WIN GD

Winterthur Gas & Diesel

Electrical Documents

Modbus to AMS signal list

Product	W-X62/72		COMOS	Design group 4001			

					Units: mm/kg	Quality instruction XXXXX	Drawing standard 00	Material no. PAAD098706
MADE	12/12/2013	TZI003 / Zingg						
CHKD	12/12/2013	EBU001 / Bürli			Page No.	Size:	Doc. ID:	
APPD	12/12/2013	SGO015 / Goranov			1 / 17	A3	DAAD030926	d

Rev.	Date	Made	Appvd.	D-Mess.	Explanation
d	28/03/2018	TZI003	SGO015	EAAD089094	Revision
c	09/11/2017	TZI003	SGO015	EAAD088312	Revision
b	15/02/2017	TZI003	SGO015	EAAD087117	Revision

C000110

1. General Information

1.1 Abbreviations

UNIC   **UNI**fied **C**ontrols (Engine control system)
AMS   Alarm and Monitoring System, also called Ship Alarm System or Integrated Control System (ICS)
PCS   Propulsion Control System

1.2 General

UNIC offers data about certain indication data and internal failure states to the external automation systems (PCS and AMS).

The failure states are used in the AMS to notify the crew when a failure has occurred and to request an engine slowdown (SLD) if necessary. The indications can be used to show additional engine data according to the operator's request.

1.3 Data Transmission

The failure and performance data is transmitted from UNIC to the AMS by a redundant Modbus connection.
For a general description of the Modbus protocol used for this communication, please refer to WCH drawing DAAD010110 "INTERFACE SPECIFICATION MODBUS TO AMS - SPECIFICATION".

Alternatively, this data is also available through the CANopen connection between UNIC and the PCS. For detailed description of the CANopen interface, see appendix A of the DENIS-UNIC specification.

1.4 Validity of this document

The signal specification in this document is valid for W-X62/72 engines up to 8 cylinders.
The information given in this signal list defines which signals apply only for a certain cylinder number of this engine type.

It is important that for each project the latest update of this drawing is used and that the project specific Modbus list is verified with the respective engine builder.

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d	16/02/2018	TZI003	SGO015	Revision
c	10/08/2017	TZI003	SGO015	Revision
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General information

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2. UNIC Indications

2.1 General

Certain sensor readings and engine performance data is available through the Modbus link and can be used for indication on PCS/AMS displays or for suppressing certain alarms under certain engine conditions.

All values are transmitted as signed 16bit integers, the column "Data type" shows in what data type the signal is stored internally in UNIC.

The "Modbus factor" is used for values, which have internally a value range larger than the -32768, +32767 range of the signed 16bit data type. The value received via Modbus needs to be multiplied with the "Modbus factor" to obtain the value in the unit that is defined in the "Unit" column.

The CANopen interface is not affected by the "Modbus factor".

See list below for the currently available indication values.

2.2 Error codes for Modbus interface

The UNIC Modbus interface will reply with special error codes in certain cases. They can be used for failure indications.

Error value in case of sensor failure: -32765   (only relevant for signals that are related to a sensor)

Error value in case of invalid address: -32767   (appears if a Modbus address is polled that is not configured in UNIC)

2.3 List of UNIC signals for indication

See next page

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UNIC indications

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ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
1	Exhaust gas temp cyl. #1	deci-degree C	1	0	7560	u16	30001	2001	2-3
2	Exhaust gas temp cyl. #2	deci-degree C	1	0	7560	u16	30002	2001	4-5
3	Exhaust gas temp cyl. #3	deci-degree C	1	0	7560	u16	30003	2001	6-7
4	Exhaust gas temp cyl. #4	deci-degree C	1	0	7560	u16	30004	2002	2-3
5	Exhaust gas temp cyl. #5	deci-degree C	1	0	7560	u16	30005	2002	4-5
6	Exhaust gas temp cyl. #6	deci-degree C	1	0	7560	u16	30006	2002	6-7
7	Exhaust gas temp cyl. #7	deci-degree C	1	0	7560	u16	30007	2003	2-3
8	Exhaust gas temp cyl. #8	deci-degree C	1	0	7560	u16	30008	2003	4-5
9	Engine Speed	rpm	1	-200	200	s16	30009	2003	6-7
10	Fuel Command	ppt	1	0	1500	u16	30010	2004	2-3
11	Estimated engine load	ppt	1	0	1500	u16	30011	2004	4-5
12	Turbocharger #1 speed	rpm	1	0	20000	u16	30012	2004	6-7
13	Available Power	ppt	1	0	1000	u16	30013	2005	2-3
14	Fuel Margin	ppt	1	0	1000	u16	30014	2005	4-5
15	Scav. Air Press. Mean Value	mbar	1	0	6000	u16	30015	2005	6-7
16	Liner wall temp. aft side cyl. #1	deci-degree C	1	0	7560	u16	30016	2006	2-3
17	Liner wall temp. aft side cyl. #2	deci-degree C	1	0	7560	u16	30017	2006	4-5
18	Liner wall temp. aft side cyl. #3	deci-degree C	1	0	7560	u16	30018	2006	6-7
19	Liner wall temp. aft side cyl. #4	deci-degree C	1	0	7560	u16	30019	2007	2-3
20	Liner wall temp. aft side cyl. #5	deci-degree C	1	0	7560	u16	30020	2007	4-5
21	Liner wall temp. aft side cyl. #6	deci-degree C	1	0	7560	u16	30021	2007	6-7
22	Liner wall temp. aft side cyl. #7	deci-degree C	1	0	7560	u16	30022	2008	2-3
23	Liner wall temp. aft side cyl. #8	deci-degree C	1	0	7560	u16	30023	2008	4-5
24	Liner wall temp. fore side cyl. #1	deci-degree C	1	0	7560	u16	30024	2008	6-7
25	Liner wall temp. fore side cyl. #2	deci-degree C	1	0	7560	u16	30025	2009	2-3
26	Liner wall temp. fore side cyl. #3	deci-degree C	1	0	7560	u16	30026	2009	4-5
27	Liner wall temp. fore side cyl. #4	deci-degree C	1	0	7560	u16	30027	2009	6-7
28	Liner wall temp. fore side cyl. #5	deci-degree C	1	0	7560	u16	30028	2010	2-3
29	Liner wall temp. fo re side cyl. #6	deci-degree C	1	0	7560	u16	30029	2010	4-5
30	Liner wall temp. fore side cyl. #7	deci-degree C	1	0	7560	u16	30030	2010	6-7
31	Liner wall temp. fore side cyl. #8	deci-degree C	1	0	7560	u16	30031	2011	2-3
32	Turbocharger #2 speed	rpm	1	0	20000	u16	30032	2011	4-5
33	Turbocharger #3 speed	rpm	1	0	20000	u16	30033	2011	6-7
34	Turbocharger #4 speed	rpm	1	0	20000	u16	30034	2012	2-3
35	Engine External Speed Setpoint	deci-rpm	1	0	2000	u16	30035	Modbus only	Modbus only
36	Engine Internal Speed Setpoint	mrpm	100	0	10000	u16	30036	Modbus only	Modbus only
37	Current Engine State	Int	1	1	15	u16	30037	Modbus only	Modbus only
38	Current Control Location	Int	1	0	4	u16	30038	Modbus only	Modbus only
39	MFI Demand	pptt	1	0	10000	u16	30039	Modbus only	Modbus only
40	Limited MFI PID MAX value	ppt	1	0	1000	u16	30040	Modbus only	Modbus only
41	Servo oil pressure for display	bar	1	0	400	u16	30041	Modbus only	Modbus only
42	Servo Oil Pressure setpoint bar	bar	1	0	400	u16	30042	Modbus only	Modbus only
43	Servo Oil Pressure Controller Min Limit Reached	boolean	1	0	1	u16	30043	Modbus only	Modbus only
44	Servo Oil Pressure Controller Max Limit Reached	boolean	1	0	1	u16	30044	Modbus only	Modbus only
45	Servo Oil Pump Setpoint #1	ppt	1	0	1000	u16	30045	Modbus only	Modbus only
46	Servo Oil Pump Setpoint #2	ppt	1	0	1000	u16	30046	Modbus only	Modbus only
47	Mean Fuel Rail Pressure (display)	bar	1	0	1600	u16	30047	Modbus only	Modbus only

