

HYDAC

INTERNATIONAL



Control Technology for Mobile Machines Product Catalogue



TTControl
HYDAC INTERNATIONAL
HY-TTC 90-CD-570K-832K-WD00-000
Version: 3.00
Voltage: +12VDC
Production Date: 2018.10
Serial: 09010101254567
Made in Germany [06583 /01] 921090

4 Displays with integrated controller

Easy operation due to graphical user interface

Ease of use and the provision of vehicle information have had a significant role in mobile machinery for a long time.

The displays must also be clearly legible in poor light conditions and the graphical display should be as intuitive and self-explanatory as possible. Designing the (right) operating and display instruments as well as ensuring the best lay-out for the driver's field of vision are a serious challenge for the design engineer.

HYDAC ELECTRONIC, with its programmable displays which can be parameterized to suit every application, has a solution to the display problem which is both extremely flexible and yet simple to operate.

All engine data in view – without programming

All important engine data in a machine is generally transmitted via CAN bus and the standard J 1939 log is used to do this.

The HY-eVision 3.5 from HYDAC ELECTRONIC offers the opportunity of reading and displaying the required values from this ongoing transmission of data. Simple parameterization of the display options is all that is needed.

Display, user interface and control in one housing

Vehicle data, parameters and values are displayed ergonomically and important information is highlighted dynamically, and action can be taken in response to the situation displayed visually. HYDAC ELECTRONIC offers a range of displays with a built-in controller which copes exceedingly well with these demands.

The flexible layout of the displays together with the ergonomic operation of the machine using a visual reference brings a significant improvement in convenience to every machine builder.

The HY-eVision 10.4 is a cost-effective display instrument in the 10" class, including touchscreen and camera inputs for higher visual requirements.

The controllers in the new HY-eVision² family also offer a variety of additional features. The higher resolution and 3D capability of these instruments are just two examples.

Whatever the requirements, HYDAC ELECTRONIC has the right instrument.



Type	HY-eVision 3.5	HY-eVision 10.4	HY-eVision ² 7.0	HY-eVision ² 10.4
Processor	16 bit Fujitsu MC	32 bit MPC 823	32 bit ARM Cortex A8 800 MHz	
Screen diagonal	3.5" (8.9 cm)	10.4" (26 cm, 4:3)	7" (17.8 cm, 16:9)	10.4" (26 cm, 4:3)
Resolution (pixels)	320 x 240	640 x 480	800 x 480	1,024 x 768
Memory	128 kB Flash int. 1 MB Flash ext. 20 kB RAM	64 MB Flash 32 MB RAM	512 MB Flash 256 MB RAM	512 MB Flash 256 MB RAM
Interfaces	2 x CAN (J1939) 2 x RS232	2 x CAN 1 x LAN 3 x RS232 1 x keypad	2 x CAN 1 x LAN 1 x RS232 1 x USB (OTG) 2 x camera	4 x CAN 1 x LAN 1 x RS232 1 x USB (OTG) 2 x camera
Inputs and outputs	Touch 1 Digital-Out (2 A)	Touch (Option) 2 LEDs 10 function keys	Touch (Option) Buzzer Ambient light sensor 10 function keys	Touch (Option) Buzzer Ambient light sensor 10 function keys
Programming	Parameterization only	CoDeSys® V2.3 C/C++	CoDeSys® V3.4	CoDeSys® V3.4



Universal Mobile Display with Integrated Controller HY-eVision 3.5

Description

The compact and cost-effective HY-eVision 3.5 comprises a 3.5" monochrome monitor with an integrated display controller and touchscreen function.

The backlit, transfective TFT display provides excellent legibility even under the poorest light conditions.

It is protected by a robust, compact IP 67 housing which can be built directly into the instrument panel of the driver's cab.

The HY-eVision 3.5 devices make it possible for the operator to create an HMI interface very quickly without programming. That just leaves the monitor layouts, parameter values and value ranges for up to 16 different CAN J1939 vehicle data sets to be configured or parameterized.

Special features

- Monitor diagonal 3.5" (8.9 cm)
- Transfective display
- Touchscreen function
- Adjustable backlighting
- Can be used in 12 V and 24 V vehicle systems
- 2 CAN interfaces (J1939)
- 2 RS-232 interfaces
- Digital output (2 A)
- Waterproof and dustproof IP67 panel-mount housing
- e12 type approval

