Controller type: MOS90
- Type: electric machines
- Serial communication

REF 106TA6377

Cable



- For MOS90 handset
- Adapter cable MOS90 handset to Millipak

REF 145TA2488

MOS90 HANDSET FOR JLG



For the programming of JLG machines that are equipped with Sevcon MOS90 controllers.

- Controller types: MOS90
- Type: electric machines
- Serial communication

REF 129TA9941

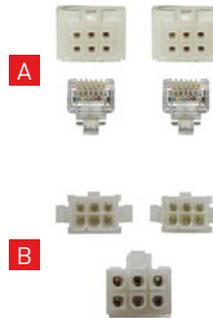
SC2000/POWERPAK/MICROPAK HANDSET



- Controller types: SC2000, PowerpaK, MicropaK
- Type: electric machines
- CAN communication
- 2 cables included
- PowerpaK/MicropaK cable with 6-pole Molex connector, SC2000 cable with RJ45 connector

REF 105TA4794

HANDSET POWERPAK KIT



- Used on Haulotte, Manitou
- Controller types: PowerpaK, MicropaK
- Type: electric machines
- CAN communication
- 2 x PowerpaK/MicropaK cable = with 6-pole Molex connector

REF 160TA3859

CABLES



- For SC2000/PowerpaK/MicropaK handset
- Controller types: PowerpaK/MicropaK

REF 145TA2491



- CAN splitter cable
- Controller types: PowerpaK, MicropaK

REF 145TA2493



- For SC2000/PowerpaK/MicropaK handset
- Controller types: SC2000

REF 145TA2490

POWERPAK/MICROPAK PCPAK



- Controller types: PowerpaK, MicropaK
- Type: electric machines
- CAN communication

REF 145TA2495

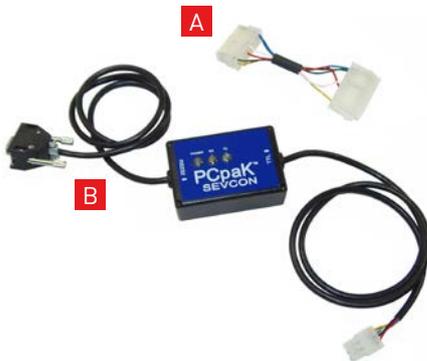
MILLIPAK PCPAK



- Controller types: Millipak
- Type: electric machines
- Serial communication

REF 145TA2494

MILLIPAK PCPAK USED ON HYSTER/YALE



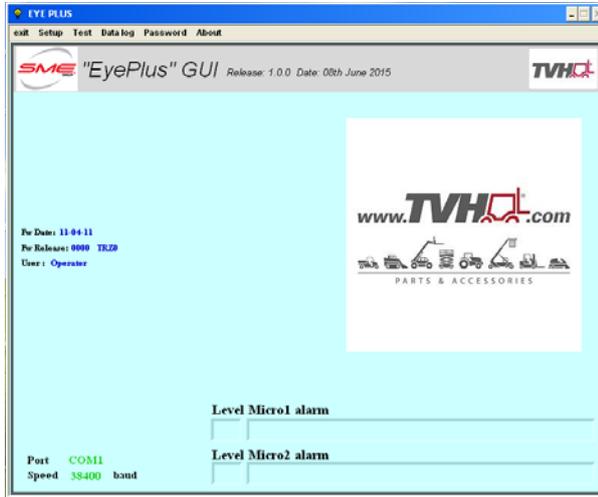
- Machine types: Hyster A1.00-1.50XL (C203), Yale ERC/ERP101-151RCF (A888), ERP10-15RCF (A888)
- Controller type: Millipak
- Type: electric machines
- Serial communication