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UNIC indications signal list

Object: UNIC signals
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ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
48	Main Fuel Rail Pressure	bar	1	0	1600	u16	30048	Modbus only	Modbus only
49	Fuel Pressure Setpoint	bar	1	0	1600	u16	30049	Modbus only	Modbus only
50	Fuel Pressure Actuator Setpoint #1	ppt	1	0	1000	u16	30050	Modbus only	Modbus only
51	Fuel Pressure Actuator Setpoint #2	ppt	1	0	1000	u16	30051	Modbus only	Modbus only
52	Fuel Pressure Actuator Setpoint #3	ppt	1	0	1000	u16	30052	Modbus only	Modbus only
53	Load Limit due to Issue with Fuel pump	ppt	1	0	1000	u16	30053	Modbus only	Modbus only
54	Fuel Pump Setpoint High	boolean	1	0	1	u16	30054	Modbus only	Modbus only
55	Fuel Pump Setpoint Master Controller	ppt	1	-500	1000	u16	30055	Modbus only	Modbus only
56	Fuel Pump Setpoint Slave Controller	ppt	1	-500	1000	u16	30056	Modbus only	Modbus only
57	Cold Start Temperature State Master Controller	degree C	1	0	250	u16	30057	Modbus only	Modbus only
58	Cold Start Temperature State Slave Controller	degree C	1	0	250	u16	30058	Modbus only	Modbus only
59	Lubr. Pump 1 Run Feedback	boolean	1	0	1	u16	30059	Modbus only	Modbus only
60	Lubr. Pump 2 Run Feedback	boolean	1	0	1	u16	30060	Modbus only	Modbus only
61	Lubr. Supply Oil Pressure Sensor	bar	1	0	100	u16	30061	Modbus only	Modbus only
62	Lubr. Supply Indication of Manual Mode	boolean	1	0	1	u16	30062	Modbus only	Modbus only
63	Lubr. Supply Indication of Commissioning Mode	boolean	1	0	1	u16	30063	Modbus only	Modbus only
64	Lubr. Supply Indication of Automatic Mode	boolean	1	0	1	u16	30064	Modbus only	Modbus only
65	Module 2 is ADA master	boolean	1	0	1	u16	30065	Modbus only	Modbus only
66	Module 3 is ADA master	boolean	1	0	1	u16	30066	Modbus only	Modbus only
67	Selected Cylinder for ADA	Int	1	1	8	u16	30067	Modbus only	Modbus only
68	ADA failed	boolean	1	0	1	u16	30068	Modbus only	Modbus only
69	Reset Positon Sync. Status	boolean	1	0	1	u16	30069	Modbus only	Modbus only
70	Engine CA Reset	boolean	1	0	1	u16	30070	Modbus only	Modbus only
71	Start Air Pressure	mbar	10	0	5000	u16	30071	Modbus only	Modbus only
72	Scavenge Air Control Signal	ppt	1	0	5000	u16	30072	Modbus only	Modbus only
73	Digital Waste Gate Control Valve	boolean	1	0	1	u16	30073	Modbus only	Modbus only
74	Analogue Waste Gate Setpoint	ppt	1	0	1000	u16	30074	Modbus only	Modbus only
75	Analogue Waste Gate Position	ppt	1	0	1000	u16	30075	Modbus only	Modbus only
76	Barometric Pressure #1	mbar	1	800	1200	u16	30076	Modbus only	Modbus only
77	Barometric Pressure #2	mbar	1	800	1200	u16	30077	Modbus only	Modbus only
78	Turbocharger Air Temperature Before Inlet A	deci-degree C	1	0	1600	u16	30078	Modbus only	Modbus only
79	Turbocharger Air Temperature Before Inlet B	deci-degree C	1	0	1600	u16	30079	Modbus only	Modbus only
80	Scavenge Air Temperature After Cooler #1	deci-degree C	1	0	1600	u16	30080	Modbus only	Modbus only
81	Scavenge Air Temperature After Cooler #2	deci-degree C	1	0	1600	u16	30081	Modbus only	Modbus only
82	Exhaust Valve Opening Dead Time Cyl. #1	ms	1	0	255	u16	30082	Modbus only	Modbus only
83	Exhaust Valve Opening Dead Time Cyl. #2	ms	1	0	255	u16	30083	Modbus only	Modbus only
84	Exhaust Valve Opening Dead Time Cyl. #3	ms	1	0	255	u16	30084	Modbus only	Modbus only
85	Exhaust Valve Opening Dead Time Cyl. #4	ms	1	0	255	u16	30085	Modbus only	Modbus only
86	Exhaust Valve Opening Dead Time Cyl. #5	ms	1	0	255	u16	30086	Modbus only	Modbus only
87	Exhaust Valve Opening Dead Time Cyl. #6	ms	1	0	255	u16	30087	Modbus only	Modbus only
88	Exhaust Valve Opening Dead Time Cyl. #7	ms	1	0	255	u16	30088	Modbus only	Modbus only
89	Exhaust Valve Opening Dead Time Cyl. #8	ms	1	0	255	u16	30089	Modbus only	Modbus only
90	Exhaust Valve Closing Dead Time Cyl. #1	ms	1	0	255	u16	30090	Modbus only	Modbus only
91	Exhaust Valve Closing Dead Time Cyl. #2	ms	1	0	255	u16	30091	Modbus only	Modbus only
92	Exhaust Valve Closing Dead Time Cyl. #3	ms	1	0	255	u16	30092	Modbus only	Modbus only
93	Exhaust Valve Closing Dead Time Cyl. #4	ms	1	0	255	u16	30093	Modbus only	Modbus only
94	Exhaust Valve Closing Dead Time Cyl. #5	ms	1	0	255	u16	30094	Modbus only	Modbus only

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UNIC indications signal list