Technical data

Ambient conditions	
Operating temperature	-20 .. +85 °C -40 .. +85 °C with optional heating foil
Supply voltage	6 .. 32 V DC
Current consumption	70 mA at 12 V
Fulfils the following standards	
CE - mark	Compliant with 2004/108/EC
Protection class	EN 60529 IP 67 (face)
Temperature	SAE J1378
Vibration, Shock, Bump	SAE J1378
Dimensions and weight	
Housing dimensions	107 x 107 x 46 (14.5) mm
Housing material	Glass fibre reinforced plastic
Weight	~ 190 g
Display	
Screen diagonal	3.5" (8.9 cm)
Pixels	320 x 240
Touchscreen	Resistive
Features	
3.5" LCD with backlight and touchscreen	
Adjustable backlighting	
16 bit Fujitsu microprocessor	
20 kB RAM	
1 MB external Flash; 128 kB internal Flash	
Real-time clock	
2 x CAN 2.0B, J1939	
2 x RS-232 Serial interface	
2 A digital output with short circuit protection	
Password protection	

Model code

HY-eVision 3.5 - 00 - 0 - G - 00 00 00 - A - 000

Firmware

00 = none (instrument can only be parameterized)

RAM memory

0 = special size (see technical data)

Flash memory

G = 1 MByte

Functional safety

00 = standard (not provided)

Equipment options

00 = none

Operating options

00 = none

Resolution

A = 320 x 240 Pixels

Modification number

000 = standard

Note

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories

Appropriate accessories, such as cables and connectors, cameras etc. can be found in the Accessories section.

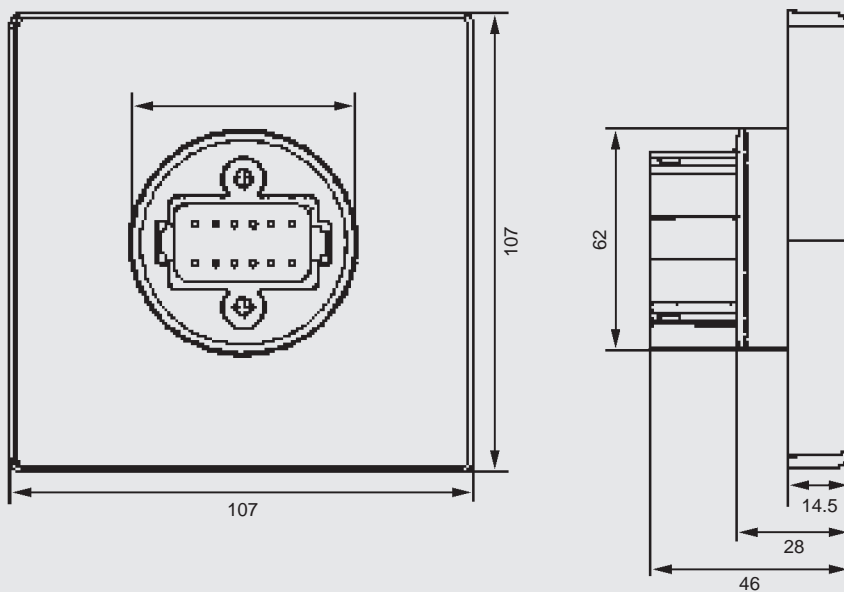
Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

Dimensions



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Description

The back-lit 10.4" TFT colour display with integrated display controller is characterized by very high image quality and optimal readability, even under the poorest light conditions.

The display is protected by a robust aluminium die-cast housing and can either be built directly into the instrument panel or surface-mounted in the field of vision of the driver/operator in the cockpit using a "RAM Mount®" system.

Seven programmable control keys and three navigation keys create an easy-to-use human/machine interface.

Display with touchscreen function is also available as an option.

Up to two external cameras can be connected to the display via the two integrated composite video ports and controlled via software.

Special features

- 10.4" monitor with large angle of view, high contrast ratio and optional touchscreen
- Waterproof and dustproof IP 65 die-cast aluminium housing
- Seven programmable function keys and three navigation keys
- Panel or surface mount
- Operation possible in 12 V and 24 V systems
- Real-time-clock and internal battery
- e12 type approval

