## Model number

## VAA-2EA-G2-ZE/E2

G2 flat module 2 inputs (PNP) and 2 electronic outputs





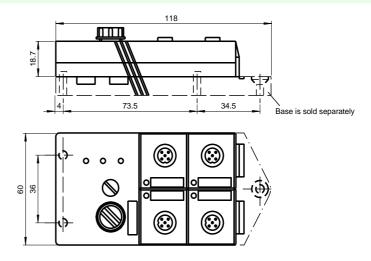




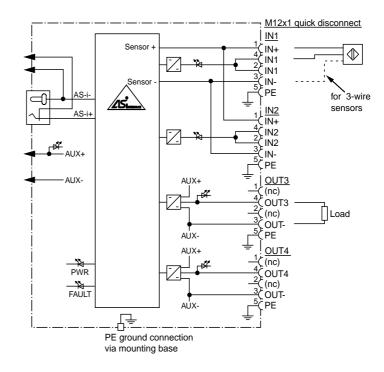
## **Features**

- AS-Interface certificate
- Protection degree IP67
- Addressing jack
- Flat cable connection with cable piercing technique, variable flat cable guide
- Communication monitoring, turnoff
- Inputs for 2- and 3-wire sensors
- Power supply of outputs from the external auxiliary voltage
- Power supply of inputs from the module
- · Ground connection (PE) possible
- Function display for bus, ext. auxiliary voltage, inputs and outputs
- Monitoring of sensor overloads