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ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
95	Exhaust Valve Closing Dead Time Cyl. #6	ms	1	0	255	u16	30095	Modbus only	Modbus only
96	Exhaust Valve Closing Dead Time Cyl. #7	ms	1	0	255	u16	30096	Modbus only	Modbus only
97	Exhaust Valve Closing Dead Time Cyl. #8	ms	1	0	255	u16	30097	Modbus only	Modbus only
98	Manual Exhaust Valve Closing Offset Cyl. #1	deci-degree angle	1	-50	50	s16	30098	Modbus only	Modbus only
99	Manual Exhaust Valve Closing Offset Cyl. #2	deci-degree angle	1	-50	50	s16	30099	Modbus only	Modbus only
100	Manual Exhaust Valve Closing Offset Cyl. #3	deci-degree angle	1	-50	50	s16	30100	Modbus only	Modbus only
101	Manual Exhaust Valve Closing Offset Cyl. #4	deci-degree angle	1	-50	50	s16	30101	Modbus only	Modbus only
102	Manual Exhaust Valve Closing Offset Cyl. #5	deci-degree angle	1	-50	50	s16	30102	Modbus only	Modbus only
103	Manual Exhaust Valve Closing Offset Cyl. #6	deci-degree angle	1	-50	50	s16	30103	Modbus only	Modbus only
104	Manual Exhaust Valve Closing Offset Cyl. #7	deci-degree angle	1	-50	50	s16	30104	Modbus only	Modbus only
105	Manual Exhaust Valve Closing Offset Cyl. #8	deci-degree angle	1	-50	50	s16	30105	Modbus only	Modbus only
106	Exhaust Valve Closing Angle Setpoint Cyl. #1	deci-degree angle	1	0	3600	s16	30106	Modbus only	Modbus only
107	Exhaust Valve Closing Angle Setpoint Cyl. #2	deci-degree angle	1	0	3600	s16	30107	Modbus only	Modbus only
108	Exhaust Valve Closing Angle Setpoint Cyl. #3	deci-degree angle	1	0	3600	s16	30108	Modbus only	Modbus only
109	Exhaust Valve Closing Angle Setpoint Cyl. #4	deci-degree angle	1	0	3600	s16	30109	Modbus only	Modbus only
110	Exhaust Valve Closing Angle Setpoint Cyl. #5	deci-degree angle	1	0	3600	s16	30110	Modbus only	Modbus only
111	Exhaust Valve Closing Angle Setpoint Cyl. #6	deci-degree angle	1	0	3600	s16	30111	Modbus only	Modbus only
112	Exhaust Valve Closing Angle Setpoint Cyl. #7	deci-degree angle	1	0	3600	s16	30112	Modbus only	Modbus only
113	Exhaust Valve Closing Angle Setpoint Cyl. #8	deci-degree angle	1	0	3600	s16	30113	Modbus only	Modbus only
114	Cylinder Cut-Off Cyl. #1	boolean	1	0	1	u16	30114	Modbus only	Modbus only
115	Cylinder Cut-Off Cyl. #2	boolean	1	0	1	u16	30115	Modbus only	Modbus only
116	Cylinder Cut-Off Cyl. #3	boolean	1	0	1	u16	30116	Modbus only	Modbus only
117	Cylinder Cut-Off Cyl. #4	boolean	1	0	1	u16	30117	Modbus only	Modbus only
118	Cylinder Cut-Off Cyl. #5	boolean	1	0	1	u16	30118	Modbus only	Modbus only
119	Cylinder Cut-Off Cyl. #6	boolean	1	0	1	u16	30119	Modbus only	Modbus only
120	Cylinder Cut-Off Cyl. #7	boolean	1	0	1	u16	30120	Modbus only	Modbus only
121	Cylinder Cut-Off Cyl. #8	boolean	1	0	1	u16	30121	Modbus only	Modbus only
122	Start of Injection 1	deci-degree angle	1	-1800	1800	s16	30122	Modbus only	Modbus only
123	Start of Injection 2	deci-degree angle	1	-1800	1800	s16	30123	Modbus only	Modbus only
124	Start of Injection 3	deci-degree angle	1	-1800	1800	s16	30124	Modbus only	Modbus only
125	VIT On/Off	boolean	1	0	1	u16	30125	Modbus only	Modbus only
126	Injection Quantity Correction Factor Cyl. #1	ppt	1	800	1100	u16	30126	Modbus only	Modbus only
127	Injection Quantity Correction Factor Cyl. #2	ppt	1	800	1100	u16	30127	Modbus only	Modbus only
128	Injection Quantity Correction Factor Cyl. #3	ppt	1	800	1100	u16	30128	Modbus only	Modbus only
129	Injection Quantity Correction Factor Cyl. #4	ppt	1	800	1100	u16	30129	Modbus only	Modbus only
130	Injection Quantity Correction Factor Cyl. #5	ppt	1	800	1100	u16	30130	Modbus only	Modbus only
131	Injection Quantity Correction Factor Cyl. #6	ppt	1	800	1100	u16	30131	Modbus only	Modbus only
132	Injection Quantity Correction Factor Cyl. #7	ppt	1	800	1100	u16	30132	Modbus only	Modbus only
133	Injection Quantity Correction Factor Cyl. #8	ppt	1	800	1100	u16	30133	Modbus only	Modbus only
134	Number of active Injection Nozzles	Int	1	0	4	u16	30134	Modbus only	Modbus only
135	FQS value	centi-degree angle	1	-500	500	s16	30135	Modbus only	Modbus only
136	Manual Start of Injection Offset Cyl. #1	centi-degree angle	1	-150	150	s16	30136	Modbus only	Modbus only
137	Manual Start of Injection Offset Cyl. #2	centi-degree angle	1	-150	150	s16	30137	Modbus only	Modbus only
138	Manual Start of Injection Offset Cyl. #3	centi-degree angle	1	-150	150	s16	30138	Modbus only	Modbus only
139	Manual Start of Injection Offset Cyl. #4	centi-degree angle	1	-150	150	s16	30139	Modbus only	Modbus only
140	Manual Start of Injection Offset Cyl. #5	centi-degree angle	1	-150	150	s16	30140	Modbus only	Modbus only
141	Manual Start of Injection Offset Cyl. #6	centi-degree angle	1	-150	150	s16	30141	Modbus only	Modbus only

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ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
142	Manual Start of Injection Offset Cyl. #7	centi-degree angle	1	-150	150	s16	30142	Modbus only	Modbus only
143	Manual Start of Injection Offset Cyl. #8	centi-degree angle	1	-150	150	s16	30143	Modbus only	Modbus only
144	VIT intermediate result A	centi-degree angle	1	-2000	2000	s16	30144	Modbus only	Modbus only
145	VIT intermediate result B	centi-degree angle	1	-2000	2000	s16	30145	Modbus only	Modbus only
146	VIT intermediate result C	centi-degree angle	1	-2000	2000	s16	30146	Modbus only	Modbus only
147	VIT intermediate result D	centi-degree angle	1	-2000	2000	s16	30147	Modbus only	Modbus only
148	Common Start of Injection	centi-degree angle	1	-2000	2000	s16	30148	Modbus only	Modbus only
149	Start of Injection Cyl. #1	centi-degree angle	1	-2000	2000	s16	30149	Modbus only	Modbus only
150	Start of Injection Cyl. #2	centi-degree angle	1	-2000	2000	s16	30150	Modbus only	Modbus only
151	Start of Injection Cyl. #3	centi-degree angle	1	-2000	2000	s16	30151	Modbus only	Modbus only
152	Start of Injection Cyl. #4	centi-degree angle	1	-2000	2000	s16	30152	Modbus only	Modbus only
153	Start of Injection Cyl. #5	centi-degree angle	1	-2000	2000	s16	30153	Modbus only	Modbus only
154	Start of Injection Cyl. #6	centi-degree angle	1	-2000	2000	s16	30154	Modbus only	Modbus only
155	Start of Injection Cyl. #7	centi-degree angle	1	-2000	2000	s16	30155	Modbus only	Modbus only
156	Start of Injection Cyl. #8	centi-degree angle	1	-2000	2000	s16	30156	Modbus only	Modbus only
157	Injection Duration Cyl. #1	us	10	0	6553	u16	30157	Modbus only	Modbus only
158	Injection Duration Cyl. #2	us	10	0	6553	u16	30158	Modbus only	Modbus only
159	Injection Duration Cyl. #3	us	10	0	6553	u16	30159	Modbus only	Modbus only
160	Injection Duration Cyl. #4	us	10	0	6553	u16	30160	Modbus only	Modbus only
161	Injection Duration Cyl. #5	us	10	0	6553	u16	30161	Modbus only	Modbus only
162	Injection Duration Cyl. #6	us	10	0	6553	u16	30162	Modbus only	Modbus only
163	Injection Duration Cyl. #7	us	10	0	6553	u16	30163	Modbus only	Modbus only
164	Injection Duration Cyl. #8	us	10	0	6553	u16	30164	Modbus only	Modbus only
165	Lubrication Deadtime Feedback Cyl. #1	deci-degree angle	1	0	3599	u16	30165	Modbus only	Modbus only
166	Lubrication Deadtime Feedback Cyl. #2	deci-degree angle	1	0	3599	u16	30166	Modbus only	Modbus only
167	Lubrication Deadtime Feedback Cyl. #3	deci-degree angle	1	0	3599	u16	30167	Modbus only	Modbus only
168	Lubrication Deadtime Feedback Cyl. #4	deci-degree angle	1	0	3599	u16	30168	Modbus only	Modbus only
169	Lubrication Deadtime Feedback Cyl. #5	deci-degree angle	1	0	3599	u16	30169	Modbus only	Modbus only
170	Lubrication Deadtime Feedback Cyl. #6	deci-degree angle	1	0	3599	u16	30170	Modbus only	Modbus only
171	Lubrication Deadtime Feedback Cyl. #7	deci-degree angle	1	0	3599	u16	30171	Modbus only	Modbus only
172	Lubrication Deadtime Feedback Cyl. #8	deci-degree angle	1	0	3599	u16	30172	Modbus only	Modbus only
173	Lubrication Oil Feed Rate Cyl. #1	mg/kWh	10	0	16000	u16	30173	Modbus only	Modbus only
174	Lubrication Oil Feed Rate Cyl. #2	mg/kWh	10	0	16000	u16	30174	Modbus only	Modbus only
175	Lubrication Oil Feed Rate Cyl. #3	mg/kWh	10	0	16000	u16	30175	Modbus only	Modbus only
176	Lubrication Oil Feed Rate Cyl. #4	mg/kWh	10	0	16000	u16	30176	Modbus only	Modbus only
177	Lubrication Oil Feed Rate Cyl. #5	mg/kWh	10	0	16000	u16	30177	Modbus only	Modbus only
178	Lubrication Oil Feed Rate Cyl. #6	mg/kWh	10	0	16000	u16	30178	Modbus only	Modbus only
179	Lubrication Oil Feed Rate Cyl. #7	mg/kWh	10	0	16000	u16	30179	Modbus only	Modbus only
180	Lubrication Oil Feed Rate Cyl. #8	mg/kWh	10	0	16000	u16	30180	Modbus only	Modbus only
181	Cylinder Balancing Available	boolean	1	0	1	u16	30181	Modbus only	Modbus only
182	Compression Pressure Cyl. #1	centi-bar	1	0	25000	u16	30182	Modbus only	Modbus only
183	Compression Pressure Cyl. #2	centi-bar	1	0	25000	u16	30183	Modbus only	Modbus only
184	Compression Pressure Cyl. #3	centi-bar	1	0	25000	u16	30184	Modbus only	Modbus only
185	Compression Pressure Cyl. #4	centi-bar	1	0	25000	u16	30185	Modbus only	Modbus only
186	Compression Pressure Cyl. #5	centi-bar	1	0	25000	u16	30186	Modbus only	Modbus only
187	Compression Pressure Cyl. #6	centi-bar	1	0	25000	u16	30187	Modbus only	Modbus only
188	Compression Pressure Cyl. #7	centi-bar	1	0	25000	u16	30188	Modbus only	Modbus only