Universal Mobile Display with Integrated Controller HY-eVision 10.4

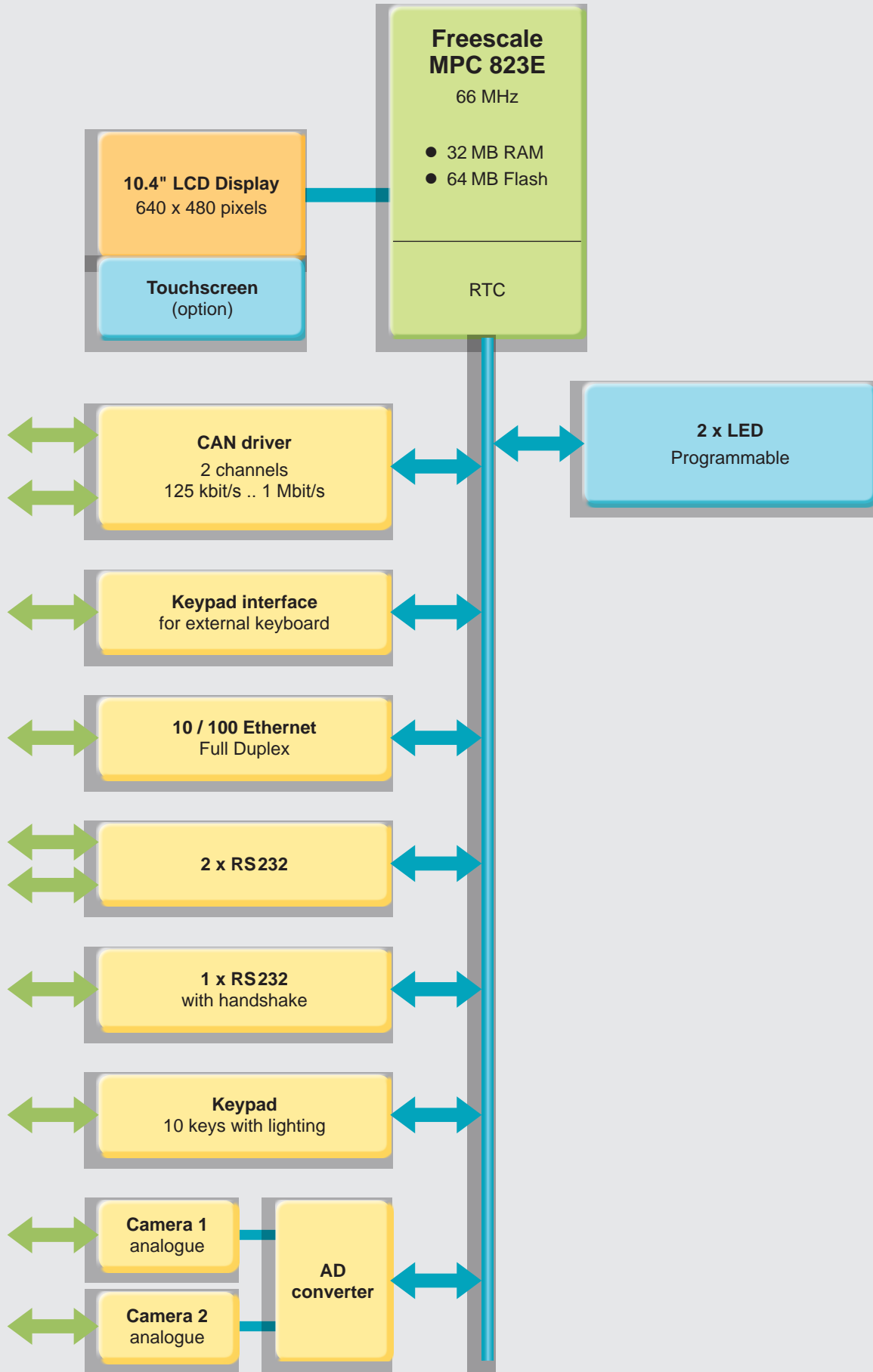
Technical data

Ambient conditions	
Operating temperature	-30 .. +70 °C (ambient temperature)
Storage temperature range	-30 .. +85 °C
Supply voltage	9 .. 34 V
Fulfils the following standards	
CE - mark	Compliant with 2004/108/EC
EMC	ISO 13766
ESD	IEC 61000-4-2
Protection class	EN 60529 IP 65
Temperature	EN 60068-2-1; -14Nb; -2; -78; -30
Vibration, Shock, Bump	IEC 60068-2-29; -64; -27; -32
Dimensions and weight	
Housing dimensions	280 x 232 x 42 mm
Housing material	Aluminium
Weight	~ 2,300 g
Display	
Screen diagonal	10.4" (26 cm) / 4:3 format
Pixels	640 x 480
Active area	211.2 mm x 158.4 mm
Pixel size	0.33 mm x 0.33 mm
Luminance	450 cd/m ²
Viewing angle	Vertical: ±50° / Horizontal: ±70°
Contrast ratio	600:1
Reaction time	10 ms
LCD type	TFT (active matrix)
Touchscreen (option)	Resistive
Backlight	Cold cathode fluorescent type
Life of backlight	≥ 10,000 h at +25 °C (constant)
Features	
LCD with backlight and high contrast	
32 bit freescale MPC 823E 66 MHz processor	
64 MB int. Flash, 32 MB int. RAM	
4 x standard Amphenol male connections (C1 .. C4)	
K15 for ignition input	
2 x composite video interface for external camera	
2 x CAN interface, 125 kbit/s .. 1 Mbit/s	
2 x serial interface (1 x RS232, 1 x keypad interface)	
1 x RS-232 modem (with handshake lines)	
1 x RS232 and 1 x Ethernet interface for debugging	

Note: All I/Os and interfaces are protected against short circuit to GND and BAT+.

