



# Fuel Station

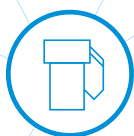
Catalogue of products





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# ADP1/L

## Electronic Calculator for Fuel Dispensers

The calculator ADP1/L covers all the functions necessary for the low-cost dispenser and in addition it supports the current global standards. It implicitly supports an electronic calibration of meters, an automatic temperature conversion, an internal electronic totals, a communication line and much more. It is not necessary to install any additional electronic module to the standard single product dispenser.

ADP1/L can operate in either the standalone (manual) or the communication mode. The calculator uses communication protocol EASYCALL that is also implemented in the widely used site controllers and POSes – for instance DOMS, PetroVend and others.

Setting the calculator parameters guarantees the flexibility of the function. The parameters are compatible with the other Beta Control calculators. The calculator parameters, unit prices, electronic calibration values and the ATC can be set using the wireless keyboards over the infrared transmission.

The customer prepay keyboard can be connected to the ADP1/L calculator. Customers can prepay the volume or the amount of fuel they ask to dispense. The external slave display can be connected to the calculator that has the same dimensions as the display.

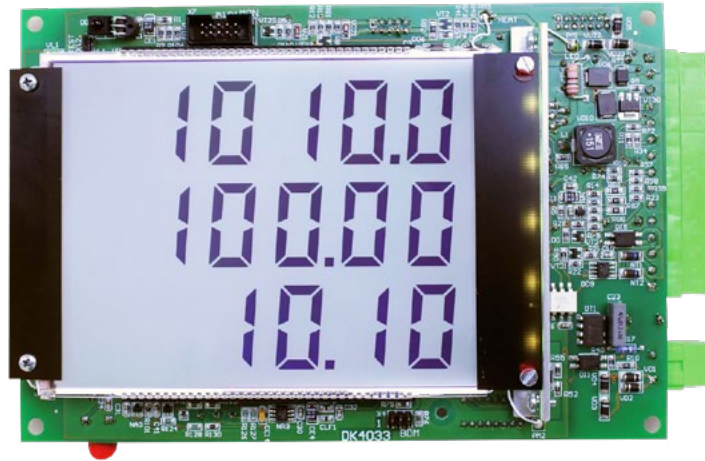
The calculator is equipped with the internal electronic nozzle totals of the volume, amount and number of transactions as well as with the non-reset-able meter totals of the volume. Optionally, the calculator can be extended with the seven-digits electromechanical litre volume totals.

The calculator can be configured for using the two or three-channel shaft-encoder (pulsar). Using the external PWM/L module enables driving the high and low flow valves. On the basis of the customers request for the low-cost solution, the ADP1/L calculators are delivered without the case and power supply.

The input and output wires are screwed to the pins of the included connectors. The used connectors enable the replacement of the calculator unit if necessary - for the service and maintenance purposes. The connectors can efficiently be re-plugged to the other unit. The ADP1/L calculators are approved according to OIML R117-1 and Welmec Guide 10.4.

### Features:

- new compact electronic calculator with the integrated display (2 versions available – grey positive or blue negative LCD with the LED back-light)
- low-cost
- compatible with the other ADP/T calculators
- electronic meter calibration
- integrated automatic temperature compensation (ATC)
- wide range of ambient operating temperatures
- proportional valve delivery control
- motor thermal fuses control



## Technical data:









<b>Power supply</b>	+24 V $\pm$ 5 %, 30 W
<b>Operating temperature</b>	-25 °C to +70 °C
<b>Display</b>	LCD, digit height 25,4mm, LED backlight
<b>Communication line</b>	galvanic coupling RS 485
<b>Communication protocols</b>	EasyCall, DART, Pumalan, Nara, IFSF (requires external IFSF module)
<b>Maximum flow</b>	500 l/min
<b>Shaft encoder type</b>	two or three channel, OPEN COLLECTOR outputs, power supply +5 V
<b>Analogue input for the PT100</b>	Sensor PT100 class A acc. to IEC751 temperature range from -25 °C to +55 °C
<b>Dimensions</b>	202x137x50 mm
<b>Coverage</b>	IP00 (producer of dispenser must prepare the case with the sealing points)

## Expand Modules:

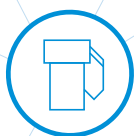
- **TOT1/T** Electromechanical litre volume total.
- **DISPLCD/N-BL/PW** External side display.
- **PKONV EC-IFSF** IFSF communication interface designed for ADP1/L calculators. It is also compatible with the ADP/T, ADP/M and ADP/E calculators.  
Communication lines:  
EASYCALL - RS485, 9600Bd  
IFSF - FTT-10 (Free Topology Twisted Pair)
- **PLOG 485** Converts the RS485 line to the current loop according to the PUMA-LAN specification. Mounted onto DIN rail 35 mm.
- **KL-SERINF** Enables parameters setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying of the electronic totals.
- **KL-MANINF** Enables setting of unit prices, displaying of the electronic totals..
- **Modul PWM/L** Converts the PWM output for the proportional valve to the output for the two level ON/OFF valves.

# ADP1/L

## List of products

Ordering code	Type	Description	
204115	ADP1/L/PW	Compact electronic calculator with an integrated positive display. ADP1/L/PW can control fuel dispensing from a single dispensing side with one nozzle. The Calculator has an output for the 24Vdc proportional valve and an output for the motor with a thermal fuse.	
204116	ADP1/L/PW-ATC	Calculator ADP1/L/PW with an internal temperature compensation (ATC) to the reference temperature +15 °C.	
204708	ADP1/L/PW-24V	The ADP1/L/PW-24 V version has a motor switching to 24 V DC, the standard version is to 230 V AC.	
204111	DISPLCD/N-BL/ PW	Side display for displaying transaction data. Display is LCD type with white LEDs backlight.	
201197	TOT1/T	Electromechanical litre volume totalizer module for ADP1/L, ADP1/T and ADP2/T.	
201573	PWM/L	PWM/L module enables using standard two-level ON/OFF valves for 230VAC with the ADP1/L calculator. It converts PWM signal to a two-level control signal - LOW and HIGH flow valves.	
202013	PLOG485	PLOG485 module converts the current loop (PUMALAN) to the RS485 communication line. The RS485 transceiver is equipped with an automatic transmit controller. Snap-in 35 mm DIN rail mounting convenience. (size 35x90x60mm).	
221247	TNKIF	Tankautomat pulse interface. Input is single channel and output is 2-channels with 90° phase shift.	
200075	KL-MANINF	Wireless KL-MANINF enables setting the unit prices and displaying the electronic totals.	
200076	KL-SERINF	Wireless KL-SERINF enables calculator setup, e.g. parameter setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying the electronic totals.	

Ordering code	Type	Description	
204079	PKONV EC-IFSF	IFSF communication interface for ADP1/L, ADP/T, ADP/M and ADP/E calculators. This external converter module does not require disassembling the calculator case. Therefore the metrological seal is not damaged when installing the IFSF interface.  Communication lines: EASYCALL - RS485, 9600Bd IFSF - FTT-10 (Free Topology Twisted Pair).	
200748 200749 200750 144012	KABDISP/M KABDISP1/M KABDISP2/M KABDISP3/M	Flat cable for the connection between the side display and the ADP/M or ADP/T calculator: 14-core flat cable, length 0,8 m 14-core flat cable, length 1,0 m 14-core flat cable, length 1,2 m 14-core flat cable, length 0,6 m	
200773 200774 144013	KABTOT1/MN KABTOT2/MN KABTOT3/MN	Flat cable for the connection between the electromechanical calculator and the ADP/M or ADP/T calculator: 10-core flat cable, length 1,0 m 10-core flat cable, length 1,2 m 10-core flat cable, length 0,4 m	
160622	EASYPOS/WIN	EASYPOS is simple low-cost software for controlling dispensing through the communication line with the EASYCALL protocol. It is applicable on non-public fuel sites. Requires RS485 interface e.g. ELO E216 or E214.	
160640	ADP SETUP/WIN	Software for reading and writing parameters of the ADP, ADP/M and ADP/T calculators through the communication line with the EASYCALL protocol. Requires RS485 interface e.g. ELO E216 or E214.	
144534	ELO E216	RS485-USB interface for PC.	
180380	PRO ECO 72 W 24 V 3 A	Switching mode power supply Weidmüller PROeco Parameters: Vin: 100 – 240 V Vout: 24 V, 3 A (regulation of the output voltage in range from 22 to 28 V) Temperature range: -25 °C – +70 °C	
130133	VPU IIIR 230 V/6 kV AC	Single phase overvoltage protection, Type III.	
130135	VPU III R 24 V/4 kV AC/DC	Overvoltage protection for 24VDC power supply.	



