

# Advanced Diagnostic Gateway with Ethernet and FF-H1 Interface and I/O

## KT-MB-GT2AD.FF.IO



- System integration kit for Advanced Diagnostics
- PCS integration via Diagnostic Manager or device DTM
- Simple automatic setup of Advanced Diagnostics
- Alarm handling and integrated I/O for cabinet monitoring/control
- For FOUNDATION Fieldbus and PROFIBUS PA
- Installation in Zone 2

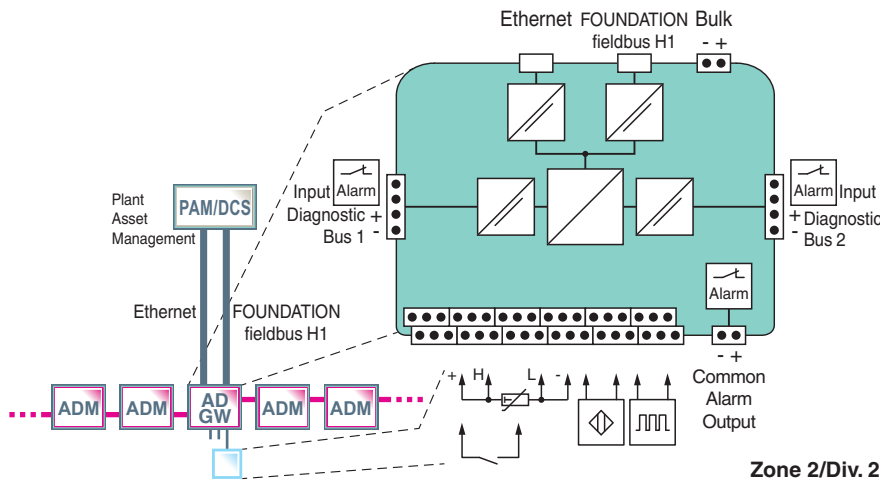


### Function

The FieldConnex® Diagnostic Gateway is the interface between stationary Advanced Diagnostic Modules (ADM) and the control system. It offers access to all ADM data in two ways: via Ethernet and the Diagnostic Manager software or via FOUNDATION Fieldbus H1 and DTM/EDD or both. The gateway configures itself and automatically detects the ADMs. The Diagnostic Manager automatically finds gateways on the same subnet. The setup of the diagnostic bus and all connected modules is automatic. This significantly simplifies engineering of FieldConnex® Advanced Diagnostics.

Inputs for frequency, temperature, humidity, and NAMUR sensors and 2 relay contacts allow control of the control cabinet. The cabinet and physical layer diagnostics become easy-to-manage plant assets.

### Connection



Zone 2/Div. 2

### Technical Data

#### General specifications

Design / Mounting: Motherboard based

#### Supply

Rated voltage:  $U_r$  19.2 ... 35 V DC SELV/PELV  
 Rated current:  $I_r$  210 ... 120 mA  
 Power dissipation: max. 4.2 W

#### Fieldbus interface

Fieldbus type: FOUNDATION Fieldbus  
 Physical layer profile: profile type 114  
 ITK version: 6

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## Technical Data

Implementation		resource block1x RS function block4x MDI, 1x MDO, 1x MAI, 1x DI transducer block16x ADM TB, 1x IO TB
Firmware update		Ethernet
Polarity		polarity-sensitive
Rated voltage	$U_N$	9 ... 35 V SELV/PELV
Rated current	$I_N$	0 mA
Connection to power link		
Connection		
<b>Ethernet Interface</b>		
Rated voltage	$U_N$	max. 35 V SELV/PELV
Port		100 BASE-TX
Protocol		TCP/IP and UDP/IP
Services		ICMP , DHCP , AutoIP , HTTP
Connection type		RJ-45 socket, 8-pin
Transfer rate		100 MBit/s
<b>Diagnostic Bus</b>		
Connection		only for the connection to protected circuits
Rated voltage	$U_N$	max. 35 V
Number of Diagnostic Bus Channels		2
Number of Diagnostic Modules/Channel		31 Using Ethernet Interface , 8 Using Fieldbus Interface
Termination		integrated
Cable length/Channel		30 m
<b>Indicators/operating means</b>		
LED ERR		red: Hardware fault
LED PWR		green: Power on
Fault signal		buzzer on
LINK/ACT		yellow
CH1, CH2		yellow: diagnostic bus activity
<b>Inputs</b>		
Input I, II		
Input type		selectable: Frequency input , NAMUR/mechanical contact
Frequency		
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Input frequency		0.3 Hz to 1 kHz
Pulse duration		min. 50 $\mu$ s
Accuracy		$\pm$ 1 %
Cable length		max. 30 m
Line fault detection		lead breakage , short-circuit
NAMUR		
Sensor type		NAMUR sensor according to IEC/EN 60947-5-6
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Switching frequency		10 Hz
Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
Input III, IV		
Input type		NAMUR/mechanical contact
NAMUR		
Sensor type		NAMUR sensor according to IEC/EN 60947-5-6
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Switching frequency		10 Hz