Block circuit diagram

HY-eVision 10.4



Model code

HY-eVision 10.4 – CD – M – N – 00 00 XX – D – 000

Firmware

CD = CoDeSys® run-time system
for CoDeSys® development environment

RAM memory

M = 32 MByte

Flash memory

N = 64 MByte

Functional safety

00 = standard (not provided)

Equipment options

00 = none

Operating options

01 = with touchscreen function

02 = with touchscreen function (bonded version)

Resolution

D = 640 x 480 pixels

Modification number

000 = standard

Note

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories

Appropriate accessories, such as cables and connectors, cameras etc. can be found in the Accessories section.

Note

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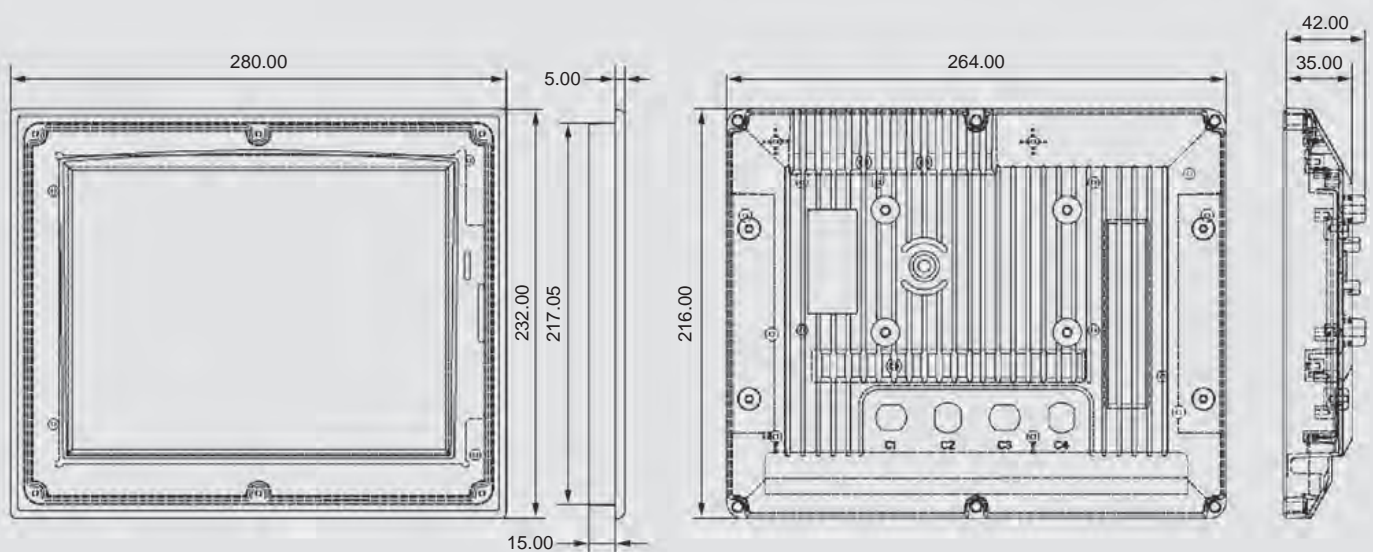
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Dimensions





Universal Mobile Display with Integrated Controller HY-eVision² 7.0

Description

The compact 7" TFT back-lit colour display with integrated high-end eVision² display controller is characterized by very high image quality, low reflection, high colour saturation and optimum readability, even under the most adverse light conditions.

The display is protected by a robust aluminium / plastic housing and can either be built directly into the instrument panel or surface-mounted in the field of vision of the driver/operator using a RAM Mount[®] system in the cockpit.

Ten programmable illuminated control keys along with the optional touchscreen feature create an easy-to-use human-machine interface.

Up to two external cameras can be connected to the display via the two integrated composite video ports and controlled via software.

Special features

- 7.0" monitor with large angle of view, high contrast ratio
- Programming in CoDeSys[®] V3
- Display of PDF files, animations and videos, 3D capability
- 2 camera interfaces with picture-in-picture feature
- 3G modem and/or GPS module available as an option
- Real-time clock
- Operation possible in 12 V and 24 V systems
- Waterproof and dustproof IP65 housing
- e12 type approval