# ADP2/T

## Electronic Calculator for Fuel dispensers

The main advantages of the ADP2/T calculators are its reliability and high performance, low price and guaranteed quality. The most outstanding features of the calculators are: high flow measurement, integrated Electronic Calibration of meters (EC), Automatic Temperature Compensation (ATC) and the internal vapour recovery control. The calculator controls all functions necessary for the dispenser to operate and no additional electronic modules are needed. The calculator operates in wide temperature range. Flexibility of the calculator is achieved by a set of functional parameters (i.e. required by various national standards and conventions, different dispenser types, adjustable position of the decimal points etc.) ADP2/T calculators are approved according to OIML R117-1 and Welmec Guide 10.4.

ADP2/T can control fuel dispensing from two dispensing sites. One product can be delivered on both dispensing sites, i.e. the pump calculator can control two nozzles. The calculator can operate in either a standalone (manual) or communication mode. The calculator primarily uses EASYCALL communication protocol that is implemented in a variety of POSes and forecourt controllers. ADP2/T calculator also supports other communication protocols: IFSF, DART, PUMALAN, NARA. Communication according to the IFSF standard requires the PKONV EC-IFSF module.

*Wireless service keyboard allows setting of the unit price, parameters, electronic meter calibration or ATC. Access to parameters can be optionally protected by a PIN code, to prevent unauthorised modification.*

*The calculator is equipped with internal electronic nozzle totals for volume, amount and number of transactions as well as with non-resettable meter volume totals. The internal electronic totals can be displayed on the side displays or read out via the communication line. Optionally, the calculator can be extended with seven-digits electromechanical litre volume totals.*

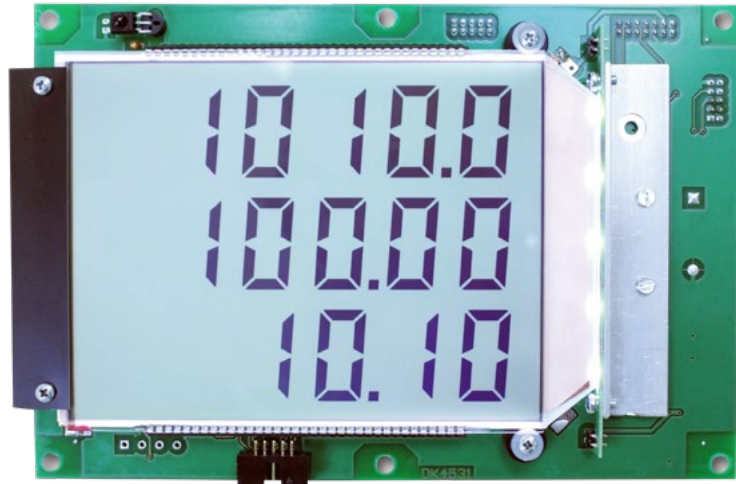
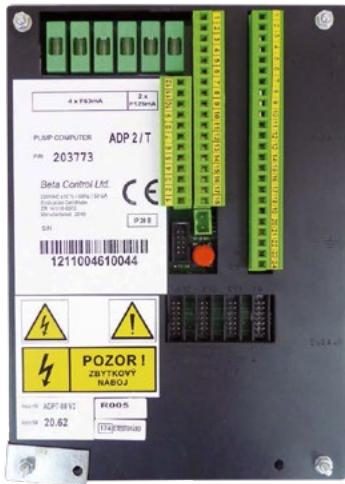
ADP1/T-SMX is a special software version of the ADP2/T for high flow fuel dispensers. The Supermax dispenser based on the ADP1/T-SMX enables high flow filling 200 L/min. High flow rate is achieved by the parallel connection of meters and pumps.

ADP2/T-CNG is a special software version of the ADP2/T for CNG dispensers (Compressed Natural Gas). CNG dispensers with the ADP2/T-CNG calculators enable up to 3-level filling from two independent filling sides (nozzles). ADP2/T-CNG operates with Coriolis meters Micro Motion CNG050 or E+H CNGMass. The ADP2/T-CNG is approved according to OIML R139 and Welmec Guide 10.4.



### Features:

- Electronic calculator for fuel dispensers of the type MONO/DUO/DUPLEX for public petrol stations
- Software versions for CNG dispensers or high flow dispensers so called Supermax
- Supported communication protocols: EASYCALL, IFSF, DART, PUMALAN, NARA
- Electronic calibration of meters
- Internal automatic temperature compensation (ATC)
- Errors history
- Monitoring of the dispenser case
- Internal vapour recovery control
- Motor control with thermal fuses
- Wide range of ambient operating temperatures
- Certified according to OIML R117-1, OIML R139, Welmec Guide 10.4.



## Technical data:

<b>Power supply</b>	230 VAC ±15 %, 50 VA max.
<b>Operating temperature</b>	-40 °C to +70 °C
<b>Display</b>	LCD, digit height 25,4mm, LED backlight
<b>Communication line</b>	galvanic coupling RS 485
<b>Communication protocols</b>	EasyCall, DART, Pumalan, Nara, IFSF (requires external IFSF module)
<b>Maximum flow</b>	680 l/min
<b>Shaft encoder type</b>	two or three channel, OPEN COLLECTOR outputs, power supply +5 V
<b>Analogue input for the PT100</b>	Sensor PT100 class A acc. to IEC751 temperature range from -30 °C to +55 °C
<b>Dimensions</b>	263x196x90 mm
<b>Coverage</b>	IP20

## Expand Modules:

- **TOT1/T** Electromechanical litre volume total.
- **DISPLCD/N-BL/PW** External side display.
- **PKONV EC-IFSF** IFSF communication interface designed for ADP1/L calculators. It is also compatible with the ADP/T, ADP/M and ADP/E calculators.  
Communication lines:  
EASYCALL - RS485, 9600Bd  
IFSF - FTT-10 (Free Topology Twisted Pair).
- **PLOG 485** Converts the RS485 line to the current loop according to the PUMALAN specification. Mounted onto DIN rail 35mm.
- **KL-SERINF** Enables parameters setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying of the electronic totals.
- **KL-MANINF** Enables setting of unit prices, displaying of the electronic totals.