REF 163TA8741



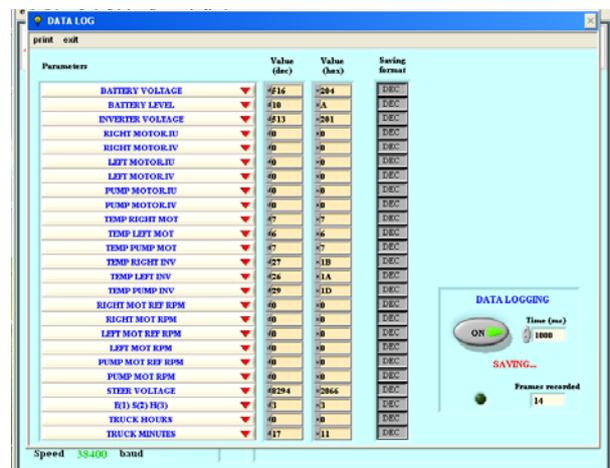
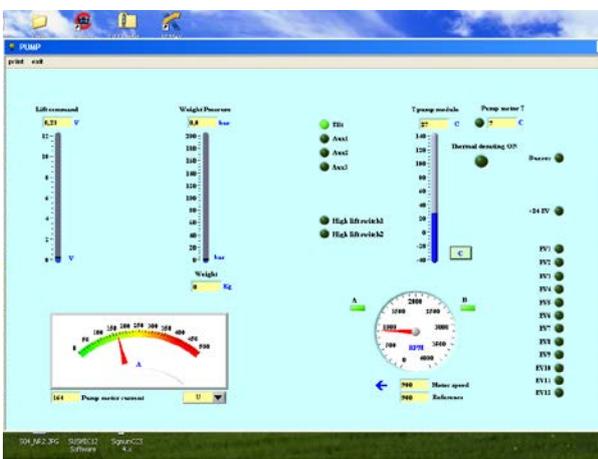
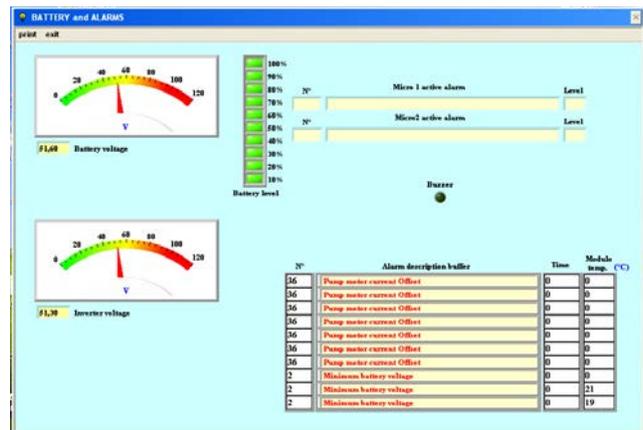
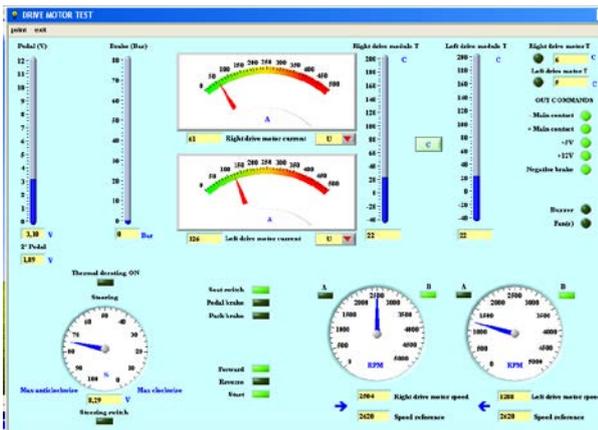
SME Elettronica

EYEPLUS SOFTWARE KIT



- Works on multiple makes
- Used on: Doosan, Tecna, Baoli, Tailift, Shangli
- Type: electric machines
- Cable 118TA3143 included

REF 165TA1406





USED ON
STILL

CABLE



- Cable CAN box to truck
- Controller types: multiple
- Type: ICE/electric machines

REF 164TA8176

CABLE



- Cable PC to truck
- Controller types: multiple
- Type: electric machines
- Type of connector: DB9

REF 164TA8177

USB TO SERIAL CONVERTER



- Controller types: multiple
- Type: ICE/electric machines
- Serial communication
- USB - DB9

REF 164TA8178

ADAPTER CABLE



- For VW diesel engines
- Controller brand: VW
- Controller types: multiple
- Type: ICE machines
- Serial communication
- Type of connector: DB9, 7-pole

REF 118TA3438



- For LPG engines with IMPCO controller
- Controller brand: Impco
- Controller types: multiple
- Type: ICE machines
- Serial communication
- Type of connector: DB9, 7-pole

REF 164TA8179

Cables



- CAN box to truck CH1, 4-pole 2 m
- Controller brand: Linde, Still
- Controller types: Linde, Still
- Type: ICE/electric machines
- Type of connector: 7-pole CAN connector