Technical data

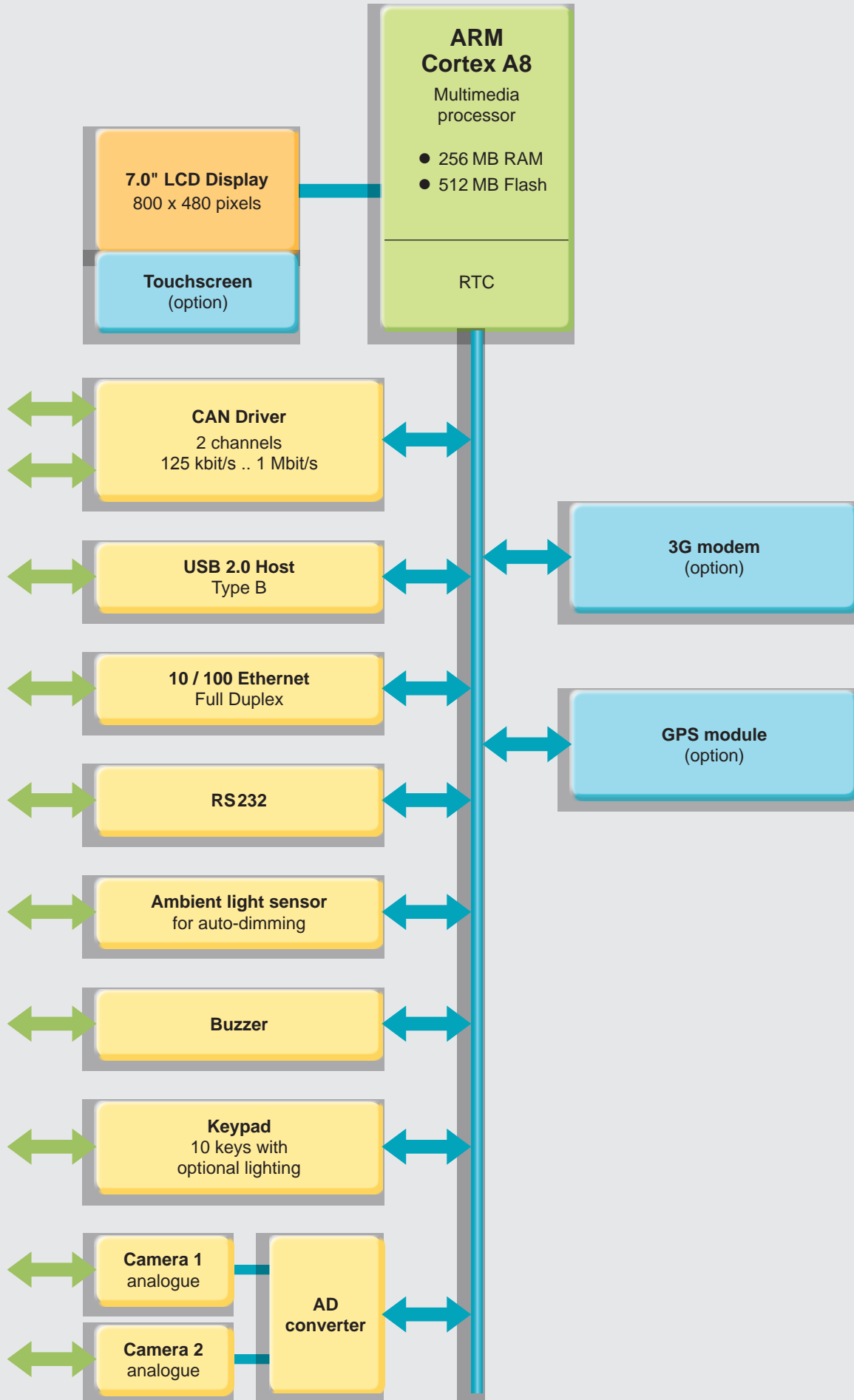
Ambient conditions	
Operating temperature	-30 .. +60 °C / +70 °C* (ambient temperature)
Storage temperature range	-30 .. +80 °C
Supply voltage	9 .. 32 V DC
Fulfils the following standards	
CE - mark	Compliant with 2004/108/EC
EMC	ISO 13766
ESD	IEC 61000-4-2
Protection class	EN 60529 IP 65
Temperature	EN 60068-2-1; -14Na; -14Nb; -2; -3; -30
Vibration, Shock, Bump	IEC 60068-2-64; -27; -29
Dimensions and weight	
Housing dimensions	230 x 130 x 50.4 mm
Housing material	Aluminium, anodised / reinforced glass fibre
Weight	~ 980 g
Display	
Screen diagonal	7.0" (17.8 cm) / 16:9 format
Pixels	800 x 480
Active area	152.4 mm x 91.4 mm
Pixel size	0.1905 mm x 0.1905 mm
Luminance	500 cd/m ²
Viewing angle	Vertical: ±60° / Horizontal: ±70°
Contrast ratio	600:1
Reaction time	5 ms
LCD type	TFT (active matrix)
Backlight	LED
Life of backlight	≥50,000 h at +25 °C (constant)
Features	
LCD with backlight and high contrast	
Auto-dimming via ambient light sensor	
32 bit ARM Cortex A8 microcontroller, 800 MHz, 512 MB Flash, 256 MB RAM	
34-pole central male connection	
K15 for ignition input	
2 x composite video interface for external camera	
2 x CAN interface, 125 kbit/s .. 1 Mbit/s	
1 x RS232 and 1 x Ethernet interface for debugging	
1 x USB 2.0 host	
Real-time clock (buffered with GoldCap)	
Buzzer	
3G modem and/or GPS module (option)	
MicroSD card for memory expansion (option)	

Note: All external interfaces are protected against short circuit to GND and BAT+.