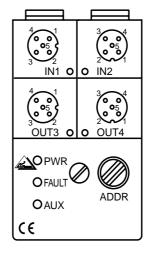
## **Dimensions**



# **Electrical connection**



# Indication/operating means



#### **Technical data**

Stave type Indicators/operating means  LED FAULT  Error display: LED red red: communication error or address is 0 red flashing: overload of sensor supply)  ASI-vottage; LED green LED AUX  LED AUX  ED AUX  ED OUT  Electrical specifications  Auxiliary voltage U <sub>AUX</sub> ; LED green switching state (input); 2 LED yellow switching state (output); 2 LED yellow switching state (output); 2 LED yellow switching state (output); 2 LED yellow  Electrical specifications  Auxiliary voltage U <sub>AUX</sub> Electrical specifications  For external auxiliary voltage entry of the specifications  For external auxiliary voltage U <sub>AUX</sub> Electrical specifications  For external specifications  For external specifications  F	General specifications	
Indicators/operating means  LED FAULT error display; LED red red: communication error or address is 0 red flashing: overload of sensor supply  AS-i voltage; LED green  LED AUX ext. auxiliary voltage UAUX; LED green  LED OUT switching state (input); 2 LED yellow  Electrical specifications  Auxiliary voltage UAUX  (24 V DC ± 15 % PELV (protection class 3 in accordance with VDE 0106/IEC 384-4-41)  Rated operational voltage Ue Rated operational current le Input  Rated operational current le Input  Number/Type 2 inputs for 2 or 3 wire sensors (PNP), DC Supply If from AS-Interface  2 410 M ("It ≤ 40 °C), ≤ 120 m M ("It ≤ 40 °C), ≤ 120 m M ("It ≤ 40 °C), ≤ 120 m M ("It ≤ 60 °C), short-circuit proof  Switching point  OFF ≤ 1.5 m A ON ≥ 4.5 m A	-	Standard slave
LED FAULT error display; LED red red: communication error or address is 0 red flashing; overload of sensor supply AS-i voltage; LED green switching state (input); 2 LED green switching state (input); 2 LED green switching state (input); 2 LED yellow Switching state (input); 2 LED yellow LED OUT switching state (input); 2 LED yellow Electrical specifications Auxiliary voltage U <sub>AUX</sub> 24 V DC ± 15 % PELV (protection class 3 in accordance with VDE 0106/IEC 384-4-41) Rated operational voltage U <sub>e</sub> 25.5 31.6 V from AS-Interface 10 Auxiliary voltage or a wire sensors (PNP), DC or a X-150 mA (T <sub>B</sub> ≤ 40 °C), ≤ 120 mA (T <sub>B</sub> ≤ 40 °C), ≤ 120 mA (T <sub>B</sub> ≤ 60 °C), short-circuit proof or F≤ 1.5 mA on X-4.5		Grandald Slave
red: communication error or address is 0 red flashing: overload of sensor supply ASI-votrage; LED green ext. auxiliary voltage $J_{AUX}$ ; LED green switching state (input); 2 LED yellow switching state (output); 3 LED yellow switching state (output); 2 LED yellow switching state (output); 3 LED yellow search sail and coordinate search switching search		array diaplay LED rad
LED AUX         ext. auxiliary voltage U <sub>AUX</sub> : LED green           LED IN         switching state (input); 2 LED yellow           LED OUT         switching state (unput); 2 LED yellow           Electrical specifications         24 V DC ± 15 % PELV (protection class 3 in accordance with VDE 0106/IEC 364-4-41)           Rated operational voltage U <sub>o</sub> 26.5 31.6 V from AS-Interface           Rated operational current I <sub>o</sub> ≤ 40 mA (without sensors) / max. 190 mA           Input         Number/Type           Number/Type         2 inputs for 2 or 3 wire sensors (PNP), DC           Supply         from AS-Interface           Current loading capacity         ≤ 150 mA (T <sub>B</sub> ≤ 40 °C),           Switching point         OFF ≤ 1.5 mA ON ≥ 4.5 mA input current limited ≤ 8 mA           Output         OVER ≤ 1.5 mA ON ≥ 4.5 mA input current limited ≤ 8 mA           Output         From external auxiliary voltage UAUX = 0.5 V           Supply         from external auxiliary voltage UAUX = 0.5 V           Voltage         ext. auxiliary voltage UAUX = 0.5 V           Current         1.5 A per output	LED FAULT	red: communication error or address is 0 red flashing: overload of sensor supply
LED IN switching state (input); 2 LED yellow Selectrical specifications witching state (output); 2 LED yellow Selectrical specifications  Auxiliary voltage $U_{AUX}$ 24 V DC $\pm$ 15 % PELV (protection class 3 in accordance with VDE 0106/IEC 364-4-41)  Rated operational voltage $U_{0}$ 26.5 31.6 V from AS-Interface Seated operational current $I_{0}$ 1006/IEC 364-4-41)  Number/Type 2 inputs for 2 or 3 wire sensors (PNP), DC from AS-Interface Selectrical specifications Supply 1007 of Max-Interface Selectronic loading capacity 120 mA ( $T_{0} \le 60$ °C), short-circuit proof Switching point 1007 of Selectronic outputs, PNP 1007 of Switching point 1007 of Selectronic outputs, PNP 1007 of Switching point 1007 of Selectronic outputs, PNP 1007 of Selectronic outputs output 1007 of Selectronic outputs output 1007 of Selectronic outputs outputs and Selectronic outputs outputs and Selectr		
LED OUT  Electrical specifications  Auxiliary voltage UAUX  Rated operational voltage Ua	LED AUX	ext. auxiliary voltage U <sub>AUX</sub> ; LED green
Electrical specifications       24 V DC ± 15 % PELV (protection class 3 in accordance with VDE o106/IEC 364-4-41)         Rated operational voltage Ue Rated operational current Ie Iput       26.5 31.6 V from AS-Interface         Input       40 mA (without sensors) / max. 190 mA         Input       Input Stor 2 or 3 wire sensors (PNP), DC from AS-Interface         Supply       from AS-Interface         Current loading capacity       ≤ 150 mA (Tg ≤ 40 °C), ≤ 120 mA (Tg ≤ 60 °C), short-circuit proof         Switching point       OFF ≤ 1.5 mA ON ≥ 4.5 mA input current limited ≤ 8 mA         Output       From external auxiliary voltage UAUX oltage UAUX oltage         Supply       from external auxiliary voltage UAUX oltage UAUX olta	LED IN	switching state (input); 2 LED yellow
Auxiliary voltage U <sub>AUX</sub> Rated operational voltage U <sub>e</sub> Rated operational current I <sub>e</sub> Input  Number/Type  Supply  Current loading capacity  Current loading capacity  Supply  Current loading capacity  Supply  Current loading capacity  From AS-Interface  ≥ 150 mA (T <sub>B</sub> ≤ 40 °C), ≥ 120 mA (T <sub>B</sub> ≤ 60 °C), short-circuit proof  OFF ≤ 1.5 mA ON ≥ 4.5 mA input current limited ≤ 8 mA  Output  Supply  If mo external auxiliary voltage U <sub>AUX</sub> 2 electronic outputs, PNP  Voltage  volt		switching state (output); 2 LED yellow
