ATICS-...-DIO checklist

Initial commissioning and recurrent tests on site

Software version: D333 V1.3x, D334 V1.3x, D335 V1.0x

Setting and testing according to the checklist

The factory settings and system-specific settings of the ATICS® transfer switching device are documented on the checklist. Please carry out all the work outlined in the list and log each test step.

The column „Ok/Comment“ or „Ok/New value“ is used to mark changes. If no changes have been made, no entries are required here. If the initial commissioning or the recurrent test have been carried out by the Bender service, the computer printout replaces manual entry of the set parameters into this checklist.

Keep this checklist and the enclosed documentation near to the device.

Table of content

1 Identification of the ATICS®

Project number		ATICS® type	
Project name		ATICS® article no.	
Switchgear production		ATICS® serial no.	
Installer		Software D333	
Bender order confirmation no.		Software D334	
Installation location/Operator			

2 Prior to commissioning - visual inspection

No.	Test step	Workshop test		On-site commissioning	
		Ok/ Comment	Tested by/ Date	Ok/ Comment	Tested by/ Date
1	Device and accessories checked for obvious damage				
2	Screw and clamping connections checked (correct wiring, torque setting). Repeat this test at regular intervals!				
3	Upstream fuses properly installed and selected				
4	Cables between transformer and the transfer switching device are laid so that they are short-circuit and earth-fault proof. Make sure that no ferrules have been used to connect conductors 1, 2 and 3.				
5	Check interface				
5.1	Terminals A and B properly connected (not mixed up)				
5.2	BMS bus properly connected (terminating resistors)				
5.3	Shield connected to PE on one side				
5.4	MK2430 or MK800 alarm indicator and test combinations, and TM… or CP9xx alarm indicator and operator panels that are monitoring each other for device failure must be supplied by at least two independent power supply sources.				
6	Only for ATICS-BP-… versions with bypass switch: Terminals properly connected. Pay attention to the polarity! Bypass labels have been positioned at a suitable place.				

3 Commissioning - supply voltages and BMS bus

No.	Test step	Workshop test		On-site commissioning	
		Ok/ Comment	Tested by/Date	Ok/ Comment	Tested by/Date
1	For versions with bypass switch, change ATICS-BP-… into position I (normal). Connect existing voltage to line 1 and line 2.				
1.1	ATICS® starts in fault-free operating condition: • The green LEDs „L1“ and „L2“ light • The orange LED „ALARM“ does not light				
1.2	The LCD shows the standard information				
2	Check voltage (* = applies to ATICS-4-DIO only)				
2.1	Line 1 L1-N _____ V L2-N _____ V* L3-N _____ V*				
2.2	Line 2 L1-N _____ V L2-N _____ V* L3-N _____ V*				
2.3	Output L1-N _____ V L2-N _____ V* L3-N _____ V*				
2.4	Only for ATICS-BP-… versions with bypass switch: • The indicator light (next to bypass switch) may only light up green when line 1 has been switched on at the ATICS®. The bypass switch may be operated. • If the ATICS® is in position „0“ or „II“, the indicator light (next to the bypass switch) must light up red. The bypass switch may not be operated. • Settings of the digital input „I“must be changed for „Bypass“ (refer to „Settings menu 5: Dig. input“)				
3	Check the connected components				
3.1	Note the messages on the TM… or CP9xx alarm indicator and operator panels or MK… alarm indicator and test combinations				
3.2	Check that the address assignment is in compliance with project planning: • Is the master function assigned to address „1“? • Has each address only been assigned once?				

3.3	• Check MK2430 or MK800 alarm indicator and test combinations, and TM… alarm indicator and operator panels (if any): • Assign addresses (master 1, slave 2…150) • Set alarm addresses (address for alarm transmitter) • Set the alarm address so that the MK… and TM… or CP9xxx monitor each other as well as the ATICS® for device failure (functional safety). • Set date/time				

4 Checking parameter settings

4.1 Settings menu 1: Changeover

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1	t(start)	0 s				
2	t(0)	160 ms				
3	t(2->1)	10 s				
4	t(test)	5 s				
5	System* The setting also influences the indicated alarm text in the event of a line failure (see manual)!	U1-U2				
6	SwitchBackLock	off				
7	Prefer.supply	1				
8	Test interval	12 mo (month)				
9	Reminder	21 d (days)				
10	Service interval	36 mo (month)				
11	Reminder	40 d (days)				
12	t(Gen.Start)	--- / 3 s				
13	t(Gen.Max)	--- / 15 s				
14	t(Gen.off)	--- / 300 s				