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Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
Input V		
Input type		selectable: diagnostic bus CH 1 alarm input , NAMUR/mechanical contact
Alarm Input		
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
NAMUR		
Sensor type		NAMUR sensor according to IEC/EN 60947-5-6
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Switching frequency		10 Hz
Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
Input VI		
Input type		selectable: diagnostic bus CH 2 alarm input , NAMUR/mechanical contact
Alarm Input		
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Cable length		max. 30 m
Line fault detection		lead breakage , short-circuit
NAMUR		
Sensor type		NAMUR sensor according to IEC/EN 60947-5-6
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Switching frequency		10 Hz
Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
Input VII, VIII		
Input type		selectable: Pt100 4-wire temperature input , NAMUR/mechanical contact
Temperature		
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Measurement range		-50 ... 90 °C (-58 ... 194 °F)
Accuracy		1 K
Measuring current		1 mA
Lead resistance		4.2 $\Omega$ per line
Cable length		max. 30 m
Line fault detection		lead breakage , short-circuit
NAMUR		
Sensor type		NAMUR sensor according to IEC/EN 60947-5-6
Connection		only passive load
Rated voltage	$U_N$	max. 35 V
Switching frequency		10 Hz
Cable length		max. 30 m
Line fault detection		lead breakage , short circuit
Humidity		
Measurement range		0 ... 95 % RH
Accuracy		2 % RH
Resolution		0.04 %
<b>Outputs</b>		

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<b>Output I</b>		
Output type		selectable: diagnostic bus CH 1 , relay , NO contact
Contact loading		250 V AC/ 6 A resistive load
Mechanical life		1 x 10 <sup>5</sup> switching cycles
Response time		turn-on time 7 ms , turn-off time 3 ms
Switching frequency		6 min <sup>-1</sup> full load, 1200 min <sup>-1</sup> without load
<b>Output II</b>		
Output type		selectable: diagnostic bus CH 2 , relay , NO contact
Contact loading		250 V AC/ 6 A resistive load
Mechanical life		1 x 10 <sup>5</sup> switching cycles
Response time		turn-on time 7 ms , turn-off time 3 ms
Switching frequency		6 min <sup>-1</sup> full load, 1200 min <sup>-1</sup> without load
<b>Output III</b>		
Output type		selectable: common alarm , volt-free contact , NC contact
Connection		only for the connection to protected circuits
Voltage		50 V DC
Current		max. 1 A
<b>Output IV</b>		
Output type		common alarm , buzzer
<b>Galvanic isolation</b>		
All circuits/FE		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Output I, II/other circuits		functional insulation acc. to IEC 62103, rated insulation voltage 250 V <sub>eff</sub>
Ethernet/Supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Ethernet/other circuits		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Fieldbus/other circuits		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Diagnostic Bus/other circuits		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Low voltage		
Directive 73/23/EEC		EN 61010-1:2010
<b>Standard conformity</b>		
Galvanic isolation		IEC 62103
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Fieldbus standard		IEC 61158-2
Climatic conditions		DIN IEC 721
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Ethernet		IEEE 802.3
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F) hazardous area -40 ... 70 °C (-40 ... 158 °F) safe area horizontal DIN rail mounting
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		< 95 % non-condensing
Shock resistance		5 g 11 ms
Vibration resistance		1 g , 10 ... 150 Hz
Pollution degree		max. 2, according to IEC 60664
Corrosion resistance		acc. to ISA-S71.04-1985, severity level G3
<b>Mechanical specifications</b>		
Housing material		Polycarbonate
Housing width		see dimensions
Housing height		see dimensions

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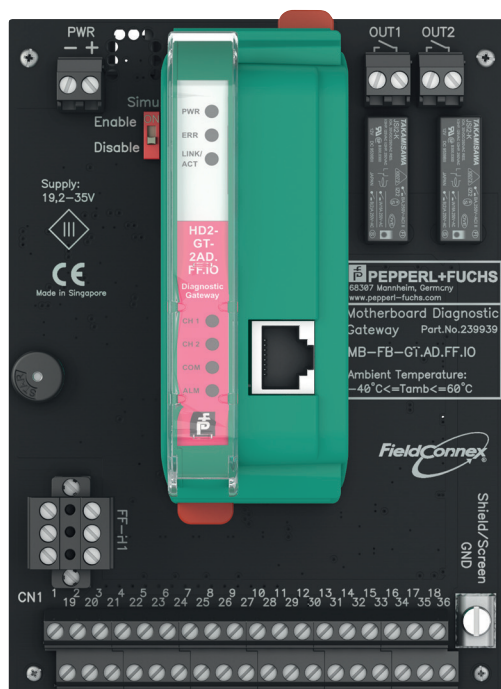
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## Technical Data

Housing depth	see dimensions
Degree of protection	IP20
Mass	500 g
Mounting	DIN rail mounting
<b>Data for application in connection with hazardous areas</b>	
FOUNDATION Fieldbus	
Connection	For connection to circuits with safe limited voltage according to IEC 60079-11:2011, type of protection "ic"
Voltage $U_i$	max. 35 V
Certificate	TÜV 14 ATEX 115980 X
Marking	Motherboard MB-FB-GT.AD.FF.IO Ⓔ II 3 G Ex nA nC IIC T4 Gc , Gateway Ⓔ II 3 G Ex nA IIC T4 Gc
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010
<b>International approvals</b>	
IECEX approval	IECEX TUN 14.0003X
Approved for	Motherboard Ex nA nC IIC T4 Gc , Gateway Ex nA IIC T4 Gc
<b>General information</b>	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .