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UNIC indications signal list

Object: UNIC signals
Product: W-X62/72
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ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
189	Compression Pressure Cyl. #8	centi-bar	1	0	25000	u16	30189	Modbus only	Modbus only
190	Compression Pressure Average	centi-bar	1	0	25000	u16	30190	Modbus only	Modbus only
191	Compr. Pr. Balancing Offset Exh. Valve Cyl. #1	deci-degree angle	1	-100	100	s16	30191	Modbus only	Modbus only
192	Compr. Pr. Balancing Offset Exh. Valve Cyl. #2	deci-degree angle	1	-100	100	s16	30192	Modbus only	Modbus only
193	Compr. Pr. Balancing Offset Exh. Valve Cyl. #3	deci-degree angle	1	-100	100	s16	30193	Modbus only	Modbus only
194	Compr. Pr. Balancing Offset Exh. Valve Cyl. #4	deci-degree angle	1	-100	100	s16	30194	Modbus only	Modbus only
195	Compr. Pr. Balancing Offset Exh. Valve Cyl. #5	deci-degree angle	1	-100	100	s16	30195	Modbus only	Modbus only
196	Compr. Pr. Balancing Offset Exh. Valve Cyl. #6	deci-degree angle	1	-100	100	s16	30196	Modbus only	Modbus only
197	Compr. Pr. Balancing Offset Exh. Valve Cyl. #7	deci-degree angle	1	-100	100	s16	30197	Modbus only	Modbus only
198	Compr. Pr. Balancing Offset Exh. Valve Cyl. #8	deci-degree angle	1	-100	100	s16	30198	Modbus only	Modbus only
199	Compr. Pr. Balancing Offset Exh. Valves Average	deci-degree angle	1	-100	100	s16	30199	Modbus only	Modbus only
200	Firing Pressure Cyl. #1	centi-bar	1	0	25000	u16	30200	Modbus only	Modbus only
201	Firing Pressure Cyl. #2	centi-bar	1	0	25000	u16	30201	Modbus only	Modbus only
202	Firing Pressure Cyl. #3	centi-bar	1	0	25000	u16	30202	Modbus only	Modbus only
203	Firing Pressure Cyl. #4	centi-bar	1	0	25000	u16	30203	Modbus only	Modbus only
204	Firing Pressure Cyl. #5	centi-bar	1	0	25000	u16	30204	Modbus only	Modbus only
205	Firing Pressure Cyl. #6	centi-bar	1	0	25000	u16	30205	Modbus only	Modbus only
206	Firing Pressure Cyl. #7	centi-bar	1	0	25000	u16	30206	Modbus only	Modbus only
207	Firing Pressure Cyl. #8	centi-bar	1	0	25000	u16	30207	Modbus only	Modbus only
208	Firing Pressure Average	centi-bar	1	0	25000	u16	30208	Modbus only	Modbus only
209	Firing Pr. Balancing Injection Offset Cyl. #1	centi-degree angle	1	-500	500	s16	30209	Modbus only	Modbus only
210	Firing Pr. Balancing Injection Offset Cyl. #2	centi-degree angle	1	-500	500	s16	30210	Modbus only	Modbus only
211	Firing Pr. Balancing Injection Offset Cyl. #3	centi-degree angle	1	-500	500	s16	30211	Modbus only	Modbus only
212	Firing Pr. Balancing Injection Offset Cyl. #4	centi-degree angle	1	-500	500	s16	30212	Modbus only	Modbus only
213	Firing Pr. Balancing Injection Offset Cyl. #5	centi-degree angle	1	-500	500	s16	30213	Modbus only	Modbus only
214	Firing Pr. Balancing Injection Offset Cyl. #6	centi-degree angle	1	-500	500	s16	30214	Modbus only	Modbus only
215	Firing Pr. Balancing Injection Offset Cyl. #7	centi-degree angle	1	-500	500	s16	30215	Modbus only	Modbus only
216	Firing Pr. Balancing Injection Offset Cyl. #8	centi-degree angle	1	-500	500	s16	30216	Modbus only	Modbus only
217	Firing Pr. Balancing Injection Offset Average	centi-degree angle	1	-500	500	s16	30217	Modbus only	Modbus only
218	Relative Engine Speed	ppt	1	0	2000	s16	30218	Modbus only	Modbus only
219	Rated Electrical Load	kW	1	0	20000	u16	30219	Modbus only	Modbus only
220	CMCR	rpm	1	0	200	u16	30220	Modbus only	Modbus only
221	ScavAir Pressure at CMCR	mbar	1	0	10000	u16	30221	Modbus only	Modbus only
222	Exhaust Gas Average Temperature	deci-degree C	1	0	7500	u16	30222	Modbus only	Modbus only
223	Cylinder Cooling Water Pressure	mbar	1	0	6000	s16	30223	Modbus only	Modbus only
224	Exh. valve opening angle cylinder 1	deci-degree angle	1	0	3600	s16	30224	Modbus only	Modbus only
225	Exh. valve opening angle cylinder 2	deci-degree angle	1	0	3600	s16	30225	Modbus only	Modbus only
226	Exh. valve opening angle cylinder 3	deci-degree angle	1	0	3600	s16	30226	Modbus only	Modbus only
227	Exh. valve opening angle cylinder 4	deci-degree angle	1	0	3600	s16	30227	Modbus only	Modbus only
228	Exh. valve opening angle cylinder 5	deci-degree angle	1	0	3600	s16	30228	Modbus only	Modbus only
229	Exh. valve opening angle cylinder 6	deci-degree angle	1	0	3600	s16	30229	Modbus only	Modbus only
230	Exh. valve opening angle cylinder 7	deci-degree angle	1	0	3600	s16	30230	Modbus only	Modbus only
231	Exh. valve opening angle cylinder 8	deci-degree angle	1	0	3600	s16	30231	Modbus only	Modbus only
232	Exh. valve opening angle at CMCR	deci-degree angle	1	0	3600	s16	30232	Modbus only	Modbus only
233	Exh. valve closing angle at CMCR	deci-degree angle	1	0	3600	s16	30233	Modbus only	Modbus only
234	Cyl. lub. distribution share above piston	%	1	0	100	s16	30234	Modbus only	Modbus only
235	Cyl. lub. distribution share below piston	%	1	0	100	s16	30235	Modbus only	Modbus only