(protection class 3 in accordance with VDE 0106/IEC 364-4-41)  Rated operational voltage Ue 26.5 31.6 V from AS-Interface Rated operational current Ie 10	Electrical specifications	
Rated operational current I <sub>B</sub> Input  Number/Type Supply From AS-Interface Current loading capacity  Switching point  Output  Supply From AS-Interface Simply From AS-Interface Simply Supply From External auxiliary voltage UAUX Supply Supply From External auxiliary voltage UAUX Supply Supply From External auxiliary voltage UAUX Supply Supply Supply From External auxiliary voltage UAUX Supply Supply Supply Supply Supply Supply Supply Supply From External auxiliary voltage UAUX Supply Su	Auxiliary voltage U <sub>AUX</sub>	(protection class 3 in accordance with VDE
Input       Number/Type       2 inputs for 2 or 3 wire sensors (PNP), DC         Supply       from AS-Interface         Current loading capacity       ≤ 150 mA ( $T_B \le 40$ °C), ≤ 120 mA ( $T_B \le 60$ °C), short-circuit proof         Switching point       OFF ≤ 1.5 mA ON ≥ 4.5 mA input current limited ≤ 8 mA         Output       From external auxiliary voltage $U_{AUX}$ Supply       from external auxiliary voltage $U_{AUX}$ Number/Type       2 electronic outputs, PNP         Voltage       ext. auxiliary voltage $U_{AUX} - 0.5 \text{ V}$ Current       1.5 A per output         3 A total ( $T_B \le 40$ °C), 2 A total ( $T_B \le 60$ °C)         Ambient temperature       -25 60 °C (248 333 K)         Storage temperature       -25 85 °C (248 358 K)         Mechanical specifications       Protection degree         Protection degree       IP67 according to EN 60529         Cable piercing method       flat cable yellow/flat cable black inputs/outputs: M12 round connector         Mass       100 g         Mounting       Assembly plate         Programming instructions       F         IO code       3         ID code       5         Programming instructions (bit configuration)       input output         D1       1 <tr< td=""><td>Rated operational voltage U<sub>e</sub></td><td>26.5 31.6 V from AS-Interface</td></tr<>	Rated operational voltage U <sub>e</sub>	26.5 31.6 V from AS-Interface
Number/Type 2 inputs for 2 or 3 wire sensors (PNP), DC Supply from AS-Interface $\leq 150 \text{ mA } (T_B \leq 40  ^{\circ}\text{C}), \leq 120 \text{ mA } (T_B \leq 60  ^{\circ}\text{C}), \text{ short-circuit proof}$ Switching point $OFF \leq 1.5 \text{ mA}$ input current limited $\leq 8 \text{ mA}$ Output Supply from external auxiliary voltage $U_{AUX}$ Number/Type 2 electronic outputs, PNP $OOM(A) = 0.5 \text{ V}$ Voltage $OOM(A) = 0.5 \text{ V}$ Current $OOM(A) = 0.5 $	Rated operational current I <sub>e</sub>	≤ 40 mA (without sensors) / max. 190 mA
Supply Current loading capacity	Input	
Current loading capacity	Number/Type	2 inputs for 2 or 3 wire sensors (PNP), DC
	Supply	from AS-Interface
Output  Supply from external auxiliary voltage U <sub>AUX</sub> Number/Type 2 electronic outputs, PNP  Voltage ext. auxiliary voltage U <sub>AUX</sub> - 0.5 V  Current 1.5 A per output 3 A total (T <sub>B</sub> ≤ 40 °C), 2 A total (T <sub>B</sub> ≤ 60 °C)  Ambient conditions  Ambient temperature -25 60 °C (248 333 K)  Storage temperature +25 85 °C (248 358 K)  Mechanical specifications  Protection degree Protection degree Protection type cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector 100 g  Mass 100  Mass 100  Programming instructions  Profile S-3.F  IO code 3  ID code 5  Programming instructions (bit configuration)  Data bits (function via AS-Interface) 1N1 - 1N2 - 1D2	Current loading capacity	, B ,
Output         Supply       from external auxiliary voltage UAUX         Number/Type       2 electronic outputs, PNP         Voltage       ext. auxiliary voltage UAUX - 0.5 V         Current       1.5 A per output 3 A total ( $T_B \le 40  ^{\circ}$ C), 2 A total ( $T_B \le 60  ^{\circ}$ C)         Ambient conditions       -25 60 $^{\circ}$ C (248 333 K)         Storage temperature       -25 85 $^{\circ}$ C (248 358 K)         Mechanical specifications       Protection degree         Protection degree       IP67 according to EN 60529         Connection type       cable piercing method flat cable black inputs/outputs: M12 round connector         Mass       100 g         Mounting       Assembly plate         Programming instructions       S-3.F         IO code       F         Programming instructions (bit configuration)       S-3.F         ID code       F         Programming instructions (bit configuration)       Input output         D0       IN1 -         D1       IN2 -         D2       - OUT3         D3       - OUT4         Parameter bits (programmable via AS-i)       function         communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised p0 = 0, monitoring = OF	Switching point	ON ≥ 4.5 mA
$\begin{array}{llllllllllllllllllllllllllllllllllll$	Output	2 3
$\begin{array}{llllllllllllllllllllllllllllllllllll$	•	from external auxiliary voltage Llaux
$ \begin{array}{c} \text{Voltage} \\ \text{Current} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		
Current  1.5 A per output 3 A total ( $T_B \le 40$ °C), 2 A total ( $T_B \le 60$ °C)  Ambient conditions  Ambient temperature -25 60 °C (248 333 K) Storage temperature -25 85 °C (248 358 K)  Mechanical specifications  Protection degree  Connection type  Connection temperature  Connection type  Connection temperature  Connection type  Connection temperature  Connection temperature  Connection type  Connection temperature  Co		·
Ambient conditions  Ambient temperature  Ambient temperature  -25 60 °C (248 333 K)  Storage temperature  -25 85 °C (248 358 K)  Mechanical specifications  Protection degree  Connection type  IP67 according to EN 60529  cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector  Mass  100 g  Mounting  Assembly plate  Programming instructions  Profile  S-3.F  IO code  ID code  F  Programming instructions (bit configuration)  Data bits (function via AS-Interface)  D0  IN1  D1  D2  D3  - OUT3  D3  - OUT4  Parameter bits (programmable via AS-i)  P0  Innuction  communication monitoring  P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs maintain their condition  P1  P1  P2  not used		1.5 A per output