## Assembly






## Matching System Components

	HD2-DM-A
	KT-MB-DMA

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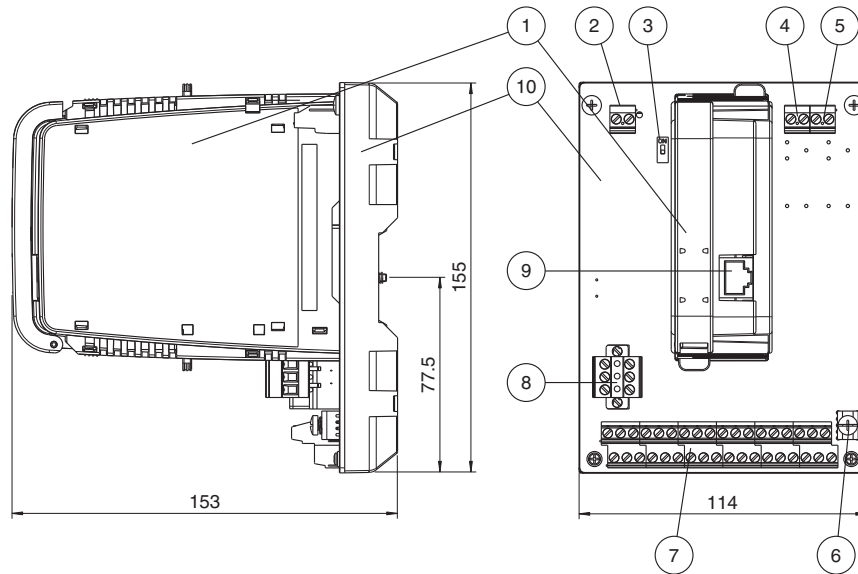
	<b>KT-MB-GT2AD.FF</b>	System integration kit for Advanced Diagnostics, PCS integration via Diagnostic Manager or device DTM
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## Accessories

	<b>DTM-FC.AD*</b>	User-Interface for Advanced Diagnostics, Professional Edition
	<b>PACTware 5.X</b>	FDT Framework
	<b>PACTware 4.1</b>	FDT Framework

**Additional Information**

**Dimensions and Component Overview**



All dimensions in

**Description**

- 1 Diagnostic gateway module HD2-GT-2AD.FF.IO
- 2 Bulk power supply



- 3 Enable/disable simulation switch
- 4 Output I, selectable:  
Diagnostic bus CH 1, relay, NO contact

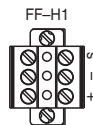


- 5 Output II, selectable:  
Diagnostic bus CH 2, relay, NO contact



- 6 Grounding terminal

- 7 I/O terminal block
- 8 FF-H1

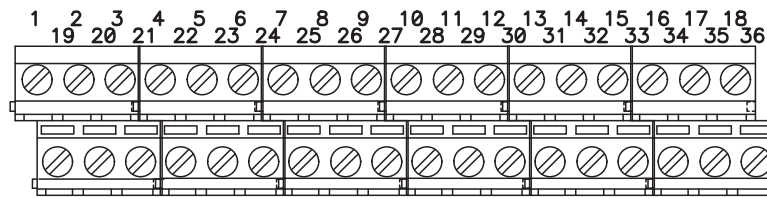


- 9 Ethernet, 8-pin RJ45 socket
- 10 Motherboard MB-FB-GT.AD.FF.IO

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**Installation**

**Connection: Terminal Assignment of I/O Terminal Block**



<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
+	-	+	-	+	-	+	-	+	H	L	-	GND	+	H	L	-	GND
Input I		Input II		Input III		Input IV		Input VII			Ground	Input VIII				Ground	
Frequency input 1, Binary/NAMUR input 1		Frequency input 2, Binary/NAMUR input 2		Binary/NAMUR input 3		Binary/NAMUR input 4		Temperature input 1, Binary/NAMUR input 7				Temperature input 2, Binary/NAMUR input 8					

<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>
+	-	GND	A	B	GND	+	-	GND	A	B	GND	Serial		GND	A	B	GND
Output I		Ground	Input V		Ground	Output II		Ground	Input VI		Ground	Not used	Ground	Output III		Ground	
Diagnostic bus CH 1, Output 1			Diagnostic bus CH 1, Binary/NAMUR input 5			Diagnostic bus CH 2, Output 2			Diagnostic bus CH 2, Binary/ NAMUR input 6					Common alarm output 1, Output 3			

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