# ADP2/T

## List of products

Ordering code	Type	Description
203773	ADP2/T	Electronic calculator for fuel dispensers of the MONO/DUO/DUPLEX type. ADP2/T can control fuel dispensing from two dispensing sides. One product can be delivered from a dispensing side, i.e. the pump calculator can control max. two nozzles.
203774	ADP2/T-ATC	Calculator ADPx/T with the internal temperature compensation (ATC) to the reference temperature +15 °C.
203783	ADP1/T-SMX	Calculator ADP1/T-SMX for high flow fuel dispensers (also known as Supermax). The Supermax dispenser based on the ADP1/TSMX enables high flow filling up to 200 L/min. ADP1/T-SMX can control external satellite nozzle.
203781	ADP1/T-ATC/SMX	Calculator ADP1/T-SMX with an internal temperature compensation (ATC) to the reference temperature +15 °C.
203776	ADP2/T-CNG	Calculator ADP2/T-CNG for CNG dispensers (Compressed Natural Gas). ADP2/T-CNG operates with flow meters Micro Motion CNG050 or E+H CNGMass.
204296	ADP2/T-LPG	The ADP2/T-LPG calculator enables the control of dispensing LPG or conventional fuels, petrol and diesel. For Dispensing measurements use mass flow meters with the MODBUS protocol. ADP2/T-LPG is maximally compatible with the basic version of the ADP2/T calculator. They are, for example, electronic totalizers, AUTO/MAN operating modes, parameter settings, etc. ADP2/T-LPG uses Emerson Micro Motion or Endress + Hauser LPGMass mass flowmeters.
204735	ADP2/T-PP-LCNG	The ADP2/T-PP-LCNG calculator has been designed to measure dispensing of compressed natural gas (CNG) and/or liquified natural gas (LNG). Both the CNG and/or LNG dispensing in connection with PLC electronic. PLC electronic completely controls the CNG and/or LNG technology keeping safety and all the other parameters according to the appropriate CNG, LNG dispenser technology standards. The calculator is compatible with the basic version of the ADP2/T calculator. Mass flow meters using the MODBUS communication protocol lineconnection are used for measurement of the CNG/LNG filling.
204766	ADP2/T-PP-FG	The ADP2/T-PP-LCNG calculator has been designed to measure dispensing of hydrogen (H2) in connection with PLC electronic. PLC electronic completely controls the H2 technology keeping safety and all the other parameters according to the appropriate H2 dispenser technology standards. The calculator is compatible with the basic version of the ADP2/T calculator. Pulsers (shaft encoders) are used for measurement of the H2 filling.
204448	ADP1/T-LNG	ADP1/T-LNG is the electronic calculator for the DynaFlow 3000. The DynaFlow 3000 flow meter system is an integral component of Chart's ATEX approved dispenser designed specifically for fast, safe and economical filling of trucks and city buses with LNG fuel. The calculator is compatible with the basic version of the ADP1/T calculator.



Ordering code	Type	Description	
204111	DISPLCD/N-BL/PW	Side display for displaying transaction data. Display is LCD type with white LEDs backlight.	
203317	CNGT	Module for the ADP2/T-LPG and ADP2/T-CNG calculators processes the signal from the MODBUS mass flow meter and converts it to the calculator's internal protocol. The module allows the connection of two mass flow meters with different addresses.	
204496	LNGIF	Interface module between ADP1/T-LNG calculator and flow meter system FC3000 and PLC electronics.	
191341	LNG-RGL	RED/GREEN LED stripe module for ADP1/T-LNG calculator.	
204738	CNGT-MS	The MODBUS mass flow meter simulator can simulate two Emerson mass flow meters.	
204736	CNGT-PP-D	The ADP2/T-PP-LCNG calculator module processes the signal from the MODBUS mass flow meter, has special SW and must also have modified HW (switched relay polarities).	
204737	CNGT-PP-L	Internal InterCall serial line converter from 19200Bd to 9600Bd, connects to the connectors used to connect the displays and is used to monitor the internal states and measured values of the calculator by the connected PLC electronics.	
221475	PP-INTF PT	Converter between input and output signals of the ADP2/T-PP-LCNG calculator and PLC electronics.	
201197	TOT1/T	Electromechanical litre volume totalizer module for ADP1/L, ADP1/T and ADP2/T.	
202013	PLOG485	PLOG485 module converts the current loop (PUMALAN) to the RS485 communication line. The RS485 transceiver is equipped with an automatic transmit controller. Snap-in 35 mm DIN rail mounting convenience. (size 35x90x60 mm)	
221247	TNKIF	Tankautomat pulse interface. Input is single channel and output is 2-channels with 90° phase shift.	
200075	KL-MANINF	Wireless KL-MANINF enables setting the unit prices and displaying the electronic totals.	

Ordering code	Type	Description	
200076	KL-SERINF	Wireless KL-SERINF enables the calculator setup, e.g. parameter setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying the electronic totals.	
204079	PKONV EC-IFSF	IFSF communication interface for ADP1/L, ADP/T, ADP/M and ADP/E calculators. This external converter module does not require disassembling the calculator case. Therefore the metrological seal is not damaged when installing the IFSF interface. Communication lines: EASYCALL - RS485, 9600Bd IFSF - FTT-10 (Free Topology Twisted Pair).	
200748 200749 200750 144012	KABDISP/M KABDISP1/M KABDISP2/M KABDISP3/M	Flat cable for the connection between the side display and the ADP/M or ADP/T calculator: 14-core flat cable, length 0,8 m 14-core flat cable, length 1,0 m 14-core flat cable, length 1,2 m 14-core flat cable, length 0,6 m	
200773 200774 144013	KABTOT1/MN KABTOT2/MN KABTOT3/MN	Flat cable for the connection between the electromechanical calculator and the ADP/M or ADP/T calculator: 10-core flat cable, length 1,0 m 10-core flat cable, length 1,2 m 10-core flat cable, length 0,4 m	
200757	RP/M/EX	Interface for the gasmeter Burkert with a pulse output for the calibration of the vapour recovery system.	
200755	SOPAM	Module for switching the RED/GREEN light. Outputs max. 230VAC/15W. Snap-in DIN rail mounting convenience.	
221117	CNGMUX	Multiplexer for the CNG filling hoses.	
160622	EASYPOS/WIN	EASYPOS is simple low-cost software for controlling dispensing through the communication line with the EASYCALL protocol. It is applicable on non-public fuel sites. Requires RS485 interface e.g. ELO E216 or E214.	
144534	ELO E216	RS485-USB interface for PC.	
160640	ADP SETUP/WIN	Software for reading and writing parameters of the ADP, ADP/M and ADP/T calculators through the communication line with the EASYCALL protocol. Requires RS485 interface e.g. ELO E216 or E214.	
160649	MODBUS SETUP	Software for setting parameters of flowmeters with the Modbus protocol.	
130133	VPU IIIR 230 V/6 kV AC	Single phase overvoltage protection, Type III.	
	CNGMonitor	Diagnostic software for monitoring of CNG filling. It receives diagnostic data from ADP2/T-CNG calculator. Requires diagnostic converter SPI/SCI.	

A woman with long hair, wearing a white tank top and jeans, stands at a gas station. She is looking upwards and to the right. The scene is overlaid with a blue tint and a network diagram in the top right corner. The text is in white, bold font.

**Smart and precise  
calculation at low costs.**  
Designed. Tested. Approved.

[www.betacontrol.cz](http://www.betacontrol.cz)



# ADP-U

## Calculator for control of fuel dispensers of various type

The ADP-U calculator can control a fuel dispenser with one or two dispensing places. Each of the dispensing places can contain up to 5 nozzles with different products; that is, up to 10 delivery nozzles.

*This calculator can work separately in the manual mode.*

The ADP-U calculator can be controlled by the filling station cash desk system; alternatively, by means of a RS-485 communication line controlled by its own EASYCALL communication protocol or other implemented communication protocols, such as DART, PUMALAN or NARA. By means of the PKONV modules, the dispenser can be connected to the LON FTT-10 or LAN communication layer according to the standard of IFSF - International Forecourt Standards Forum.

