

## **Product Information**

## Periphery module PM A18











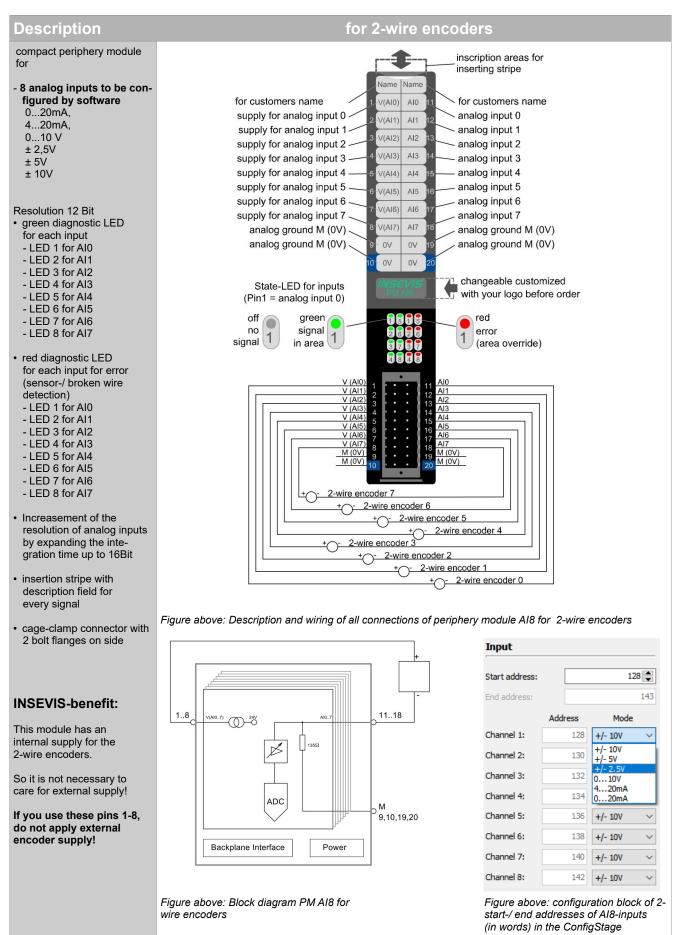
(valid from 02/2020 for all CPU-V/P from 2.5.1 and -T from 2.7.0 and with ConfigStage 1.0.14.40)

Changes to older versions of this document

Changed in Rev. 2: Information for disposal of old equipment

Changed in Rev. 3: Drawing error in wiring 3/4-wire sensors corrected







## for 3- / 4-wire encoders **Description** compact periphery module inscription areas for inserting stripe Name Name 8 analog inputs to be configured by software for customers name V(AI0) AI0 for customers name 0...20mA, analog input 0 n.c. V(AI1) AI1 4...20mA, analog input 1 n.c. 0...10 V V(AI2) AI2 ± 2,5V n.c. analog input 2 V(AI3) AI3 ± 5V n.c. analog input 3 ± 10V n.c. V(AI4) AI4 analog input 4 n.c. analog input 5 V(AI5) AI5 analog input 6 Resolution 12 Bit n.c. V(AI6) AI6 analog input 7 n.c. V(AI7 AI7 green diagnostic LED analog ground M (0V) analog ground M (0V) for each input analog ground M (0V) 0V 0V analog ground M (0V) - LED 1 for AI0 0V 0V - LED 2 for Al1 - LED 3 for AI2 changeable customized State-LED for inputs - LED 4 for AI3 with your logo before order - LED 5 for AI4 (Pin1 = analog input 0) - LED 6 for AI5 off green red - LED 7 for AI6 signal 1 error no - LED 8 for AI7 signal 1 in area (area override) red diagnostic LED for each input for error (sensor-/ broken wire V (AI0) V (AI1) V (AI2) V (AI3) AI0 AI1 11 12 detection) AI2 - LED 1 for AI0 13 14 - LED 2 for Al1 V (AI4) V (AI5) AI4 AI5 15 16 - LED 3 for AI2 V (AI6 V (AI7 - LED 4 for AI3 AI7 - LED 5 for Al4 - LED 6 for AI5 M (0V) M (0V) - LED 7 for Al6 - LED 8 for AI7 3-/ 4-wire encoder 7 Increasement of the 3-/4-wire encoder 6 (M) resolution of analog inputs L+ 3-/ 4-wire encoder 5 by expanding the inte-3-/ 4-wire encoder 4 gration time up to 16Bit (M) 3-/ 4-wire encoder 3 L+ insertion stripe with + 3-/4-wire encoder 2 (M) description field for L+ 3-/ 4-wire encoder 1 every signal + 3-/4-wire encoder 0 (M) cage-clamp connector with Figure above: Description and wiring of all connections of module AI8 for 3-/ 4-wire encoders 2 bolt flanges on side Input Start address: 128 🜲 **INSEVIS-benefit:** End address 143 11..18 Mode This module has an Address -())-<sup>24</sup>V internal supply for the +/- 10V Channel 1: 128 2-wire encoders. +/- 10V 135Ω K Channel 2: 130 +/- 5V So it is not necessary to Channel 3: 132 0...10V care for external supply! 4...20mA Channel 4: 0. .20mA If you use these pins 1-8, ADC +/- 10V do not apply external 9,10,19,20 encoder supply! Channel 6: 138 +/- 10V Channel 7: 140 +/- 10V Power Backplane Interface Channel 8: 142 +/- 10V Figure above: Block diagram PM AI8 for Figure above: configuration block of 3- / 4-wire encoders start-/ end addresses of AI8-inputs