*Tab. 4-1 * Adjust settings to system (e.g. SV/AV (safety power supply/normal power supply) or BSV/SV (battery-supported power supply/safety power supply) or …) and in compliance with other connected indicator units (e.g. TM800 or MK2430). For more detailed information, refer to the chapter „Settings menu 1: Changeover" menu item „5. System" in the ATICS® manual.*

4.2 Settings menu 2: Voltage

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/ Date	Ok/New value	Tested by/ Date
	Line 1					
1	Undervoltage	184 V				
2	Overvoltage	260 V				
3	t(on)	150 ms				
4	t(off)	200 ms				
5	Hysteresis	3 %				
6	Unbalance (ATICS-4-DIO only)	30 %				
7	Rotating field (ATICS-4-DIO only)	on				
	Line 2					
1	Undervoltage	184 V				
2	Overvoltage	260 V				
3	t(on)	150 ms				
4	t(off)	200 ms				
5	Hysteresis	3 %				
6	Unbalance (ATICS-4-DIO only)	30 %				
7	Rotating field (ATICS-4-DIO only)	on				

4.3 Settings menu 3: Current

For Atics-2-DIO

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/ Date	Ok/New value	Tested by/ Date
1	Function	on				
2	CT	STW3				
3	CT monitor.	on*				

*Tab. 4-2 * Recommendation: after successful commissioning „off“.*

For ATICS-4-DIO

The current is recorded via the measuring current transformers (T3…T6 in the wiring example).

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/ Date	Ok/New value	Tested by/ Date
	Channel 1					
1	Function	on				
2	CT	STW3 (80 A version) STW4 (125 A and 160 A version)				
3	CT monitor.	on*				
	Channel 2					
1	Function	on				
2	CT	STW3 (80 A version) STW4 (125 A and 160 A version)				
3	CT monitor.	on*				
	Channel 3					
1	Function	on				
2	CT	STW3 (80 A version) STW4 (125 A and 160 A version)				
3	CT monitor.	on*				
	Channel 4					
1	Function	on				
2	CT	STW3 (80 A version) STW4 (125 A and 160 A version)				
3	CT monitor.	on*				

Recommendation: after successful commissioning „off“.

4.4 Setting menu 4: Relay

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
	Relay 1					
1	Function*	Alarm				
2	Relay mode	N/C-T				
3	Line 1	on				
4	Line 2	on				
5	Manual mode	on				
6	Device error	on				
7	Test interval	on				
8	Service interval	on				
9	Dig. input	off				
10	Undervoltage	on				
	Relay 2					
1	Function*	Alarm				
2	Relay mode	N/C-T				
3	Line 1	off				
4	Line 2	off				
5	Manual mode	off				
6	Device error	off				
7	Test interval	off				
8	Service interval	off				
9	Dig. input	off				
10	Undervoltage	off				
	Relay 3					

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1	Function*	Alarm				
2	Relay mode	N/C-T				
3	Line 1	off				
4	Line 2	off				
5	Manual mode	off				
6	Device error	off				
7	Test interval	off				
8	Service interval	off				
9	Dig. input	off				
10	Undervoltage	off				
	Relay 4					
1	Function*	Alarm				
2	Relay mode	N/C-T				
3	Line 1	on				
4	Line 2	off				
5	Manual mode	off				
6	Device error	off				
7	Test interval	off				
8	Service interval	off				
9	Dig. input	off				
10	Undervoltage	off				

*Tab. 4-3 * For more detailed information, refer to the chapter „Settings menu 5: Relays" in the ATICS® manual.*

4.5 Settings menu 5: Dig. input

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
	Digital Input 1					
1	Function	off				
2	Resp. value	24 V				
3	t(on)	100 ms				
4	t(off)	100 ms				

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
	Digital Input 2					
1	Function	off				
2	Resp. value	24 V				
3	t(on)	100 ms				
4	t(off)	100 ms				
	Digital Input 3					
1	Function	off				
2	Resp. value	24 V				
3	t(on)	100 ms				
4	t(off)	100 ms				
	Digital Input 4					
1	Function	off				
2	Resp. value	24 V				
3	t(on)	100 ms				
4	t(off)	100 ms				

The following must be set for operation with bypass switch:

- 1. Function: Bypass
- 2. Response value: 0 V
- 3. t(on) response delay: 100 ms
- 4. t(off) delay of release: 100 ms

4.6 Settings menu 6: Data logger

ATICS-2-DIO

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1.1	1 Line 1: modification	4 %				
1.2	1 Line 1: overwrite	yes				
2.1	2 Line 2: modification	4%				
2.2	2 Line 2: overwrite	yes				
3.1	3 Position: modification	0 %				
3.2	3 Position: overwrite	yes				
4.1	4 I(3): modification	20 %				
4.2	4 I(3): overwrite	yes				