### Features:

- Maximum measurable flow
- Electronic calibration of meters
- Variability
- Automatic fluid temperature compensation
- Electronic control and regulation of vapour exhaust

### The main benefits:

- High performance
- Reliability
- Variability
- Low costs
- Guaranteed quality
- All functions necessary for the dispenser operation are solved by the calculator; no additional electronic modules are required
- Open architecture

**NEW GENERATION  
OF OUR CALCULATORS**

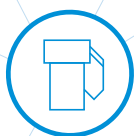


## Technical data:

<b>Power supply</b>	+24 V ± 5 %
<b>Fuse F1</b>	The output is protected with a fuse, the value of which must be lower than three times the nominal current of the valve.
<b>Fuse F2</b>	F125 mA
<b>Fuse F4</b>	250 V / T2A (interrupting capacity: 1500 A)
<b>Power input</b>	max. 300 W
<b>Ingress protection</b>	IP00 (protection to be provided by the dispenser manufacturer)
<b>Contamination degree</b>	1
<b>Temperature</b>	-25 °C to +70 °C
<b>Relative humidity</b>	0–80 % without condensation
<b>Weight</b>	0.5 kg
<b>Dimensions</b>	202x137x50 mm
<b>Maximum take-off rate</b>	500 l/min
<b>Maximum frequency of electromechanical sum calculators</b>	7 Hz
<b>Recommended types of pulse generators</b>	ELTOMATIC, Type 01-08, three-channel with OPEN COLLECTOR output, supply voltage: +5 V to 12 V ELTOMATIC, Type 01-08, two-channel with OPEN COLLECTOR output, supply voltage: +5 V to 12 V ELTOMATIC, Type 01-05, two-channel with OPEN COLLECTOR output, supply voltage: +5 V to 12 V
<b>Analogue inputs of the PT100 sensor</b>	PT100 sensor, class A according to IEC751, temperature range: -30 °C to +55 °C, resolution: 0.1 °C, accuracy: ± 0.5 °C
<b>Motor contactor output:</b>	230 VAC / max. 100 mA
<b>PWM:</b>	+24 V / max. 67 A
<b>Power supply of pulse generators:</b>	+8.8 V / 60 mA
<b>Communication interface:</b>	RS 485 half-duplex (twin wire), bit rate: 9600 b/s or 19200 b/s
<b>Maximum number of nozzles per dispensing place (side)</b>	1
<b>Max. loading of outputs:</b>	MOT – motor contactor output – 230 VAC / max. 100 mA VEN1 – shut-off valve output - 230 VAC / max. 100 mA VEN2 – throttle valve output - 230 VAC / max. 100 mA PE – protective earthing – max. 2 A Pulse generator power supply - +5 V / max. 60 mA
<b>Communication interface</b>	RS 485 half-duplex (twin wire), bit rate: 9600 b/s or 19200 b/s; by special request, interface of the IFSF (International Forecourt Standards Forum) standard with the LON (FTT-10) communication layer
<b>Maximum take-off rate</b>	680 l/min

## Display technical data:

<b>Display</b>	High-contrast LCD ( Values displayed /top-down) Total price (8 digits) / Volume (8 digits) / Unit price (6 digits)
<b>Operating temperature</b>	-25 °C to +70 °C, display with integrated heating
<b>Dimensions</b>	202x137x50 mm, height of displayed characters: 25.4 mm (1 inch)
<b>Time of displayed valid datas</b>	At least 30 minutes after supply voltage shutdown.



# ADPMPD/T

## Electronic Calculators for Fuel dispensers

The main advantages of the ADPMPD/T calculators are its reliability and high performance, low price and guaranteed quality. The most outstanding features of the calculators are: high flow measurement, integrated Electronic Calibration of meters (EC), Automatic Temperature Compensation (ATC) and the internal vapour recovery control. The calculator controls all functions necessary for the dispenser to operate and no additional electronic modules are needed. The calculator operates in wide temperature range. Flexibility of the calculator is achieved by a set of functional parameters (i.e. required by various national standards and conventions, different dispenser types, adjustable position of the decimal points etc.) ADPMPD/T calculators are approved according to OIML R117-1 and Welmec Guide 10.4.

ADPMPD/T can control fuel dispensing from two dispensing sites. Up to five products can be delivered on both dispensing sites, i.e. the pump calculator can control ten nozzles. The calculator can operate in either a standalone (manual) or communication mode. The calculator primarily uses EASYCALL communication protocol that is implemented in a variety of POSes and forecourt controllers. ADPMPD/T calculator also supports other communication protocols: IFSF, DART, PUMALAN, NARA. Communication according to the IFSF standard requires the PKONV EC-IFSF module.

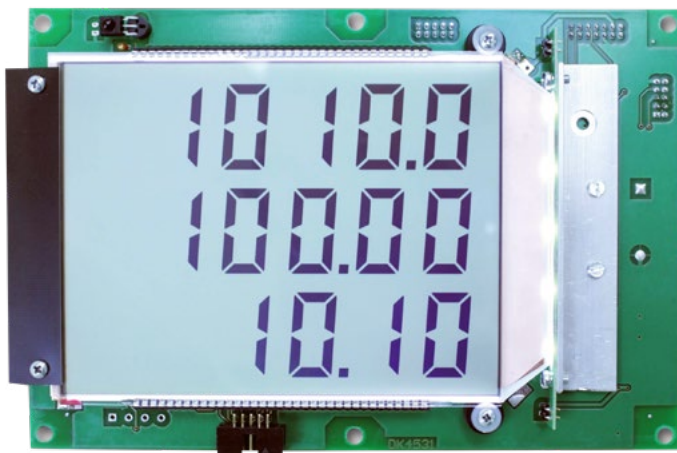
*Wireless service keyboard allows setting of the unit price, parameters, electronic meter calibration or ATC. Access to parameters can be optionally protected by a PIN code, to prevent unauthorised modification.*

The calculator is equipped with internal electronic nozzle totals for volume, amount and number of transactions as well as with non-resettable meter volume totals. The internal electronic totals can be displayed on the side displays or read out via the communication line. Optionally, the calculator can be extended with seven-digits electromechanical litre volume totals.

ADPMPD/T-PWM is prepared for proportional valve control. Other parameters are fully compatible with the ADPMPD/T. ADPMPD/T-SMX is a special software version for high flow fuel dispensers. The Supermax dispenser based on the ADPMPD/T-SMX enables diesel high flow filling 200 L/min. High flow rate is achieved by the parallel connection of meters and pumps. ADPMPD/T-SMX requires slave calculator ADP2/T-SMX.

### Features:

- Electronic calculator for multi-grade fuel dispensers for public petrol stations
- Software version for high flow dispensers so called Supermax
- Supported communication protocols: EASYCALL, IFSF, DART, PUMALAN, NARA
- Electronic calibration of meters
- Internal automatic temperature compensation (ATC)
- Errors history
- Monitoring of the dispenser case
- Internal vapour recovery control
- Motor control with thermal fuses
- Wide range of ambient operating temperatures
- Certified according to OIML R117-1, OIML R139, Welmec Guide 10.4.



## Technical data:

<b>Power supply</b>	230 VAC ±15 %, 50 VA max.
<b>Operating temperature</b>	-40 °C to +70 °C
<b>Display</b>	LCD, digit height 25,4mm, LED backlight
<b>Communication line</b>	galvanic coupling RS 485
<b>Communication protocols</b>	EasyCall, DART, Pumalan, Nara, IFSF (requires external IFSF module)
<b>Maximum flow</b>	680 l/min
<b>Shaft encoder type</b>	two or three channel, OPEN COLLECTOR outputs, power supply +5 V
<b>Analogue input for the PT100</b>	Sensor PT100 class A acc. to IEC751 temperature range from -30 °C to +55 °C
<b>Dimensions</b>	263x282x117 mm
<b>Coverage</b>	IP20B






## Expand modules:

- **TOTx/T** Electromechanical litre volume totals. (x – number of calculators)
- **DISPLCD/N-BL/PW** External side display
- **PKONV EC-IFSF** IFSF communication interface for the ADP/T calculators. It is also compatible with the ADP1/L, ADP/M and ADP/E calculators. Communication lines: EASYCALL - RS485, 9600Bd; IFSF - FTT-10 (Free Topology Twisted Pair).
- **PLOG 485** Module converts the RS485 line to the current loop according to the PUMALAN specification. Mounted onto DIN rail 35 mm.
- **KL-SERINF** It enables parameters setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying of the electronic totals.
- **KL-MANINF** It enables setting of unit prices, displaying of the electronic totals.