Ambient temperature Storage temperature -25 60 °C (248 333 K) Storage temperature -25 85 °C (248 358 K)  Mechanical specifications  Protection degree  IP67 according to EN 60529  cable piercing method flat cable black inputs/outputs: M12 round connector  Mass  Mounting Assembly plate  Programming instructions  Profile S-3.F  IO code 3 ID code F  Programming instructions (bit configuration)  Data bits (function via AS-Interface) D0 IN1 - D1 D1 D2 D3 - OUT3 D3 - OUT4  Parameter bits (programmable via AS-i)  P0  IN1 - IN2 - OUT3 Communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs maintain their condition  P1 - P1	Ambient conditions	( · · · · · · · · · · · · · · · · · · ·
Storage temperature  Mechanical specifications  Protection degree  Connection type  Connect		-25 60 °C (248 333 K)
Mechanical specifications         Protection degree       IP67 according to EN 60529         Connection type       cable piercing method flat cable black inputs/outputs: M12 round connector         Mass       100 g         Mounting       Assembly plate         Programming instructions       S-3.F         IO code       5         ID code       F         Programming instructions (bit configuration)       input output         D0       IN1 -         D1       IN2 -         D2       - OUT3         D3       - OUT4         Parameter bits (programmable via AS-i)       function         communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition not used         P1       not used	_	
Protection degree  Connection type  cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector  Mass  100 g  Mounting  Assembly plate  Programming instructions  Profile  IO code  ID code  Programming instructions (bit configuration)  Data bits (function via AS-Interface)  D0  IN1  D1  D2  D3  Parameter bits (programmable via AS-i)  P0  P0  P0  P1  P0  P1  P0  P1  P1  P1		
Connection type  cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector  Mass  100 g  Mounting  Assembly plate  Programming instructions  Profile  IO code  ID code  Programming instructions (bit configuration)  Data bits (function via AS-Interface)  D0  IN1  D1  D1  IN2  D2  D3  D3  - OUT4  Parameter bits (programmable via AS-i)  P0  P0  P0  P0  R1  P0  P0  R1  P0  R1  P0  R1  P0  R1  P0  R1  P1  P1  P1  P1  P1  P1  P1  P1  P1	•	IP67 according to EN 60529
inputs/outputs: M12 round connector  Mass 100 g  Mounting Assembly plate  Programming instructions  Profile S-3.F  IO code 3  ID code F  Programming instructions (bit configuration)  Data bits (function via AS-Interface) input output  D0 IN1 -  D1 IN2 -  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i)  P0 function  communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs maintain their condition  P1 not used  P2 not used	,	cable piercing method
Mass 100 g  Mounting Assembly plate  Programming instructions  Profile S-3.F  IO code 3  ID code F  Programming instructions (bit configuration)  Data bits (function via AS-Interface) input output  D0 IN1 -  D1 IN2 -  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i)  P0 function  P1 p0 mot used  P1 not used		•
Mounting Programming instructions Profile S-3.F IO code ID code Frogramming instructions (bit configuration)  Data bits (function via AS-Interface) D0 IN1 D1 IN2 D2 D3 IN2 D3 IN2 D3 INCOUT4  Parameter bits (programmable via AS-i) P0	Mana	
Profile S-3.F IO code 3 ID code F Programming instructions (bit configuration)  Data bits (function via AS-Interface) input output  D0 IN1 -  D1 IN2 -  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i)  P0 communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1 not used		
Profile S-3.F  IO code 3  ID code F  Programming instructions (bit configuration)  Data bits (function via AS-Interface) input output  D0 IN1 -  D1 IN2 -  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i) function  P0 communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1 not used  P2 not used	_	Assembly plate
ID code ID code Frogramming instructions (bit configuration)  Data bits (function via AS-Interface) IN1 - IN2 - D2 - OUT3 D3 - OUT4  Parameter bits (programmable via AS-i)  P0 communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1 not used		S 2 E
ID code Programming instructions (bit configuration)  Data bits (function via AS-Interface)  D0  IN1  IN2  D1  IN2  OUT3  D3  Parameter bits (programmable via AS-i)  P0  P0  P1  P1  P1  P2  Programming instructions (bit configuration)  Input output  IN1  OUT3  OUT4  function  communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1  P2  not used		
Programming instructions (bit configuration)  Data bits (function via AS-Interface) input output  D0 IN1 -  D1 IN2 -  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i) function  P0 communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1 not used  P2 not used		
tion)  Data bits (function via AS-Interface)  D0  IN1 -  IN2 -  D1  D2 - OUT3  D3 - OUT4  Parameter bits (programmable via AS-i)  P0  P0  P1  P1  P1  P2  IN2 -  OUT3  - OUT4  function  communication monitoring  P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised  P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1  P2  not used		r
D0 D1 D1 D2 D3 D3 D3 D3 D4 Parameter bits (programmable via AS-i) P0 P0 P1 P1 P2 D1 D2 D3 D4 POUT4 Punction Communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition P1 D1 D2 D3 D3 D4 P0 D5 P1 D7 D7 D8	tion)	
D1 D2 D3 D3 D3 D4 Parameter bits (programmable via AS-i) P0 P0 P1 P1 P2 P2 Parameter bits (programmable via AS-i) P1 P2 P	,	
D2 D3 - OUT3 - OUT4  Parameter bits (programmable via AS-i)  P0  P0  P0  P1 P1 P2  Parameter bits (programmable via AS-i)  P OUT4  function  communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition not used not used		
Parameter bits (programmable via AS-i)  Po  Po  Po  Po  Po  Po  Po  Po  Po  P		
Parameter bits (programmable via AS-i)  P0  P0  P0  po  function  communication monitoring  P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised  P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition  P1  not used  P2  not used		
P0  communication monitoring P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition P1 not used P2 not used		
P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition P1 not used P2 not used	Parameter bits (programmable via AS-i)	
P1 not used P2 not used	P0	P0 = 1 (basic setting), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication
P2 not used	P1	·