REF 118TA3284



- CAN box to truck
- Controller brand: multiple
- Controller types: multiple
- Type: electric machines
- Type of connector: AMP 1826511

REF 164TA8180



- Adapter cable
- CAN box to truck CH1, 4-pole, 0,5 m
 - Used on: Linde
 - Controller type: Linde
 - Type: ICE/electric machines
 - Type of connector: 7-pole CAN connector

REF 164TA8173



- Adapter cable
- CAN box to truck CH2, 8-pole 0,5 m truck + engine (Deutz, Ford, Kubota)
 - Used on: Linde
 - Controller type: Linde
 - Type: ICE/electric machines

REF 164TA8174



- Adapter cable
- CAN box to truck CH2, 8-pole 2 m
 - Used on: Linde
 - Controller type: Linde
 - Type: ICE/electric machines

REF 164TA8175



USED ON
TCM

ADAPTER CABLE



- Machine types: Acroba-series
- Controller brand: Meiden
- Controller types: multiple
- Types: ICE/electric machines

REF 164TA8229

ADAPTER CABLE



- Machine types: FB-7-, FTB-7-series
- Controller brand: Meiden
- Controller types: multiple
- Type: electric machines
- Data cable for software analysis on FB-7 and FTB-7 machines

REF 164TA8230

ADAPTER CABLE



- Machine types: FB-7-, FTB-7-series
- Controller brand: Meiden
- Controller types: multiple
- Type: electric machines
- Data cable for software analysis on FB-7 and FTB-7 machines

REF 164TA8231



TRIONIC

EZCAL HANDSET



- Used on: Skyjack, Upright, Snorkel, MEC, Airo, (not for JLG)
- Controller brand: Trionic
- Controller types: multiple
- Types: ICE/electric machines
- Serial communication
- Type of connector: 4-pins

REF 163TA8215

EZCAL HANDSET FOR JLG



To program JLG machines

The analyser kit is essential for programming and troubleshooting JLG aerial work platforms. This is a must-have tool for any service technician.

Features/benefits:

- Compact-size tool that you can carry with you to your job site
- Quick diagnostic for fault codes
- Adjust machine parameters on-site
- Enable and disable machine features
- Configure new options
- High-contrast LCD screen

REF 126TA5316

EZCAL PRO HANDSET



- Used on: Skyjack, Upright, Snorkel, MEC, Airo, (Not for JLG)
- Controller brand: Trionic
- Controller type: multiple
- Types: ICE/electric machines
- Serial communication to machine
- USB communication to PC
- Type of connector: 4-pins

REF 164TA8211

CABLE FOR EZCAL HANDSET



- Replacement cable

REF 164TA8212



UMS – UNIVERSAL DIAGNOSTIC SOFTWARE

NICE TO KNOW

This diagnostic tool allows to perform diagnostics, read & modify parameters, read & clear error logs and perform calibrations on a wide range of machines. Currently there is a version available used on Linde and a version used on Jungheinrich.

The package includes software and all required hardware to perform the available diagnostics. This is mainly a USB-to-CAN interface with additional cable to connect to the machine. For the Linde tool there is an additional USB-to-serial converter with a cable for connecting older OBD machines.

The user interface, diagnostic texts, error descriptions, ... are available in three languages: English, French and German. The language can easily be changed through the applications settings menu.

A support & update package is included. This is valid for 1 year and gives access to software updates and support on the diagnostic tool. When the support package expires, the software keeps working but updates and support will no longer be available until the support package is renewed.

If you already own this diagnostic tool for one brand, you can easily add another brand by purchasing an extension package. This extension package includes a software license and additional cables to be used on that brand.