(in words) in the ConfigStage



Technical data					
Operating temperature range Storage temperature range Dime. WxHxD (mm)   Weight Relative humidity	-20°C +60°C (without condens.) -30°C +80°C 20 x 108 x 70 mm   ca. 150 g up to 96% (without condensation)	Load voltage L+  Current consumption Power dissapation	24V DC (11V 30V DC, connected by device supply) 100 mA (max.) 2 W (max.)		
IP-protection class Vibrations	IP41 Frequency range 2 -100Hz, amplitude 1mm peak < 13,2Hz acceleration 0,7g >13,2Hz	Wire length unshielded (max.) shielded (max.) Connection technology	30 m 100 m for cross section up to max. 1,5mm²		
Analog inputs Input area (nominal values)	8 (to be configured by software) 010V, 020mA, 420mA ±10V, ±5V, ±2,5V,	Valid voltage between inputs and A-GND (max.)	-15 +24 V DC		
Diagnostic LEDs	8 green: signal in valid area 8 red: override (mA) or saturation no indication broken wires and open inputs	Error message during override metering area	adjustable diagnosis- and limit value alert on request		
Value number format	0000 6C00 (hexadecimal) for range mA and 15/ 010V all other 9400 6C00 (hex.)	Broken wire detection	by overrun/ shortfall of metering area		
Override area	20 mA 22 mA (only at mAs)	Access of sensor	unsymmetric against A-GND (single ended)		
Input resistance	150 $\Omega$ (typ.) metering area current 100k $\Omega$ (typ.) metering area voltage	Metering principle / conversion principle Resolution depending on integration time *	successive approximation  12 Bit 16 Bit		
Sampling cycle time = Integration time *	adjustable 1ms 35767 ms default: 100 ms (=Net frequency filter 50Hz and 60Hz)	Specifity (based on input area)	< 2%		

## \* Increasement of the resolution of analog inputs by expanding the integration time

(configurable in ConfigStage at the PM-Al8 directly)

 $17...64ms \rightarrow 14Bit$  $65...256ms \rightarrow 15Bit$ for 1...5V / 0..10V:  $0...16ms \rightarrow 13Bit$ for 0(4)...20mA:  $0...16ms \rightarrow 12Bit$  $17...64ms \rightarrow 13Bit$  $65...256ms \rightarrow 14Bit$ > 265ms → 15Bit for ±2,5V, ±5V, ±10V:  $0...16ms \rightarrow 12Bit$  $17...64ms \rightarrow 13Bit$ 65...256ms → 14Bit  $> 265ms \rightarrow 15Bit$ (+sign) (+sign) (+sign) (+sign)

Configuration of the process image: the module allocates 8 input words in the process image (Offset 0, 2, 4, 6, 8)

Offset	I/O	Function	Description
0, 2, 4, 6, 8, 10, 12, 14	I	Input AI 0AI 7	Measuring range according to configuration

Ordering data module					
Identification	Order-no.	Packaging unit			
Periphery module Al8	PM-AI8-02	PU: 1 piece			
Connector 2x10pin with pin markings and bolt flanges on side	E-CONS20A-00	PU: 1 piece			

**Qualified personnel:** All devices described in this manual may only be used, built up and operated together with this documentation. Installation, initiation and operation of these devices might only be done by instructed personnel with certified skills, who can prove their ability to install and initiate electrical and mechanical devices, systems and current circuits in a generally accepted and admitted standard.

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**Disposal:** Do not throw old appliances in the household waste! In the interest of environmental protection, old appliances must be collected separately from unsorted municipal waste. You can find out more about the proper disposal / return of your old appliance at <a href="https://www.insevis.com/disposal">www.insevis.com/disposal</a>.

Attention: The deletion of personal data on the old devices to be disposed of is the responsibility of the end user.

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