ID number	Designation	Unit	Modbus factor	Min	Max	Data type	Modbus address	CanOpen data point ID	Bytes
236	Cyl. lub. distribution share into piston	%	1	0	100	s16	30236	Modbus only	Modbus only
237	Common Injection Offset	centi-degree angle	1	-1000	1000	s16	30237	Modbus only	Modbus only
238	Nominal Injection Volume at CMCR	cubic mm	1	0	32765	s16	30238	Modbus only	Modbus only
239	Sequential Injection Enable	boolean	1	0	1	s16	30239	Modbus only	Modbus only
240	Cyl. Lub. Low BN Pressure	cbar	10	0	6000	s16	30240	Modbus only	Modbus only
241	Cyl. Lub. High BN Pressure	cbar	10	0	6000	s16	30241	Modbus only	Modbus only
242	Aux. blower running	boolean	1	0	1	s16	30242	Modbus only	Modbus only
243	Cyl. lub. angle setpoint above piston	deci-degree angle	1	0	3600	s16	30243	Modbus only	Modbus only
244	Cyl. lub. angle setpoint below piston	deci-degree angle	1	0	3600	s16	30244	Modbus only	Modbus only
245	Cyl. lub. angle setpoint into piston	deci-degree angle	1	0	3600	s16	30245	Modbus only	Modbus only

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Electrical Documents
UNIC indications signal list

Object UNIC signals   Customer Document
Product W-X62/72   Pages 9 / 17
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3. UNIC failures

3.1 General

The UNIC engine control system constantly performs internal integrity checks and also monitors connected sensor. Any abnormal condition is recorded by creating an event. Basic sensor failure checks are performed on system software level, but the actual decision if an event is created is made on the software application level.
Depending on severity, the created event is either a failure (major or minor) or a simple info log. Failures also create respective group failures (major or minor) that are an OR-linked collection of all respective failures.

There are 3 seperate categories of events:

1) Minor Failures

This category contains failures that will not cause a load reduction (slowdown) of the enigne or an engine shutdown. But they need to be investigated and rectified at the next opportunity in order to restore normal condition.

2) Major Failures

This category contains failures that cause a load reduction (slowdown) and/or an engine shutdown. Major failures are divided in 2 sub-groups SLD (slowdown) and SHD (shutdown). The SLD sub-group consists of failures that cause one cylinder to go offline. A slowdown is then requested via the AMS.

The SHD sub-group consists of critical engine failures that inhibitfurther engine operation. A shutdown is requested directly from the engine safety system (which is part of the PCS) while fuel injection is already suspended by UNIC.
These 2 sub-groups are not shown in any internal or external interface i.e. they are only used on the application level.

3) Info logs

This category contains messages which are describing engine operation states or additional information to other failures. Only the most important ones are sent to AMS as specified in the functional description.

All available failures and info logs are listed on the following pages.

3.2 List of UNIC Failure signals

See next page

Rev.	Date	Made	Approved	Explanation			Electrical Documents	Object	UNIC signals	Mat No	PAAD098706
d	16/02/2018	TZI003	SGO015	Revision				Product	W-X62/72	Pages	10 / 17
c	10/08/2017	TZI003	SGO015	Revision			UNIC failures	Project ID		Document ID	Rev.
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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
1	Minor Failure	10001	1001	0	2-3	Minor
2	Major Failure	10002	1001	1	2-3	Major
3	Gear Wheel Sensor A Signal Fail	10003	1001	2	2-3	Minor
4	Gear Wheel Sensor B Signal Fail	10004	1001	3	2-3	Minor
5	Gear Wheel Sensor C Signal Fail	10005	1001	4	2-3	Minor
6	Gear Wheel Sensor D Signal Fail	10006	1001	5	2-3	Minor
7	Gear Wheel Sensor A Fail MCM	10007	1001	6	2-3	Minor
8	Gear Wheel Sensor B Fail MCM	10008	1001	7	2-3	Minor
9	Gear Wheel Sensor A Fail CCM #1	10009	1001	8	2-3	Minor
10	Gear Wheel Sensor B Fail CCM #1	10010	1001	9	2-3	Minor
11	Gear Wheel Sensor C Fail CCM #2	10011	1001	10	2-3	Minor
12	Gear Wheel Sensor C Fail CCM #3	10012	1001	11	2-3	Minor
13	Gear Wheel Sensor C Fail CCM #4	10013	1001	12	2-3	Minor
14	Gear Wheel Sensor C Fail CCM #5	10014	1001	13	2-3	Minor
15	Gear Wheel Sensor C Fail CCM #6	10015	1001	14	2-3	Minor
16	Gear Wheel Sensor C Fail CCM #7	10016	1001	15	2-3	Minor
17	Gear Wheel Sensor C Fail CCM #8	10017	1001	0	4-5	Minor
18	Gear Wheel Sensor D Fail CCM #2	10018	1001	1	4-5	Minor
19	Gear Wheel Sensor D Fail CCM #3	10019	1001	2	4-5	Minor
20	Gear Wheel Sensor D Fail CCM #4	10020	1001	3	4-5	Minor
21	Gear Wheel Sensor D Fail CCM #5	10021	1001	4	4-5	Minor
22	Gear Wheel Sensor D Fail CCM #6	10022	1001	5	4-5	Minor
23	Gear Wheel Sensor D Fail CCM #7	10023	1001	6	4-5	Minor
24	Gear Wheel Sensor D Fail CCM #8	10024	1001	7	4-5	Minor
25	Rotational Direction Fail Sensor Pair A&B	10025	1001	8	4-5	Minor
26	Rotational Direction Fail Sensor Pair C&D	10026	1001	9	4-5	Minor
27	TDC Signal Fail	10027	1001	10	4-5	Minor
28	BDC Signal Fail	10028	1001	11	4-5	Minor
29	TDC Signal Fail CCM #1	10029	1001	12	4-5	Minor
30	TDC Signal Fail CCM #2	10030	1001	13	4-5	Minor
31	TDC Signal Fail CCM #3	10031	1001	14	4-5	Minor
32	TDC Signal Fail CCM #4	10032	1001	15	4-5	Minor
33	TDC Signal Fail CCM #5	10033	1001	0	6-7	Minor
34	TDC Signal Fail CCM #6	10034	1001	1	6-7	Minor
35	TDC Signal Fail CCM #7	10035	1001	2	6-7	Minor
36	TDC Signal Fail CCM #8	10036	1001	3	6-7	Minor
37	BDC Signal Fail CCM #1	10037	1001	4	6-7	Minor
38	BDC Signal Fail CCM #2	10038	1001	5	6-7	Minor
39	BDC Signal Fail CCM #3	10039	1001	6	6-7	Minor
40	BDC Signal Fail CCM #4	10040	1001	7	6-7	Minor
41	BDC Signal Fail CCM #5	10041	1001	8	6-7	Minor
42	BDC Signal Fail CCM #6	10042	1001	9	6-7	Minor
43	BDC Signal Fail CCM #7	10043	1001	10	6-7	Minor
44	BDC Signal Fail CCM #8	10044	1001	11	6-7	Minor
45	Crank Angle Measurement Fail CCM #1 & MCM	10045	1001	12	6-7	Major / SLD
46	Crank Angle Measurement Fail CCM #2 to #n	10046	1001	13	6-7	Major / SHD

* Only applicable if corresponding equipment is installed on the engine

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Electrical Documents
UNIC failures & info signal list