The software can be installed on any Windows system (laptop/tablet) with the below minimum requirements:

System requirements

	Minimum	Recommended
Storage	0.5 GB	1 GB
RAM	2 GB	4 GB
CPU	Intel Core i3 or equivalent	Intel Core i5 of equivalent
OS	Windows 7 SP1, Windows 8(.1), Windows 10	
Other	1 free USB 2.0 Port	

Watch the video



DIAGNOSTIC TOOL USED ON JUNGHEINRICH



- Type: ICE/electric machines
- CAN communication
- 1 interface, 1 cable
- Includes software license

REF 165TA2853

EXTENSION USED ON JUNGHEINRICH



- Type: ICE/electric machines
- CAN communication
- 1 cable
- Includes software license

REF 165TA2855

SUPPORT PACK USED ON JUNGHEINRICH



- Renew license for UDS & UDX products
- Allows you to install updates during 1 year
- Grants technical support for 1 year
- Software keeps working without service pack but purchase of support pack is highly recommended (regular updates contain support for extra machines and extra functionalities)
- Type: ICE/electric machines

REF 165TA2894

DIAGNOSTIC TOOL USED ON LINDE



- Type: ICE/electric machines
- CAN + serial communication
- 2 interfaces, 2 cables
- Includes software license

REF 165TA2854

EXTENSION USED ON LINDE



- Type: ICE/electric machines
- CAN + serial communication
- 1 interface, 2 cables
- Includes software license

REF 165TA2856

SUPPORT PACK USED ON LINDE



- Renew license for UDS & UDX products
- Allows you to install updates during 1 year
- Grants technical support for 1 year
- Software keeps working without service pack but purchase of support pack is highly recommended (regular updates contain support for extra machines and extra functionalities)
- Type: ICE/electric machines

REF 165TA2895



ZAPI

HANDSETS

Console

Zapi handsets are specific to the vehicle manufacturer of the controller that is being worked on. As such, it is important to know the part number of the Zapi controller. TVH distributes standard Zapi handsets but also specific handsets that are used on BT, Yale, Caterpillar, Clark and Crown ...

Features:

- Adjusts controller parameters/setting
- Allows testing of the controller inputs
- Restores settings from a previously saved file
- Reads the last 5 controllers errors encountered
- Calibrates the accelerator pedal

Connection to controller

The console is normally connected to the controller by a Molex Spox connector. Some consoles however are not equipped with a Molex Spox connector. In these cases, an adapter is required to connect the console to the controller.

The adapter is a Molex Minifit connector 8-pins female in the case of:

- AC-3 (Minifit connectors version)
- AC-4 (Minifit connectors version)
- SICOS
- MHYRIO FLASH

Or a Molex Minifit connector 6-pins female in the case of:

- COMBI SEM
- SEM1 CAN (Minifit connectors version)
- MPB

In other controllers the console must be connected by wiring the pins of the console connector to the pins of the controller connector, this is the case for:

- AC-3 (Amp Saab 42-pole connector version)
- AC-4 (Amp Saab 42-pole connector version)
- COMBIAC1

There are also some controllers that cannot be connected to the console, this is the case for:

- AC-3 (Amp Saab 29-pole connector version)
- AC-4 (Amp Saab 29-pole connector version)
- HVC
- SMART ANTENNA

In this last case it is possible to communicate with the console via CAN BUS.

HANDSETS



Standard model that works on standard Zapi controllers. In general, if there is a specific brand of handset listed below, this standard handset will not work on that brand.

- Used on: multiple
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 105TA4796

HANDSETS



- Used on: BT, Toyota
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 152TA1929



- Used on: Cesab
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 127TA3784



- Used on: Clark
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 127TA3785



- Used on: Crown
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 164TA2188



- Used on: Fiat
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 127TA3787



- Used on: Fiat, Komatsu, Pimespo, Still
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female and 9-pin Sub-D (male and female) + extra cable [REF 118TA3208](#)

REF 127TA3792

HANDSETS (CONTINUED)



- Used on: Haulotte
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female + adapter [REF 160TA3251](#)
- Remark: comes with extra adapter

REF 160TA4048



- Used on: Komatsu
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 9-pin Sub-D male
- Cable/interface: adapters possible

REF 127TA3788



- Used on: Linde, Still
- Controller type: SEM2
- Type: electric machines
- Serial communication
- Type of connector: 9-pin Sub-D male + ALM JPT REC 6-pin adapter cable
- Remark: comes with extra adapter to 6-pins AMP JPT connector

REF 127TA3789



- Used on: Mitsubishi, Caterpillar, Rocla
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 127TA3790



- Used on: Montini
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Cable/interface: adapters possible

REF 127TA3791



- Used on: Samag
- Controller type: multiple
- Type: electric machines
- Serial communication
- Type of connector: 6-pin Molex Mini-Fit JR male
- Cable/interface: adapters possible