# ADPMPD/T

## List of products

Ordering code	Type	Description	
201111 201112 201113 201114	ADPMPD2/T ADPMPD3/T ADPMPD4/T ADPMPD5/T	<p>Calculator for multi-grade fuel dispensers. ADPMPD/T controls fuel dispensing from two dispensing sides. Up to five products can be delivered from each dispensing side, i.e. the pump calculator can control up to ten nozzles.</p> <p>The Calculator has outputs for 230Vac ON/OFF valves and 230Vac outputs for motors with a thermal fuse.</p>	
201115 201116 201117 201118	ADPMPD2/T-ATC ADPMPD3/T-ATC ADPMPD4/T-ATC ADPMPD5/T-ATC	<p>Calculator ADPMPD/T with an internal temperature compensation (ATC) to the reference temperature +15 °C.</p>	
202908 202909 202910 202911	ADPMPD2/T-PWM ADPMPD3/T-PWM ADPMPD4/T-PWM ADPMPD5/T-PWM	<p>Calculator for multi-grade fuel dispensers. ADPMPD/T-PWM controls fuel dispensing from two dispensing sides. Up to five products can be delivered from each dispensing side, i.e. the pump calculator can control up to ten nozzles. The Calculator is compatible with the DISPLCD/N and DISPLCD/M.</p> <p>The Calculator has outputs for 24Vdc proportional valves and 230Vac outputs for motors with a thermal fuse control.</p>	
202912 202913 202914 202915	ADPMPD2/T-PWM/ATC ADPMPD3/T-PWM/ATC ADPMPD4/T-PWM/ATC ADPMPD5/T-PWM/ATC	<p>Calculator ADPMPD/T-PWM with an internal temperature compensation (ATC) to the reference temperature +15 °C.</p>	
204111	DISPLCD/N-BL/PW	<p>External side display with a LED backlight. The Display is compatible with the ADP/M and ADP/T calculators. The Display uses a positive LCD with 6-6-4 digits. The digit size is 25,4 mm.</p> <p>(Standard production)</p>	
201198 201199 201200 201201	TOT2/T TOT3/T TOT4/T TOT5/T	<p>Modules with electro-mechanical calculators for multi grade dispensers. The Type determines the number of calculators.</p>	
202013	PLOG485	<p>PLOG485 module converts the current loop (PUMALAN) to the RS485 communication line. The RS485 transceiver is equipped with an automatic transmit controller. Snap-in 35 mm DIN rail mounting convenience.</p> <p>(dimensions 35x90x60 mm)</p>	
221247	TNKIF	<p>Tankautomat pulse interface. Input is single channel and output is 2-channels with 90° phase shift.</p>	

Ordering code	Type	Description	
200075	KL-MANINF	Wireless KL-MANINF enables setting the unit prices and displaying the electronic totals.	
200076	KL-SERINF	Wireless KL-SERINF enables calculator setup, e.g. parameter setting, electronic calibration setting, setting of the ATC, setting of the unit prices and displaying the electronic totals.	
204079	PKONV EC-IFSF	IFSF communication interface for ADP1/L, ADP/T, ADP/M and ADP/E calculators. This external converter module does not require disassembling the calculator case. Therefore the metrological seal is not damaged when installing the IFSF interface. Communication lines: EASYCALL - RS485, 9600Bd IFSF - FTT-10 (Free Topology Twisted Pair).	
200748 200749 200750 144012	KABDISP/M KABDISP1/M KABDISP2/M KABDISP3/M	Flat cable for the connection between the side display and the ADP/M or ADP/T calculator: 14-core flat cable, length 0,8 m 14-core flat cable, length 1,0 m 14-core flat cable, length 1,2 m 14-core flat cable, length 0,6 m	
200773 200774 144013	KABTOT1/MN KABTOT2/MN KABTOT3/MN	Flat cable for the connection between the electromechanical calculator and the ADP/M or ADP/T calculator: 10-core flat cable, length 1,0 m 10-core flat cable, length 1,2 m 10-core flat cable, length 0,4 m	
200757	RP/M/EX	Interface for the gasmeter Burkert with a pulse output for the calibration of the vapour recovery system.	
200755	SOPAM	Module for switching the RED/GREEN light. Outputs max. 230VAC/15W. Snap-in DIN rail mounting convenience.	
160640	ADP SETUP/WIN	Software for reading and writing parameters of the ADP, ADP/M and ADP/T calculators through the communication line with the EASYCALL protocol. Requires RS485 interface e.g. ELO E216 or E214.	
160622	EASYPOS/WIN	EASYPOS is simple low-cost software for controlling dispensing through the communication line with the EASYCALL protocol. It is applicable on non-public fuel sites. Requires RS485 interface e.g. ELO E216 or E214.	
144534	ELO E216	RS485-USB interface for PC.	
130133	VPU IIIR 230 V/6 kV AC	Single phase overvoltage protection, Type III.	

# Communication Libraries

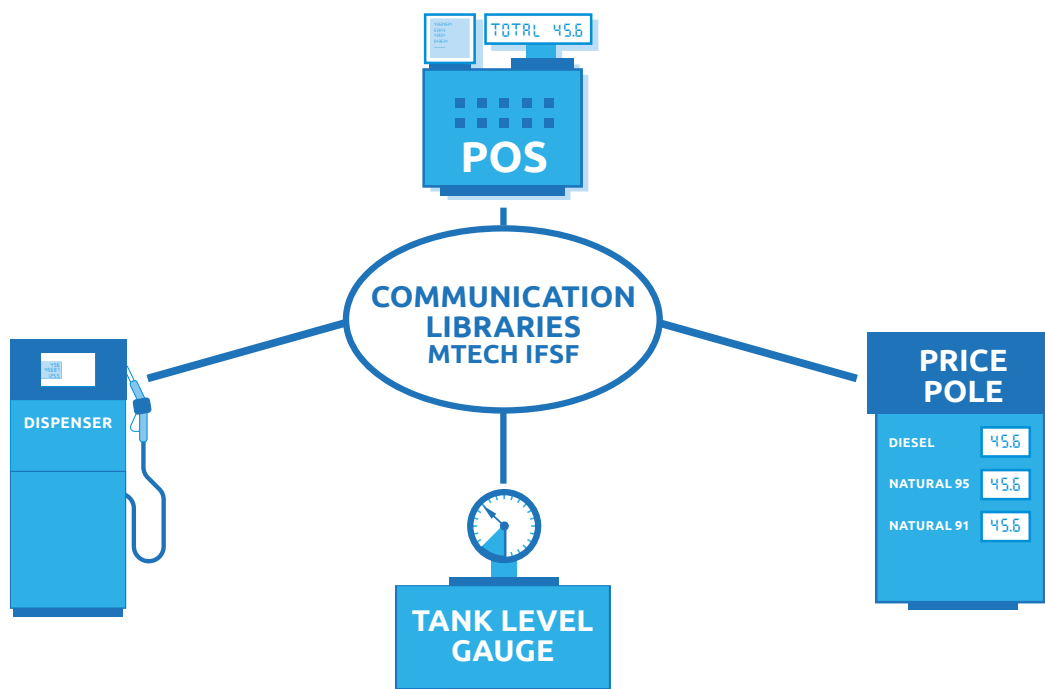
## for the IFSF technology

Our software communication libraries support controlling of the IFSF devices at the fuel stations from the application like POS. The IFSF communication libraries offer commands required for the controlling of the fuel dispensers, tank level gauges and price panels. They support the unit price setting, the releasing of the filling, the reading of a current transaction data, the reading of the electronic totals and errors etc. The software designer does not need to design the low level IFSF communications in detail. Also you does not need to pay for the access to large IFSF standards and spend time with their detailed studying. It saves the development costs and minimises the development time.

Communication libraries support the IFSF true-multicontroller application. It means the truly parallel controlling of the devices from the several POSes. It is possible to license various combinations of the communication libraries according to customer requirements. The IFSF communication libraries running in parallel on the single POS use the common LON communication interface with the FTT-10 transceiver.