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Product: W-X62/72
Customer Document
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Document ID: DAAD030926
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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
47	Crank Angle Measurement Fail MCM	10047	1001	14	6-7	Minor
48	Crank Angle Measurement Fail CCM #1	10048	1001	15	6-7	Major / SLD
49	Crank Angle Measurement Fail CCM #2	10049	1002	0	2-3	Major / SLD
50	Crank Angle Measurement Fail CCM #3	10050	1002	1	2-3	Major / SLD
51	Crank Angle Measurement Fail CCM #4	10051	1002	2	2-3	Major / SLD
52	Crank Angle Measurement Fail CCM #5	10052	1002	3	2-3	Major / SLD
53	Crank Angle Measurement Fail CCM #6	10053	1002	4	2-3	Major / SLD
54	Crank Angle Measurement Fail CCM #7	10054	1002	5	2-3	Major / SLD
55	Crank Angle Measurement Fail CCM #8	10055	1002	6	2-3	Major / SLD
56	Hardware Identification Fail CCM #1	10056	1002	7	2-3	Minor
57	Hardware Identification Fail CCM #2	10057	1002	8	2-3	Minor
58	Hardware Identification Fail CCM #3	10058	1002	9	2-3	Minor
59	Hardware Identification Fail CCM #4	10059	1002	10	2-3	Minor
60	Hardware Identification Fail CCM #5	10060	1002	11	2-3	Minor
61	Hardware Identification Fail CCM #6	10061	1002	12	2-3	Minor
62	Hardware Identification Fail CCM #7	10062	1002	13	2-3	Minor
63	Hardware Identification Fail CCM #8	10063	1002	14	2-3	Minor
64	Hardware Identification Fail MCM	10064	1002	15	2-3	Minor
65	System Bus 1 Fail CCM #1	10065	1002	0	4-5	Minor
66	System Bus 1 Fail CCM #2	10066	1002	1	4-5	Minor
67	System Bus 1 Fail CCM #3	10067	1002	2	4-5	Minor
68	System Bus 1 Fail CCM #4	10068	1002	3	4-5	Minor
69	System Bus 1 Fail CCM #5	10069	1002	4	4-5	Minor
70	System Bus 1 Fail CCM #6	10070	1002	5	4-5	Minor
71	System Bus 1 Fail CCM #7	10071	1002	6	4-5	Minor
72	System Bus 1 Fail CCM #8	10072	1002	7	4-5	Minor
73	System Bus 1 Fail MCM	10073	1002	8	4-5	Minor
74	System Bus 1 Fail LDU Local	10074	1002	9	4-5	Minor
75	System Bus 2 Fail CCM #1	10075	1002	10	4-5	Minor
76	System Bus 2 Fail CCM #2	10076	1002	11	4-5	Minor
77	System Bus 2 Fail CCM #3	10077	1002	12	4-5	Minor
78	System Bus 2 Fail CCM #4	10078	1002	13	4-5	Minor
79	System Bus 2 Fail CCM #5	10079	1002	14	4-5	Minor
80	System Bus 2 Fail CCM #6	10080	1002	15	4-5	Minor
81	System Bus 2 Fail CCM #7	10081	1002	0	6-7	Minor
82	System Bus 2 Fail CCM #8	10082	1002	1	6-7	Minor
83	System Bus 2 Fail MCM	10083	1002	2	6-7	Minor
84	System Bus 2 Fail LDU Local	10084	1002	3	6-7	Minor
85	System Bus 1 Fail	10085	1002	4	6-7	Minor
86	System Bus 2 Fail	10086	1002	5	6-7	Minor
87	System Bus 1 and 2 Fail	10087	1002	6	6-7	Major / SHD
88	Module Fail CCM #1	10088	1002	7	6-7	Major / SLD
89	Module Fail CCM #2	10089	1002	8	6-7	Major / SLD
90	Module Fail CCM #3	10090	1002	9	6-7	Major / SLD
91	Module Fail CCM #4	10091	1002	10	6-7	Major / SLD
92	Module Fail CCM #5	10092	1002	11	6-7	Major / SLD

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c	10/08/2017	TZI003	SGO015	Revision
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Electrical Documents
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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
93	Module Fail CCM #6	10093	1002	12	6-7	Major / SLD
94	Module Fail CCM #7	10094	1002	13	6-7	Major / SLD
95	Module Fail CCM #8	10095	1002	14	6-7	Major / SLD
96	Module Fail MCM	10096	1002	15	6-7	Minor
97	Manual Control Panel Fail LDU Local	10097	1003	0	2-3	Minor
98	Manual Control Panel Fail LDU ECR	10098	1003	1	2-3	Minor
99	CAN #1 to PCS Fail	10099	1003	2	2-3	Minor
100	CAN #2 to PCS Fail	10100	1003	3	2-3	Minor
101	CAN #1 and CAN #2 to PCS Fail	10101	1003	4	2-3	Minor
126	Manual Fuel Injection Cut Off Cyl #01	10126	1003	13	4-5	Major / SLD
127	Manual Fuel Injection Cut Off Cyl #02	10127	1003	14	4-5	Major / SLD
128	Manual Fuel Injection Cut Off Cyl #03	10128	1003	15	4-5	Major / SLD
129	Manual Fuel Injection Cut Off Cyl #04	10129	1003	0	6-7	Major / SLD
130	Manual Fuel Injection Cut Off Cyl #05	10130	1003	1	6-7	Major / SLD
131	Manual Fuel Injection Cut Off Cyl #06	10131	1003	2	6-7	Major / SLD
132	Manual Fuel Injection Cut Off Cyl #07	10132	1003	3	6-7	Major / SLD
133	Manual Fuel Injection Cut Off Cyl #08	10133	1003	4	6-7	Major / SLD
134	Fuel Rail Pressure Measuring Fail #1	10134	1003	5	6-7	Minor
135	Fuel Rail Pressure Measuring Fail #2	10135	1003	6	6-7	Minor
136	Fuel Rail Pressure Measuring Fail #1 and #2	10136	1003	7	6-7	Minor
137	Fuel Rail Pressure Measuring High Difference	10137	1003	8	6-7	Minor
144	Fuel Rail Pressure High	10144	1003	15	6-7	Minor
145	Fuel Rail Pressure Low	10145	1004	0	2-3	Minor
146	Fuel Rail Pressure Very Low	10146	1004	1	2-3	Major / SLD
147	Servo Oil Pressure Measuring Fail #1	10147	1004	2	2-3	Minor
148	Servo Oil Pressure Measuring Fail #2	10148	1004	3	2-3	Minor
149	Servo Oil Pressure Measuring Fail #1 and #2	10149	1004	4	2-3	Minor
150	Servo Oil Pressure Measuring High Difference	10150	1004	5	2-3	Minor
151	Servo Oil Pressure High	10151	1004	6	2-3	Minor
152	Servo Oil Pressure Low	10152	1004	7	2-3	Minor
153	Servo Oil Pressure Very Low	10153	1004	8	2-3	Major / SLD
154	Servo Oil Pressure Control Valve Open/Short Circuit #1	10154	1004	9	2-3	Minor
155	Servo Oil Pressure Control Valve Open/Short Circuit #2	10155	1004	10	2-3	Minor
156	Exhaust Valve Position Measuring Fail Cyl #01	10156	1004	11	2-3	Minor
157	Exhaust Valve Position Measuring Fail Cyl #02	10157	1004	12	2-3	Minor
158	Exhaust Valve Position Measuring Fail Cyl #03	10158	1004	13	2-3	Minor
159	Exhaust Valve Position Measuring Fail Cyl #04	10159	1004	14	2-3	Minor
160	Exhaust Valve Position Measuring Fail Cyl #05	10160	1004	15	2-3	Minor
161	Exhaust Valve Position Measuring Fail Cyl #06	10161	1004	0	4-5	Minor
162	Exhaust Valve Position Measuring Fail Cyl #07	10162	1004	1	4-5	Minor
163	Exhaust Valve Position Measuring Fail Cyl #08	10163	1004	2	4-5	Minor
164	Exhaust Valve Timing Fail Cyl #01	10164	1004	3	4-5	Major / SLD
165	Exhaust Valve Timing Fail Cyl #02	10165	1004	4	4-5	Major / SLD
166	Exhaust Valve Timing Fail Cyl #03	10166	1004	5	4-5	Major / SLD
167	Exhaust Valve Timing Fail Cyl #04	10167	1004	6	4-5	Major / SLD
168	Exhaust Valve Timing Fail Cyl #05	10168	1004	7	4-5	Major / SLD

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Electrical Documents
UNIC failures & info signal list