REF 164TA2189

ADAPTER CABLES



- Controller types: CombiSEM-1 MPB except controllers with Ampseal connector
- Type of connector: 8-pin Molex SPOX male, 6-pin Molex Mini-Fit JR male

REF 118TA3206



- Controller types: CAN-IO
- Type of connector: 8-pin Molex Mini-Fit JR male, 10-pin Molex Mini-Fit JR female

REF 164TA2196



- Used on: Caterpillar, Mitsubishi, Rocla
- Type of connector: kit of 2 cables: REF 164TA2198 + REF 164TA2199

REF 164TA2197



- Used on: Caterpillar, Mitsubishi, Rocla
- Type: connector: 8-pin Molex SPOX male, 10-pin Molex Mini-Fit JR male

REF 164TA2198



- Used on: Pimespo, Fiat, Komatsu, Still
- Type of connector: 9-pin Sub-D female, 6-pin AMP JPT Tab plug

REF 118TA3208



- Used on: Caterpillar, Mitsubishi, Rocla
- Type of connector: 8-pin Molex SPOX female, 10-pin Molex Mini-Fit JR female

REF 164TA2199



- Used on: Linde, Still
- Controller types: SEM 2
- Type of connector: 9-pin Sub-D female, 6-pin AMP JPT Tab plug

REF 164TA2200



- Type of connector: 9-pin Sub-D female, 8-pin Molex SPOX female

REF 164TA2201



- Adapter from Samag handset to standard Zapi connector
- Used on: Samag
- Type of connector: 8-pin Molex SPOX female, 6-pin Molex Mini-Fit JR female

REF 164TA2202



- Adapter from Samag handset to standard Zapi connector and MDI connector
- Used on: Samag
- Type of connector: 8-pin Molex SPOX female, 6-pin Molex Mini-Fit JR female, 6-pin Molex Mini-Fit JR male

REF 164TA2203



- Controller types: AC3, AC4, CAN I/O, SICOS
- Type of connector: 8-pin Mini-Fit JR male, 8-pin Molex SPOX male

REF 135TA3013



- Used on: Haulotte
- Controller types: CAN-IO
- Type of connector: 8-pin Molex SPOX male, 6-pin AMP FASTIN/FASTON female

REF 160TA3251

SMART CONSOLE

Smart console

With this console it is possible to interact with the controller via CAN or serial communication in order to monitor the real-time operation and to change the software parameters in order to better fit the application.

The console on-board USB port also permits to import/export controller operational data using an external flash drive.

In addition to this smart console, other ZAPI tools are available, either serial or CAN-based, permitting to operate on controllers using external devices such as personal computers.

Technical details

- 3,2" TFT colour display
- ARM Cortex 32-bit microcontroller
- Connection via CAN or serial line (compatibility mode)
- Power supply from truck battery (24 V to 80 V) or from on-board
- NiMh AA-batteries
- Improved navigation and tester menu
- Interchangeable cable
- 3 user-programmable buttons
- USB connection to flash drives
- Dimensions: 100 x 190 x 60 mm

Man-machine interface detailsTester

Real-time display of the analogue and digital measurements in the controllers (battery voltage, motor voltage, motor current, temperature, potentiometer voltage ...)

Programming parameters

Multilevel password-protected access to the controllers parameters.

Save & restore

Possibility to save to an external memory a set of parameters in order to program multiple controllers with the same set in an automated way.

Alarms display

Last faults/warnings.

Advanced functions

CAN messages real-time data-logging on USB for system analysis.

Real-time data-logging of I/O values shown in the tester menu SW download for firmware upgrade.

SMART CONSOLES (CONTINUED)



- Controller types: all controllers with flash memory
- Type: electric machines
- Serial and CAN communication
- Type of connector: 8-pin Molex SPOX female
- Adapters possible

REF 152TA1965



- Used on: Pramac
- Controller types: all controllers with flash memory
- Type: electric machines
- Serial and CAN communication
- Type of connector: 8-pin Molex SPOX female, 4-pin Molex Mini-Fit JR male
- Adapters possible

REF 164TA2190

Cables



- Serial cable for smart console
- Type of connector: 15-pin Sub-D male, 8-pin Molex SPOX female
 - Cable/interface: for smart console

REF 164TA2193



- CAN cable for smart console
- Type of connector: 9-pin Sub-D male, 15-pin Sub-D male
 - Cable/interface: for smart console