* depending on the model

Block circuit diagram

HY-eVision² 7.0



Model code

HY-eVision² 7.0 – CD – P – R – 00 XX XX – E – 000

Firmware

CD = CoDeSys® run-time system
for CoDeSys® development environment

RAM memory

P = 256 MByte

Flash memory

R = 512 MByte

Functional safety

00 = standard (not provided)

Equipment options

00 = none (standard is panel-mounted version)
07 = with GPS and GSM function

Operating options

00 = none
01 = with touchscreen function

Resolution

E = 800 x 480 pixels

Modification number

000 = standard

Note

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories

Appropriate accessories, such as cables and connectors, cameras etc. can be found in the Accessories section.

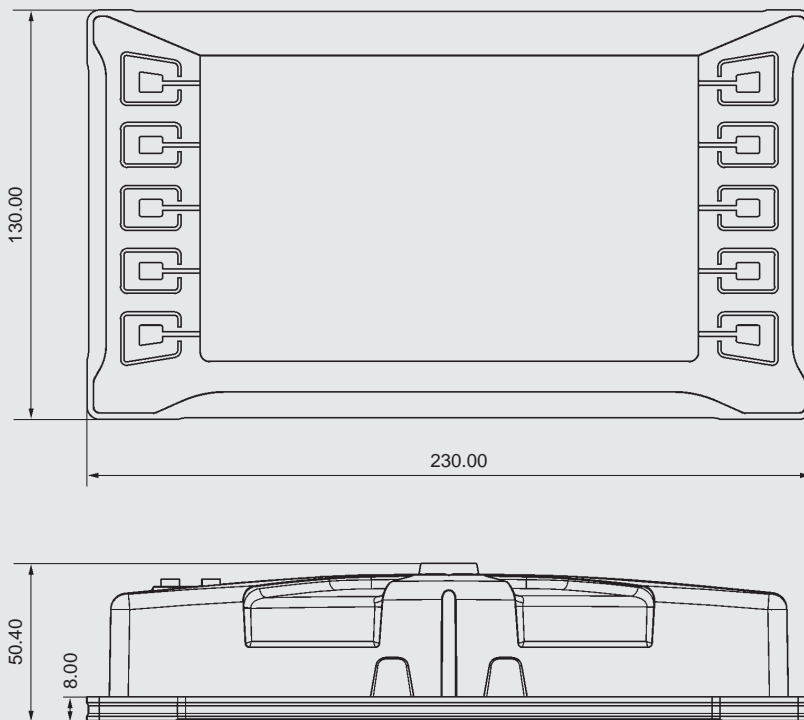
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Subject to technical modifications.

Dimensions



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Universal Mobile Display with Integrated Controller HY-eVision² 10.4

Description

The high resolution 10.4" TFT back-lit colour display with integrated high performance multimedia controller is characterized by very high image quality and optimum readability, even under the most adverse lighting conditions.

Seven programmable control keys and three navigation keys along with the optional touchscreen feature create an easy-to-use human-machine interface.

The display is protected by a robust aluminium die-cast housing and can either be built directly into the instrument panel or surface-mounted in the field of vision of the driver/operator in the cockpit using a "RAM Mount[®]" system.

Up to two external cameras can be connected to the display via the two integrated composite video ports and controlled via software.

Special features

- 10.4" monitor with large angle of view, high contrast ratio and optional touchscreen function
- Display of PDF documents, images, videos
- 3D capability, picture-in-picture function
- 4 CAN interfaces
- 2 composite video interfaces
- USB 2.0 interface (OTG)
- Programming in CoDeSys[®] V3
- Waterproof and dustproof IP 65 die-cast aluminium housing
- 7 programmable function keys and 3 navigation keys
- Operation possible in 12 V and 24 V systems
- Real-time clock with GoldCap
- 3G modem and/or GPS module available as an option
- e12 type approval