Object: UNIC signals
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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
169	Exhaust Valve Timing Fail Cyl #06	10169	1004	8	4-5	Major / SLD
170	Exhaust Valve Timing Fail Cyl #07	10170	1004	9	4-5	Major / SLD
171	Exhaust Valve Timing Fail Cyl #08	10171	1004	10	4-5	Major / SLD
172	Exhaust Valve Control Valve Open/Short Circuit #01	10172	1004	11	4-5	Major / SLD
173	Exhaust Valve Control Valve Open/Short Circuit #02	10173	1004	12	4-5	Major / SLD
174	Exhaust Valve Control Valve Open/Short Circuit #03	10174	1004	13	4-5	Major / SLD
175	Exhaust Valve Control Valve Open/Short Circuit #04	10175	1004	14	4-5	Major / SLD
176	Exhaust Valve Control Valve Open/Short Circuit #05	10176	1004	15	4-5	Major / SLD
177	Exhaust Valve Control Valve Open/Short Circuit #06	10177	1004	0	6-7	Major / SLD
178	Exhaust Valve Control Valve Open/Short Circuit #07	10178	1004	1	6-7	Major / SLD
179	Exhaust Valve Control Valve Open/Short Circuit #08	10179	1004	2	6-7	Major / SLD
180	ECS Exhaust Gas Temperature Measuring Failure Cyl #1	10180	1004	3	6-7	Minor
181	ECS Exhaust Gas Temperature Measuring Failure Cyl #2	10181	1004	4	6-7	Minor
182	ECS Exhaust Gas Temperature Measuring Failure Cyl #3	10182	1004	5	6-7	Minor
183	ECS Exhaust Gas Temperature Measuring Failure Cyl #4	10183	1004	6	6-7	Minor
184	ECS Exhaust Gas Temperature Measuring Failure Cyl #5	10184	1004	7	6-7	Minor
185	ECS Exhaust Gas Temperature Measuring Failure Cyl #6	10185	1004	8	6-7	Minor
186	ECS Exhaust Gas Temperature Measuring Failure Cyl #7	10186	1004	9	6-7	Minor
187	ECS Exhaust Gas Temperature Measuring Failure Cyl #8	10187	1004	10	6-7	Minor
188	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #01	10188	1004	11	6-7	Major / SLD
189	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #02	10189	1004	12	6-7	Major / SLD
190	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #03	10190	1004	13	6-7	Major / SLD
191	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #04	10191	1004	14	6-7	Major / SLD
192	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #05	10192	1004	15	6-7	Major / SLD
193	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #06	10193	1005	0	2-3	Major / SLD
194	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #07	10194	1005	1	2-3	Major / SLD
195	Cylinder Lubrication Oil Pressure Measuring Fail Cyl #08	10195	1005	2	2-3	Major / SLD
212	Cylinder Lubrication Oil Injection Pressure High Cyl #01	10212	1005	3	4-5	Major / SLD
213	Cylinder Lubrication Oil Injection Pressure High Cyl #02	10213	1005	4	4-5	Major / SLD
214	Cylinder Lubrication Oil Injection Pressure High Cyl #03	10214	1005	5	4-5	Major / SLD
215	Cylinder Lubrication Oil Injection Pressure High Cyl #04	10215	1005	6	4-5	Major / SLD
216	Cylinder Lubrication Oil Injection Pressure High Cyl #05	10216	1005	7	4-5	Major / SLD
217	Cylinder Lubrication Oil Injection Pressure High Cyl #06	10217	1005	8	4-5	Major / SLD
218	Cylinder Lubrication Oil Injection Pressure High Cyl #07	10218	1005	9	4-5	Major / SLD
219	Cylinder Lubrication Oil Injection Pressure High Cyl #08	10219	1005	10	4-5	Major / SLD
220	Cylinder Lubrication Oil Injection Pressure Low Cyl #01	10220	1005	11	4-5	Major / SLD
221	Cylinder Lubrication Oil Injection Pressure Low Cyl #02	10221	1005	12	4-5	Major / SLD
222	Cylinder Lubrication Oil Injection Pressure Low Cyl #03	10222	1005	13	4-5	Major / SLD
223	Cylinder Lubrication Oil Injection Pressure Low Cyl #04	10223	1005	14	4-5	Major / SLD
224	Cylinder Lubrication Oil Injection Pressure Low Cyl #05	10224	1005	15	4-5	Major / SLD
225	Cylinder Lubrication Oil Injection Pressure Low Cyl #06	10225	1005	0	6-7	Major / SLD
226	Cylinder Lubrication Oil Injection Pressure Low Cyl #07	10226	1005	1	6-7	Major / SLD
227	Cylinder Lubrication Oil Injection Pressure Low Cyl #08	10227	1005	2	6-7	Major / SLD
228	External Power Signal Fail *	10228	1005	3	6-7	Minor
229	Cylinder Lubrication Internal Power Signal Used *	10229	1005	4	6-7	Info
230	Cylinder Lubrication External Power/Torque Signal Used *	10230	1005	5	6-7	Info

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Electrical Documents
UNIC failures & info signal list

Object: UNIC signals
Product: W-X62/72
Project ID:
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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
231	Starting Air Pilot Valve SV Open/Short Circuit Cyl #01	10231	1005	6	6-7	Minor
232	Starting Air Pilot Valve SV Open/Short Circuit Cyl #02	10232	1005	7	6-7	Minor
233	Starting Air Pilot Valve SV Open/Short Circuit Cyl #03	10233	1005	8	6-7	Minor
234	Starting Air Pilot Valve SV Open/Short Circuit Cyl #04	10234	1005	9	6-7	Minor
235	Starting Air Pilot Valve SV Open/Short Circuit Cyl #05	10235	1005	10	6-7	Minor
236	Starting Air Pilot Valve SV Open/Short Circuit Cyl #06	10236	1005	11	6-7	Minor
237	Starting Air Pilot Valve SV Open/Short Circuit Cyl #07	10237	1005	12	6-7	Minor
238	Starting Air Pilot Valve SV Open/Short Circuit Cyl #08	10238	1005	13	6-7	Minor
239	Scavenge Air Pressure Measuring Fail #1	10239	1005	14	6-7	Minor
240	Scavenge Air Pressure Measuring Fail #2	10240	1005	15	6-7	Minor
241	Scavenge Air Pressure Measuring Fail #1 and #2	10241	1006	0	2-3	Minor
242	Scavenge Air Pressure Measuring High Difference	10242	1006	1	2-3	Minor
243	Scavenge Air Pressure High	10243	1006	2	2-3	Minor
244	Scavenge Air Pressure Very High	10244	1006	3	2-3	Major / SLD
245	Exhaust Waste Gate Not Closed	10245	1006	4	2-3	Minor
246	Exhaust Waste Gate Not Opened	10246	1006	5	2-3	Minor
247	Start Interlock – Turning Gear Engaged	10247	1006	6	2-3	Info
248	Turning Gear Sensor Contradiction	10248	1006	7	2-3	Minor
249	Start Interlock – Auxiliary Blowers Not Running	10249	1006	8	2-3	Minor
250	Remote Start Interlock – Main Start Air Valve Manually Closed	10250	1006	9	2-3	Info
251	Engine Common Start Valve Open/Short Circuit #1	10251	1006	10	2-3	Minor
252	Engine Common Start Valve Open/Short Circuit #2	10252	1006	11	2-3	Minor
253	Engine Starting Failed	10253	1006	12	2-3	Info
254	Engine Shutdown by ESS	10254	1006	13	2-3	Info
255	Engine Slowdown by ESS	10255	1006	14	2-3	Info
256	Excessive Engine Speed	10256	1006	15	2-3	Major / SHD
257	Bridge Remote Control Active	10257	1006	0	4-5	Info
258	ECR Remote Control Active	10258	1006	1	4-5	Info
259	LDU ECR Control Active	10259	1006	2	4-5	Info
260	LDU Local Control Active	10260	1006	3	4-5	Info
261	Speed Control Mode Active	10261	1006	4	4-5	Info
262	Manual Fuel Control Mode Active	10262	1006	5	4-5	Info
263	Speed Program Active	10263	1006	6	4-5	Info
264	Speed Program Override Active	10264	1006	7	4-5	Info
265	Engine Air Run Active	10265	1006	8	4-5	Info
266	Engine Slow Turning Active	10266	1006	9	4-5	Info
267	Engine Slow Turning Fail	10267	1006	10	4-5	Minor
268	Engine Slow Turning Finish	10268	1006	11	4-5	Info
269	Crank Angle Determination Algorithm Active	10269	1006	12	4-5	Info
270	Crank Angle Determined	10270	1006	13	4-5	Info
271	Engine Heavy Start Active	10271	1006	14	4-5	Info
272	Engine Starting Active	10272	1006	15	4-5	Info
273	Engine Running Active	10273	1006	0	6-7	Info
274	Engine Speed Barred Range	10274	1006	1	6-7	Info
275	Heavy Sea Mode Active	10275	1006	2	6-7	Info
276	Engine Running Ahead	10276	1006	3	6-7	Info