REF 164TA2191



- CAN cable for smart console
- Type of connector: 15-pin Sub-D male, 6-pin Deutsch DT male
 - Cable/interface: for smart console

REF 164TA2192



- CAN cable for smart console
- Used on: Pramac
 - Type of connector: 15-pin Sub-D male, 4-pin Molex Mini-Fit JR male (with can terminator)
 - Cable/interface: for smart console

REF 164TA2498

SERIAL TO CAN INTERFACES



- Used on: Hyster, Yale
- Controller types: Combi ACX, Combi ACO, ACEX, ACEO
- Type: electric machines
- CAN communication
- Type of connector: 8-pin Molex SPOX connector + 2-pin AMP Superseal cap + 3-pin Deutsch Male DT
- For Zapi handset/interface

REF 164TA2194



- Used on: Icem
- Controller types: Combi ACX, Combi ACO, ACEX, ACEO
- Type: electric machines
- Type of connector: 8-pin Molex SPOX female + male
- For Zapi handset/interface

REF 164TA2195

SOFTWARE WITH SERIAL INTERFACE



Standard model that works on standard Zapi controllers. In general, if there is a specific brand of handset listed below, this standard handset will not work on that brand.

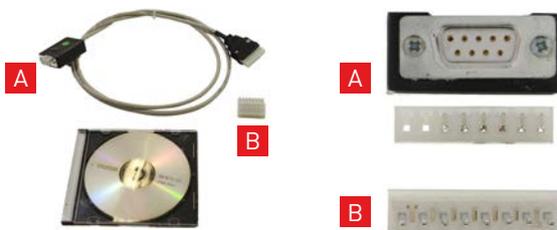
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Software included
- Adapters possible

REF 127TA3794



- Controller types: CombiSEM-1, MPB, except controllers with Ampseal connector
- Type: electric machines
- Serial communication
- Type of connector: 10-pin Molex Mini-Fit JR male
- Software included

REF 164TA2499



- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female + 8-pin Molex KK male loose
- Software included
- Adapters possible

REF 164TA2500



- Doesn't work on Windows 64-bit system
- Used on: Fiat, Komatsu, Pimespo
- Type: electric machines
- Serial communication
- Type of connector: 8-pin Molex SPOX female
- Software included
- Adapters possible

REF 164TA2501

SOFTWARE WITH CAN INTERFACE



- Type: electric machines
- CAN communication
- Type of connector: 9-pin Sub-D
- Software included
- Adapters possible

REF 164TA2502



- Type: electric machines
- CAN communication
- Type of connector: 9-pin Sub-D
- Software included
- Adapters possible

REF 164TA2503

SOFTWARE WITH SERIAL AND CAN INTERFACE



- Serial and CAN interface
- Type: electric machines
- Serial + CAN communication
- Type of connector: 8-pin Molex SPOX female + adapter cable REF 118TA3206 + cable [REF 164TA2507](#)
- Software included
- Adapters possible

REF 164TA2504

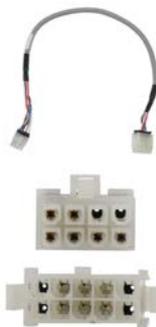
Cables

Type: electric machines



- Adapter cable
- For use with the ZpCanFlasher program for software updates
- Used on: Fiat, Komatsu, Pimespo
- Controller types: Dual AC2, AC2, AC3, Display
- Type of connector: 9-pin AMP CPC female (size 13)
- Cable/interface: needs CAN interface

REF 164TA2505



- Adapter cable
- Makes: multiple
- Controller types: AC3, AC4, CAN I/O, SICOS
- Type of connector: 8-pin Molex Mini-Fit JR male to 10-pin Molex Mini-Fit JR female
- Cable/interface: needs interface

REF 164TA2196



- Splitter cable
- Used on: multiple
- Controller types: MDI-CAN
- Type of connector: 2 x 6-pin Molex Mini-Fit JR male, 6-pin Molex Mini-Fit JR female

REF 164TA2506

NOTES

A series of horizontal dotted lines for taking notes.



ZF

AEB STARTER



- Controller brand: ZF
- Controller types: Ergopower transmissions WG110-310 with electronic control unit EST-37 from SW 8.12
- Type: ICE machines
- Type of connector: AMP 6p

REF 164TA8217



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Go to **downloads** on www.tvh.com to find all catalogues.

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REF 39427595

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