#### VAA-2EA-G2-ZE/E2

#### **Function**

The VAA-2EA-G2-ZE/E2 is an AS-Interface coupling module with 2 inputs and 2 outputs. Mechanical contacts and 2- and 3-wire sensors can be connected to the inputs. The outputs are electronic outputs, which can be loaded to 24 V DC and 1.5 A per output.

Das IP67 flat module features an integrated addressing jack and is ideal for applications in the field.

Connection to the sensors/actuators is provided via M12 x 1 screw connections. The current switching state of each channel is indicated by an LED, located on the module's top side. Similarly, an LED is provided to monitor the AS-i communication and to indicate that the module has the address 0. If an AS-Interface communication error occurs, the outputs are de-energised.

The input circuit is monitored for short circuits. LEDs are also provided to indicate AS-Interface voltage and external power supply.

The U-G3FF mounting base is normally used for the connection of the AS-i flat cable and the external 24 V DC power supply. The specially designed base enables the user to connect flat cables from both sides. This means, for example, that 90° curves can be laid with very tight radii (variable flat cable guide).

#### Note:

The mounting base for the module is sold separately.

# **Matching system** components

Mounting base for connection to flat cable (ASi and external auxiliary voltage)

#### **Accessories**

#### VBP-HH1

Hand-held programming device

#### VAZ-PK-1,5M-V1-G

Connection cable module/hand-held programming device

Date of Issue 22.01.2002