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UNIC failures & info signal list

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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
277	Engine Running Astern	10277	1006	4	6-7	Info
278	Engine Stop	10278	1006	5	6-7	Info
279	Auxiliary Blowers Preselected	10279	1006	6	6-7	Info
280	Any Auxiliary Blower Running	10280	1006	7	6-7	Info
281	Auxiliary Blower #1 Fail	10281	1006	8	6-7	Minor
282	Auxiliary Blower #2 Fail	10282	1006	9	6-7	Minor
283	UNIC Shutdown Override Request Active	10283	1006	10	6-7	Info
284	UNIC Shutdown Request to ESS Active	10284	1006	11	6-7	Info
285	UNIC Limiter Active	10285	1006	12	6-7	Info
297	Turbo Charger #1 Speed High	10297	1007	8	2-3	Minor
298	Turbo Charger #1 Speed Very High	10298	1007	9	2-3	Major / SLD
299	Turbo Charger #1 Speed Measurement Fail	10299	1007	10	2-3	Minor
300	Turbo Charger #2 Speed High	10300	1007	11	2-3	Minor
301	Turbo Charger #2 Speed Very High	10301	1007	12	2-3	Major / SLD
302	Turbo Charger #2 Speed Measurement Fail	10302	1007	13	2-3	Minor
303	Start Air Pressure Measuring Fail #1	10303	1007	14	2-3	Minor
304	Start Air Pressure Measuring Fail #2	10304	1007	15	2-3	Minor
305	Liner Wall Temperature Measuring Failure Aft Side Cyl #1	10305	1007	0	4-5	Minor
306	Liner Wall Temperature Measuring Failure Aft Side Cyl #2	10306	1007	1	4-5	Minor
307	Liner Wall Temperature Measuring Failure Aft Side Cyl #3	10307	1007	2	4-5	Minor
308	Liner Wall Temperature Measuring Failure Aft Side Cyl #4	10308	1007	3	4-5	Minor
309	Liner Wall Temperature Measuring Failure Aft Side Cyl #5	10309	1007	4	4-5	Minor
310	Liner Wall Temperature Measuring Failure Aft Side Cyl #6	10310	1007	5	4-5	Minor
311	Liner Wall Temperature Measuring Failure Aft Side Cyl #7	10311	1007	6	4-5	Minor
312	Liner Wall Temperature Measuring Failure Aft Side Cyl #8	10312	1007	7	4-5	Minor
313	Liner Wall Temperature Measuring Failure Fore Side Cyl #1	10313	1007	8	4-5	Minor
314	Liner Wall Temperature Measuring Failure Fore Side Cyl #2	10314	1007	9	4-5	Minor
315	Liner Wall Temperature Measuring Failure Fore Side Cyl #3	10315	1007	10	4-5	Minor
316	Liner Wall Temperature Measuring Failure Fore Side Cyl #4	10316	1007	11	4-5	Minor
317	Liner Wall Temperature Measuring Failure Fore Side Cyl #5	10317	1007	12	4-5	Minor
318	Liner Wall Temperature Measuring Failure Fore Side Cyl #6	10318	1007	13	4-5	Minor
319	Liner Wall Temperature Measuring Failure Fore Side Cyl #7	10319	1007	14	4-5	Minor
320	Liner Wall Temperature Measuring Failure Fore Side Cyl #8	10320	1007	15	4-5	Minor
329	Cylinder Pressure Measuring Failure Cyl #01	10329	1007	8	6-7	Minor
330	Cylinder Pressure Measuring Failure Cyl #02	10330	1007	9	6-7	Minor
331	Cylinder Pressure Measuring Failure Cyl #03	10331	1007	10	6-7	Minor
332	Cylinder Pressure Measuring Failure Cyl #04	10332	1007	11	6-7	Minor
333	Cylinder Pressure Measuring Failure Cyl #05	10333	1007	12	6-7	Minor
334	Cylinder Pressure Measuring Failure Cyl #06	10334	1007	13	6-7	Minor
335	Cylinder Pressure Measuring Failure Cyl #07	10335	1007	14	6-7	Minor
336	Cylinder Pressure Measuring Failure Cyl #08	10336	1007	15	6-7	Minor
337	Fuel Pump Control Signal #1 Failure	10337	1008	0	2-3	Minor
338	Fuel Pump Control Signal #2 Failure	10338	1008	1	2-3	Minor
339	Fuel Pump Control Signal #3 Failure	10339	1008	2	2-3	Minor
340	System Bus 1 Fail IOM	10340	1008	3	2-3	Minor
341	System Bus 2 Fail IOM	10341	1008	4	2-3	Minor

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ID number	Designation	Modbus address	CanOpen data point ID	Bit of ISO code	Bytes	Failure type
342	Module Fail IOM	10342	1008	5	2-3	Minor
343	Hardware Identification Fail IOM	10343	1008	6	2-3	Minor
344	Mains #1 Power Failure	10344	1008	7	2-3	Minor
345	Mains #2 Power Failure	10345	1008	8	2-3	Minor
346	Power Supply Failure CCM #1	10346	1008	9	2-3	Minor
347	Power Supply Failure CCM #2	10347	1008	10	2-3	Minor
348	Power Supply Failure CCM #3	10348	1008	11	2-3	Minor
349	Power Supply Failure CCM #4	10349	1008	12	2-3	Minor
350	Power Supply Failure CCM #5	10350	1008	13	2-3	Minor
351	Power Supply Failure CCM #6	10351	1008	14	2-3	Minor
352	Power Supply Failure CCM #7	10352	1008	15	2-3	Minor
353	Power Supply Failure CCM #8	10353	1008	0	4-5	Minor
354	Power Supply Failure MCM	10354	1008	1	4-5	Minor
355	Power Supply Failure IOM	10355	1008	2	4-5	Minor
356	Power Supply Failure LDU Local	10356	1008	3	4-5	Minor
357	Power Supply Failure LDU ECR	10357	1008	4	4-5	Minor
358	Control Air Pressure Low	10358	1008	5	4-5	Minor
359	Control Air Pressure Measuring Failure	10359	1008	6	4-5	Minor
360	Exhaust Waste Gate Valve Open/Short Circuit *	10360	1008	7	4-5	Minor
361	Exhaust Waste Gate Valve Position Measurement Failure *	10361	1008	8	4-5	Minor
364	Crosshead Bearing Oil Pressure Measuring Fail *	10364	1008	11	4-5	Minor
365	SCR Minor Failure *	10365	1008	12	4-5	Minor
366	SCR Major Failure *	10366	1008	13	4-5	Minor
367	SCR Urea Injection On*	10367	1008	14	4-5	Info
368	Auxiliary Blowers in Manual Mode	10368	1008	15	4-5	Info
369	Collective Alarm Electric Balancer Drive End *	10369	1008	0	6-7	Minor
370	Collective Alarm Electric Balancer Free End *	10370	1008	1	6-7	Minor
371	Electric Balancer Drive End Running *	10371	1008	2	6-7	Info
372	Electric Balancer Free End Running *	10372	1008	3	6-7	Info
373	Battery Power Failure	10373	1008	4	6-7	Minor
374	Exhaust Waste Gate Position Error *	10374	1008	5	6-7	Minor
375	Cancel Limit Timeout Reached	10375	1008	6	6-7	Minor

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