Technical data

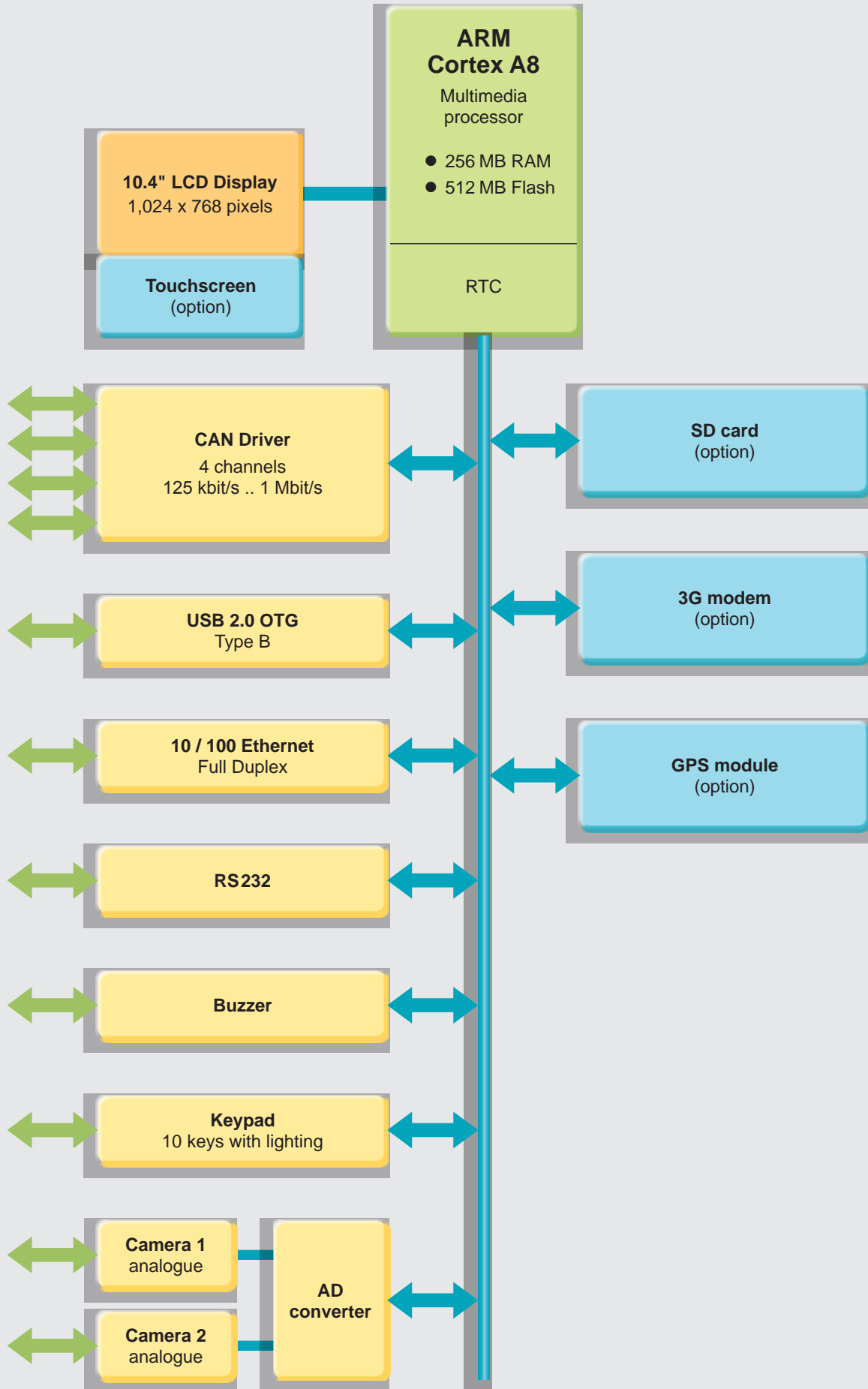
Ambient conditions	
Operating temperature	-30 .. +60 °C / +70 °C* (ambient temperature)
Storage temperature range	-30 .. +80 °C
Supply voltage	9 .. 32 V DC
Fulfils the following standards	
CE - mark	Compliant with 2004/108/EC
EMC	ISO 13766
ESD	IEC 61000-4-2
Protection class	EN 60529 IP 65
Temperature	EN 60068-2-1; -14Na; -14Nb; -2; -3; -30
Vibration, Shock, Bump	IEC 60068-2-29; -64; -27; -32
Dimensions and weight	
Housing dimensions	280 x 232 x 42 mm
Housing material	Aluminium
Weight	~ 2,300 g
Display	
Screen diagonal	10.4" (26 cm) / 4:3 format
Pixels	1,024 x 768
Active area	210.4 mm x 157.8 mm
Pixel size	0.2055 mm x 0.2055 mm
Luminance	500 cd/m ²
Viewing angle	Vertical: ±88° / Horizontal: ±88°
Contrast ratio	1,200:1
Reaction time	10 ms
LCD type	TFT (active matrix)
Touchscreen (option)	Resistive
Backlight	LED
Life of backlight	≥50,000 h at +25 °C (constant)
Features	
LCD with backlight and high contrast	
32 bit ARM Cortex A8 800 MHz multimedia processor	
512 MB Flash, 256 MB RAM (optional SD card for memory expansion)	
4 x standard Amphenol male connections (C1 .. C4)	
K15 for ignition input	
2 x composite video interface for external camera	
4 x CAN interface, 125 kbit/s .. 1 Mbit/s	
1 x RS232 interface	
1 x Ethernet interface for debugging	
1 x USB 2.0 OTG (Host or Device)	
Real-time clock, buzzer	
3G modem and/or GPS module (option)	
Programming: CoDeSys [®] V3	

Note: All external interfaces are protected against short circuit to GND and BAT+.