### Features:

- Fully controls IFSF fuel dispensers, tank level gauges and price poles
- Easily integrates to the POS application
- Supports the IFSF true-multi-controller POS
- Reduces development costs & time
- Designed for Windows 2000/XP/7
- Reliable function, proved/evaluated at many pump stations worldwide
- Internal diagnostic for solving interoperability issues
- Extremely variable configuration script for non-standard configurations
- Documentation and testing utilities



<b>MTECH IFSF/WIN</b>	IFSF communication library (IFSF Tech.dll) for controlling fuel dispensers. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Tech.dll is protected with the SW licence and HW protected key is not required.
<b>MTECH IFSF-PRICEPOLE/WIN</b>	IFSF communication library (IFSF Pole.dll) for controlling price poles. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Tlg.dll is protected with the SW licence and HW protected key is not required.
<b>MTECH IFSF-TLG/WIN</b>	IFSFIFS communication library (IFSF Tlg.dll) for controlling tank level gauges. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Pole.dll is protected with the SW licence and HW Licence key is not required.

## System requirements:

<b>Supported LON FTT-10 interfaces</b>	XLON USB, XLON PCI (DH electronics GmbH), EASYLON PCI, PCIe, USB (GesYTEC GmbH)
<b>Min. HW requirements</b>	Standard PC with WINDOWS 2000/XP/Win7/Win8 512MB RAM, 2GHz Intel P4 (or equivalent) 20 MB of free HDD space

# MTECH

## List of products

Ordering code	Type	Description
160561	MTECH IFSF/WIN	IFSF communication library (IFSF Tech.dll) for controlling fuel dispensers. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Tech.dll is protected with the SW licence and HW protected key is not required.
160621	MTECH IFSF-PRICEPOLE/WIN	IFSF communication library (IFSF Pole.dll) for controlling price poles. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Tlg.dll is protected with the SW licence and HW protected key is not required.
160620	MTECH IFSF-TLG/WIN	IFSF communication library (IFSF Tlg.dll) for controlling tank level gauges. It runs under WINDOWS 2000/XP/Win7/Win8. The installation package contains Tester and diagnostic server. It requires LON FTT-10 interface e.g. XLON or EASYLON. New version of Pole.dll is protected with the SW licence and HW Licence key is not required.
160149	MTECH EC/WIN/CZ	EASYCALL communication library for controlling fuel dispensers. It runs under WINDOWS 2000/XP.
160445	MTECH PLS/WIN/CZ	PLS communication library for controlling fuel dispensers. It runs under WINDOWS 2000/XP. PLS is a side controller for fuel dispensers using the Pumalan protocol.
160614	EasyLON PCIe Interface+ TT10	The EasyLON PCIe Interface+ is a plug-in card to connect a PCI Express PC to LON FTT-10 networks.
160556	EasyLON USB Interface+, FTT10	The EasyLON USB Interface+ for PC. TP/FT-10 LON network.
160586	XLON USB	USB to LON FTT-10 interface for PC.
160563	HASP4 USB SK TKBBE	HW Licence key for communication libraries. It uses USB interface.
180399	IFSF-TCP/IP Gateway	The IFSF LON/IP Router enables easy communication between IFSF LON and IFSF IP devices. Parametrization is not necessary, neither for the devices nor for the IFSF LON/IP Router itself.
	RFCU 2.0	Wireless radio modems for connecting the dispenser to the POS. The transmission range is up to 500 m. Antenna is included.
	KkAnalyzer	Powerful diagnostic software for the analysis of the communication. SW package supports EASYCALL, IFSF and others analysers. <i>Note. Installation package does not contain physical line interfaces</i>



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# I-PROP

## IFSF-LON® from Proprietary Protocol Converter

The I-PROP converter has been designed as the universal hardware making possible the conversion from proprietary interfaces of the site equipment devices to the interface standard IFSF/LON®. The converter is equipped with two asynchronous communication lines on the proprietary interface side. The modular design of the proprietary side enables the alternative physical lines (Current Loops, RS232, RS422, RS485 etc.). The I-PROP plastic case enables easy mounting on standard DIN rail. The converter is ready for the installing directly into the dispenser head. The I-PROP requires external stabilised power supply. "Multi I-PROPs" are available for some dispensers.

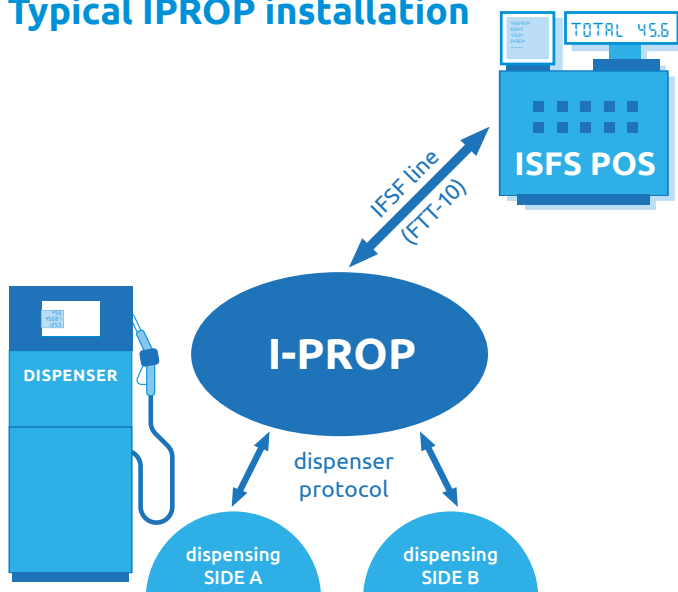
Multi I-PROP contains several I-PROPs installed into the PC case with the power supply. Upgrade of the petrol station with the Multi I-PROP requires only reconnection of the proprietary communication lines from the old site controller to the Multi I-PROP and its connection with the IFSF POS.



### Features:

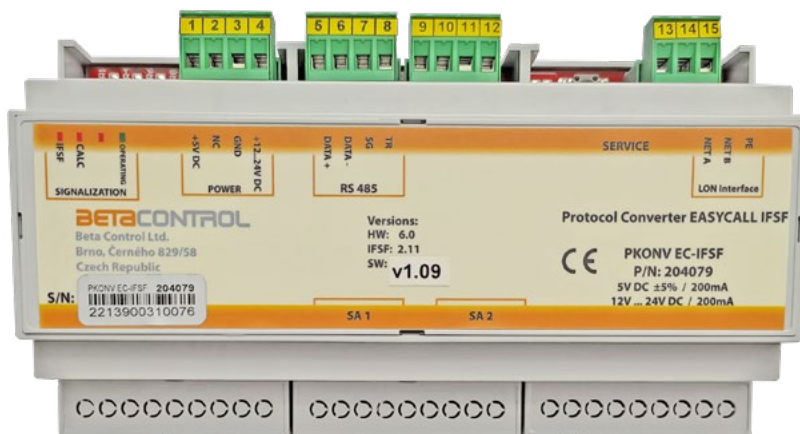
- simple setup and installation
- supports IFSF dispenser application V2.11 (passed IFSF certification process)
- various calculator physical line interfaces
- supports multi-grade and single product dispensers
- low-cost solution for upgrading legacy dispensers to IFSF
- wide operating temperature range
- diagnostic LEDs and diagnostic interface

### Typical IPROP installation



### Supported protocols:

- ATCL (Autotank)
- Christian Rowsing
- DART (Dresser Wayne, Petrolmeccanica)
- EASYCALL (Adest)
- ER3/4 (Mannesmann-Kienzle, Salzkoten, Scheidt-Bachmann)
- EPS (EPS3, EPS5, EPS6) (Tokheim)
- UDC (Tokheim)
- Tatsuno Metax (Tatsuno)
- ZSR (Schlumberger)



## Technical data:

<b>Power supply</b>	5 VDC/200 mA (12 VDC to 24 VDC optional)
<b>Operating temperature</b>	-40 °C to +80 °C
<b>Dimensions</b>	90x58x160 mm
<b>Communication line</b>	IFSF communication line FTT-10 (Free Topology Twisted Pair)
<b>Diagnostic LED</b>	operating, IFSF communication, proprietary communication

## Type and description:

TYPES I-PROP	Description	12-24 V*
PKONV EPS-IFS/001	Protocol converter EPS3/EPS5/EPS6 - IFSF.	–
PKONV EC-IFS	Protocol converter EASYCALL - IFSF.	X
PKONV WD-IFS	Protocol converter DART - IFSF.	X
PKONV TATSUNO-IFS	Protocol converter Metax Tatsuno - IFSF.	X
PKONV ATCL-IFS	Protocol converter ATCL - IFSF.	–
PKONV UDC-IFS	Protocol converter UDC - IFSF.	X
PKONV SCH-IFS	Protocol converter ZSR - IFSF.	–
PKONV K-IFS	Protocol converter ER3/ER4 - IFSF.	–
PKONV CR-IFS	Protocol converter Christian Rowsing - IFSF.	–
PKONV SB-IFS	Protocol converter ER3/ER4 – IFSF. Note: Only for the Scheidt -Bachmann T10 dispensers.	–
PKONV EPS-IFS/001/CSx	Multi Protocol converter EPS3/EPS5/EPS6 – IFSF. x – number of the installed I-PROPů.	–
PKONV CR-IFS/CSx	Multi Protocol converter Christian Rowsing – IFSF. x – number of the installed I-PROPů.	–
PKONV TATSUNO-IFS/CSx	Multi Protocol converter Metax Tatsuno – IFSF. x – number of the installed I-PROPů.	–
PKONV - PWR-01	Internal supply module for the power input 12VDC to 24VDC.	–

\* Internal power supply module for input 12 VDC to 24 VDC.



# I-PROP




## List of products

Ordering code	Type	Description
204079	PKONV EC-IFSF	<p>IFSF communication interface for ADP1/L, ADP/T, ADP/M and ADP/E calculators. This external converter module does not require disassembling the calculator case. Therefore the metrological seal of the calculator is not damaged when installing the IFSF interface.</p> <p><i>Communication lines:</i>            EASYCALL - RS485, 9600Bd            IFSF - FTT-10 (Free Topology Twisted Pair)</p>
201309	PKONV EPS-IFSF/001	<p>Protocol converter EPS3, EPS5, EPS6 – IFSF. It provides connection between the dispensers using the EPS protocol (e. g. Tokheim) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            EPS - RS422, 4800Bd            IFSF - FTT-10 (Free Topology Twisted Pair).</p>
204132	PKONV WD-IFSF	<p>Protocol converter DART - IFSF. It provides the connection between the dispensers using the DART protocol (e.g. Dresser-Wayne) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            DART - RS485, 9600/19200Bd            IFSF - FTT-10 (Free Topology Twisted Pair).</p>
204704	PKONV WD-IFSF/24V	<p>PKONV WD-IFSF/24V is variant of PKONV WD-IFSF with extended power supply range from 12VDC to 24VDC.</p>
202637	PKONV TATSUNO-IFSF	<p>Protocol converter Metax Tatsuno - IFSF. It provides the connection between the dispensers using the Metax Tatsuno protocol and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            Metax Tatsuno - Current-Loop, 4800Bd            IFSF - FTT-10 (Free Topology Twisted Pair)</p>
201432	PKONV ATCL-IFSF	<p>Protocol converter ATCL - IFSF. It provides the connection between the dispensers using the ATCL (e.g. Autotank) protocol and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            ATCL - Current-Loop, 1200 – 4800Bd            IFSF - FTT-10 (Free Topology Twisted Pair).</p>
201325	PKONV UDC-IFSF	<p>Protocol converter UDC - IFSF. It provides the connection between the dispensers using the UDC protocol (e.g. Tokheim) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            UDC - Current-Loop, 9600Bd            IFSF - FTT-10 (Free Topology Twisted Pair).</p>
204683	PKONV TCJ-IFSF	<p>Protocol converter Tatsuno Corporation – IFSF. It provides connection between the Tatsuno Corporation fuel dispensers and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points.</p> <p><i>Communication lines:</i>            Tatsuno - RS485, 19200 Bd            IFSF - FTT-10 (Free Topology Twisted Pair).</p>

Ordering code	Type	Description
200982	PKONV SCH-IFSF	Protocol converter ZSR - IFSF. It provides the connection between the dispensers using the ZSR protocol (e.g. Schlumberger) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points. <i>Communication lines:</i> <i>ZSR - Current-Loop, 9600Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair)</i>
201307	PKONV K-IFSF	Protocol converter Mannesmann-Kienzle ER3/4 - IFSF. It provides the connection between the dispensers using the ER3/4 protocol (e.g. Mannesmann- Kienzle) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points. <i>Communication lines:</i> <i>ER3/4 - Current-Loop, 1200Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i>
220269	PKONV SB-IFSF	Protocol converter Mannesmann-Kienzle ER3/4 - IFSF. It provides the connection between the dispensers using the ER3/4 protocol e.g. Scheid Bachmann) to IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points. Communication lines: <i>ER3/4 - RS422, 1200Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i> <i>Note: Only for fuel dispensers Scheidt -Bachmann T10</i>
201193	PKONV CR-IFSF	Protocol converter Christian Rowsing - IFSF. It provides the connection between the dispensers using the Christian Rowsing protocol and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points. <i>Communication lines:</i> <i>Christian Rowsing - RS422, 4800Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i>
204143	PKONV EAS1-IFSF	Protocol converter EAS1 - IFSF. It provides the connection between the dispensers using the EAS1 protocol (e.g. Medición y Transporte) and IFSF control system. It supports Single and Multi-Grade dispensers up to two fuelling points. <i>Communication lines:</i> <i>EAS1 - RS485, 9600Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i>
204701	PKONV LOGITRON-IFSF	Protocol-converter Logitron - IFSF for the price pole. <i>Communication lines:</i> <i>Logitron - RS485, 1200Bd. 9600Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i>
191177	PKONV - PWR-01	Internal power supply module for input 12VDC to 24VDC.
180399	IFSF-TCP/IP GATEWAY	The IFSF LON/IP Router enables easy communication between IFSF LON and IFSF IP devices. Parametrization is not necessary, neither for the devices nor for the IFSF LON/IP Router itself.
160650	IFSF Test tool/WIN	Simple IFSF POS software for testing.





# ADP/T

## Calculators spare parts

Ordering code	Type	Description	
191082	ADPT-01 V2	CPU board (DK3952) for the ADP2/T calculator.	
191083	ADPT-02 V2	Power supply board (DK3962) for the ADP2/T calculator.	
210139	SW UPGR ADPT	ADP2/T SW update. <i>Note: The calculator must be serviced at Beta Control.</i>	
191355	MPDT-01	CPU board (DK4050) for the ADPMPD/T and ADPMPD/T-PWM calculator. Universal board for up to 5 products on each side.	
190913	MPDT-02	Peripheral board (DK4060) for the ADPMPD/T with a control of 2-level ON/OFF valves.	
191305	MPDT-08	Peripheral board (DK4401) for the ADPMPD/T-PWM with a control of proportional valves.	
190912	MPDT-03	Power supply board (DK4070) for the ADPMPD/T and ADPMPD/T-PWM.	
191034	MPDT-07	Internal IFSF upgrade module for the ADPMPD/T and ADPMPD/T-PWM.	
191035	MPDT-09	Analogue input board for ATC upgrade of the ADPMPD/T and ADPMPD/T-PWM calculators <i>Note: It is necessary to send the calculator to Beta Control for the calibration.</i>	
210142	SW UPGR MPDT	ADPMPD/T or ADPMPD/T-PWM SW update <i>Note: The calculator must be serviced at Beta Control.</i>	
040932	LST68059-P (PIN 6,3 mm)	Positive LCD for the DISPLCDN-BL/PW. PIN length 6,3 mm.	
080049	CMB970M1N1N06	Electromechanical calculator (totalizer 80 mW).	
142888	HT 1162 12 20	Foil keypad for the KL-UZP1/IP-H.	