* depending on the model

Block circuit diagram

HY-eVision² 10.4



Model code

HY-eVision² 10.4 – CD – P – R – 00 XX 03 – G – 000

Firmware

CD = CoDeSys® run-time system
for CoDeSys® development environment

RAM memory

P = 256 MByte

Flash memory

R = 512 MByte

Functional safety

00 = standard (not provided)

Equipment options

00 = none
07 = with GPS and GSM function

Operating options

03 = with touchscreen function and keypad lighting

Resolution

G = 1,024 x 768 pixels

Modification number

000 = standard

Note

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories

Appropriate accessories, such as cables and connectors, cameras etc. can be found in the Accessories section.

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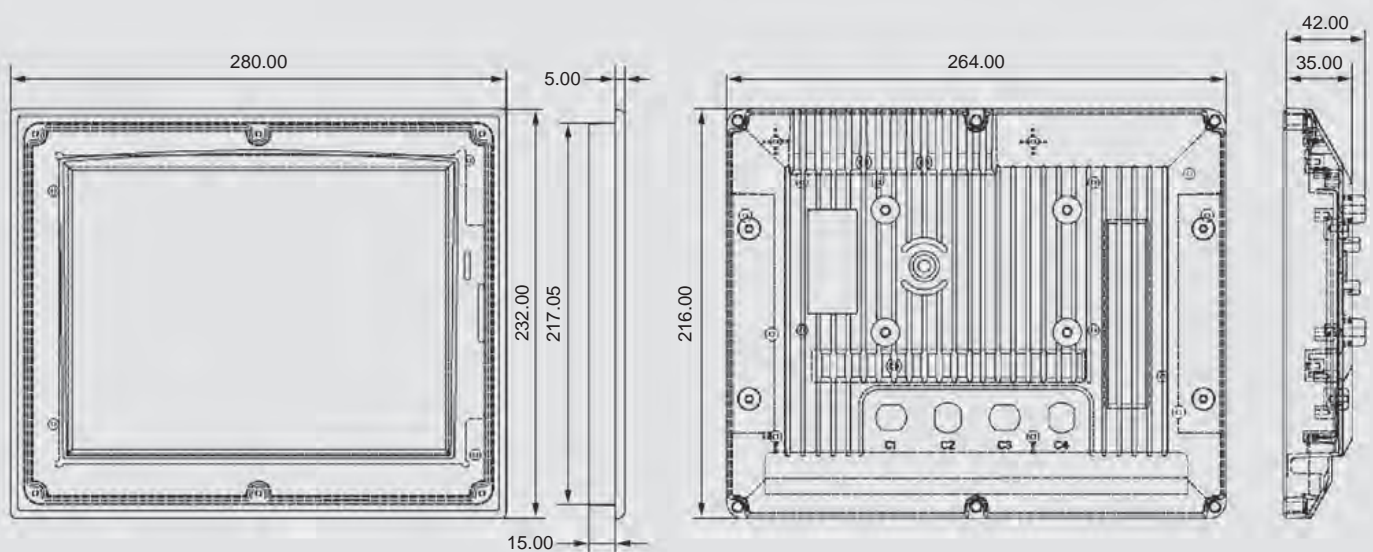
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Dimensions



6 Accessories

The right accessories are needed to turn control devices, visualization solutions and expansion modules into customised complete solutions.

Whether it is the wiring and connectors, the mounting accessories for installing devices, or the relevant proven operating elements that you need – the wide range of products from HYDAC always offers the right solution for every application.

The range of accessories from HYDAC also includes starter packages, termination boards, as well as demo cases and presentation boards for training and development purposes.



Cable harnesses, cabling and connection technology

- Connector kits for field assembly
- Connection cables (cable harnesses) with flying leads
- Fully assembled connection cables with all necessary connectors
- Complete cable kits for Vision and eVision instruments



Operating controls

- Joysticks with CAN-interface
- Keypads with CAN or serial interface
- Encoders with CAN-interface



Visualisation accessories

- Compact colour camera for Vision and eVision visualization instruments

Accessories for training and testing purposes



- Termination boards for HY-TTC and Vision controllers

- Demo case and test rigs for mobile and stationary training and testing purposes

For more detailed information and for precise specifications of our accessory components, please contact our HYDAC ELECTRONIC Sales.

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