# ADP/M

## Calculators spare parts

Ordering code	Type	Description
190709	ADPM-01	Power supply board (DK2622) for the ADP2/M calculator.
210117	ND_ADPM-02	CPU board (DK2633) for the ADP2/M calculator.
210138	SW UPGR ADPM	ADP2/M SW update. <i>Note: The calculator must be serviced at Beta Control.</i>
210121	ND_MPDM-01/5	CPU board (DK2513) for the ADPMPD/M calculator. Universal board for up to 5 products on each side.
190703	MPDM-02	Peripheral board (DK2502) for the ADPMPD/M with a control of 2-level ON/OFF valves.
190705	MPDM-03	Power supply board (DK2523) for the ADPMPD/M.
210141	SW UPGR MPDM	ADPMPD/M SW update. <i>Note: The calculator must be serviced at Beta Control.</i>
190735	LCDM/4-1/T/Y	4-digit LCD for the DISPLCD/M-BL. Backlight – yellow colour. 
190736	LCDM/6-1/T/Y	6-digit LCD for the DISPLCD/M-BL. Backlight – yellow colour. 
210133	SW UPGR LCDM	DISPLCD/M SW update. <i>Note: The display must be serviced at Beta Control.</i>
080049	CMB970M1N1N06	Electromechanical calculator (totalizer 80 mW). 
142888	HT 1162 12 20	Foil keypad for the KL-UZP1/IP-H. 

# ADP a ADP/E

## Calculators spare parts

Ordering code	Type	Description	
210126	LCDE-HC11D3/V1.45	DISPLCD SW update (Board version DK2181). <i>Note: Including new MCU HC711D3.</i>	
210132	SW UPGR LCD-HC11D3/V1.32	DISPLCD SW update (Board version DK0542). <i>Note: Including the new MCU HC711D3.</i>	
210128	SW UPGR ADPE-HC11K4/V6.92	ADP1/E or ADP2/E (16 MHz) calculators SW update. <i>Note: Including the new MCU HC711K4.</i>	
210135	SW UPGR ADP-HC11F1/V3.34	ADP1 or ADP2 (8 MHz) calculators SW update. <i>Note: Including the new MCU HC11F1 and EPROM 27C256.</i>	
210129	SW UPGR MPDE-HC11F1/V3.69	ADPMPD/E (16 MHz) calculator SW update. Universal SW for up to 5 grade calculator. <i>Note: Including the new MCU HC11F1 and EPROM 27C256.</i>	
210140	SW UPGR MPD-HC11F1/V3.35	ADPMPD (8 MHz) calculator SW update. Universal SW for up to 5 grade calculator. <i>Note: Including the new MCU HC11F1 and EPROM 27C256.</i>	
210137	ND_ADPE-PIC16C54S/ 16MHz	PIC MCU, 2 or 3-channel shaft encoder interface for the ADP/E (16 MHz) calculator. <i>Note: Including the new MCU PIC16C54, SMD package.</i>	
201743	LONADP/T	Internal IFSF module for calculators ADP2/E, ADP2/M, ADP2/T. <i>Communication lines:</i> <i>EASYCALL – internal TTL, 4800Bd</i> <i>IFSF - FTT-10 (Free Topology Twisted Pair).</i>	
142888	HT 1162 12 20	Foil keypad for the KL-UZP1/IP-H.	
080049	CMB970M1N1N06	Electromechanical calculator (totalizer 80 mW).	
190735	LCDM/4-1/T/Y	4-digit LCD for the DISPLCD/M-BL. Backlight – yellow colour.	
190736	LCDM/6-1/T/Y	6-digit LCD for the DISPLCD/M-BL. Backlight – yellow colour.	

# ADP a ADP/E

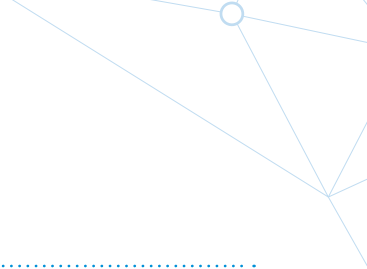
## Calculators for upgrade of fuel dispensers

Ordering code	Type	Description
204115	ADP1/L/PW	ADP1 or ADP1/E calculator replacement: Compact electronic calculator with an integrated positive display. ADP1/L/PW can control fuel dispensing.
201573	PWM/L	PWM/L module enables using standard two-level ON/OFF valves for 24VAC or 230VAC with the ADP1/L calculator. It converts PWM signal to a two-level control signal - LOW and HIGH flow valves.
200727	ADP2/M	ADP1, ADP2, ADP1/E and ADP2/E replacement: Electronic calculator for fuel dispensers of the MONO/DUO/DUPLEX type. ADP2/M can control fuel dispensing from two dispensing sides. One product can be delivered from a dispensing side, i.e. the pump calculator can control max. two nozzles. <i>Attention! ADP2/M is not compatible with the original side display.</i> <i>Use DISPLCD/N-BL/PW.</i>
200735 200736 200737 200738	ADPMPD2/M ADPMPD3/M ADPMPD4/M ADPMPD5/M	ADPMPD or ADPMPD/E replacement: The calculator for multi-grade fuel dispensers. ADPMPD/M controls fuel dispensing from two dispensing sides. Up to five products can be delivered from each dispensing side, i.e. the pump calculator can control up to ten nozzles. <i>Attention! ADPMPD/M is not compatible with the original side display.</i> <i>Use DISPLCD/N-BL/PW</i>
204111	DISPLCD/N-BL/PW	External side display with a LED backlight. The display is compatible with the ADP/M and ADP/T calculators. Display uses positive LCD with 6-6-4 digits. Digit height is 25,4 mm.
200748 200749 200750 144012	KABDISP/M KABDISP1/M KABDISP2/M KABDISP3/M	Flat cable for the connection between the side display and the ADP/M or ADP/T calculator: 14-core flat cable, length 0,8 m 14-core flat cable, length 1,0 m 14-core flat cable, length 1,2 m 14-core flat cable, length 0,6 m
200773 200774 144013	KABTOT1/MN KABTOT2/MN KABTOT3/MN	Flat cable for the connection between the electromechanical calculator and the ADP/M or ADP/T calculator: 10-core flat cable, length 1,0 m 10-core flat cable, length 1,2 m 10-core flat cable, length 0,4 m
201197	TOT1/T	Electromechanical litre volume totalizer for ADP1/L, ADP1/T and ADP2/T.
201198 201199 201200 201201	TOT2/T TOT3/T TOT4/T TOT5/T	Modules with electro-mechanical calculators for the multi grade dispensers. The type determines the number of calculators.

Note: Please consult details of the fuel dispenser upgrade with our technical support



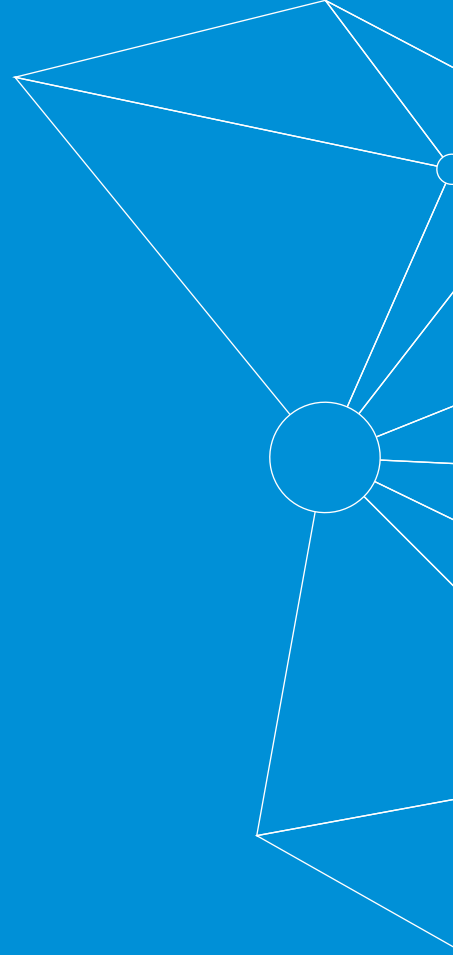
A series of 20 horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.



Lined page with 20 horizontal dotted lines for writing.







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