ATICS-4-DIO

Nr.	Parameter	Factory settings	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1.1	U1(1-N): modification	4 %				
1.2	U1(1-N): overwrite	yes				
2.1	U1(2-N): modification	4%				
2.2	U1(2-N): overwrite	yes				
3.1	U1(3-N): modification	4 %				
3.2	U1(3-N): overwrite	yes				
4.1	U2(1-N): modification	4 %				
4.2	U2(1-N): overwrite	yes				
5.1	U2(2-N): modification	4 %				
5.2	U2(2-N): overwrite	yes				
6.1	U2(3-N): modification	4 %				
6.2	U2(3-N): overwrite	yes				
7.1	Position: modification	0 %				
7.2	Position: overwrite	yes				
8.1	I(1): modification	20 %				
8.2	I(1): overwrite	yes				
9.1	I(2): modification	20 %				
9.2	I(2): overwrite	yes				
10.1	I(3): modification	20 %				
10.2	I(3): overwrite	yes				
11.1	I(N): modification	20 %				
11.2	I(N): overwrite	yes				

4.7 Settings menu 7: Language

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/ Date	Ok/New value	Tested by/Date
	Language	German				

4.8 Settings menu 8: Interface

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/ Date	Ok/New value	Tested by/Date
1	Adress	3				
2	Change the settings via BMS bus	off				
3	Carry out TEST of the changeover device via BMS bus	off				
4	Failure monitoring of the BMS master	off				
5	Profile	Standard				

4.9 Settings menu 9: Clock

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1	Format	d.m.y				
2	Date*					
3	Time*					

Tab. 4-4 This setting option is required when the ATICS® is operated as „Stand-alone" device. If the device is operated in a bus system, these settings are overwritten by the master.

4.10 Settings menu 10: Password

The device has two separate passwords for the „Settings" menu and the „TEST" menu. Enter a password for each menu. Activate both passwords (status: on).

No.	Parameters	Factory setting	Workshop test		On-site commissioning	
			Ok/New value	Tested by/Date	Ok/New value	Tested by/Date
1	Settings					
1.1	Password	000				
1.2	Status	off				
2	TEST					
2.1	Password	000				
2.2	Status	off				

4.11 Settings menu 11: Service

This menu is only intended for Bender service staff.

5 Functional test

These tests are to be carried out during:

- Initial commissioning (workshop test)
- On-site commissioning
- Recurrent test

WARNING! During a function test (recurrent test) without bypass switch there is a short interruption of the current supply. *Consult the medical personnel before performing a function test!*

5.1 Functional test changeover without bypass switch (with interruption)

No.	Functional test	Ok	Tested by
1	**Switch off first line – activate changeover function** If it is not possible to switch off line 1, a failure can be simulated by pressing the „Test“ button on the ATICS®.		
1.1	ATICS® indication: The green power on LED line „1“ goes out. The yellow „ALARM“ LED lights up. The fault message „Failure Line 1“ appears on the display. The device switches to the redundant line within a preset time. The inspection window shows the changed switch position of the changeover switch.		
1.2	Note the messages on the displays of the TM… or CP9xx alarm indicator and operator panels or the MK… alarm indicator and test combinations. Acknowledge the acoustic message.		
2	**Re-connect the first line – activate switching back function**		
2.1	ATICS® indication: The green power on LED Line „1“ lights up. The yellow „ALARM“ LED goes out. The device switches to the preferred line within a preset time. Exception: If the switching back interlocking function is activated, the device will not switch back. The message „Switching back interlock“ appears on the display. The device does not switch back to the preferred line until the reset button has been pressed. The inspection window shows the changed switch position of the changeover switch.		
2.2	Note the messages on the displays of the TM… or CP9xx alarm indicator and operator panels or the MK… alarm indicator and test combinations		
3	**Switch off second line**		
3.1	ATICS® indication: The green power on LED Line „2“ goes out. The yellow „ALARM“ LED lights up. The fault message „Failure Line 2“appears on the display. The device does not change over.		
3.2	Note the messages on the displays of the TM… or CP9xx alarm indicator and operator panels or the MK… alarm indicator and test combinations.		

4	**Reconnect second line**		
4.1	ATICS® indication: The green power on LED Line „2“ lights up. The yellow „ALARM“ LED goes out.		
4.2	Note the messages on the displays of the TM… or CP9xx alarm indicator and operator panels or the MK… alarm indicator and test combinations		
5	**Check the changeover period**		
5.1	Press the „TEST“ button for at least one second and select „Manual changeover“. The device switches to the redundant line within a preset time. Read off and note down the changeover period t(1->2): _____ ms.		
5.2	Press the „RESET“ button for at least one second. The device switches to the preferred line within a preset time.		

5.2 Functional test changeover with bypass switch (without interruption)

Risk of short circuit
The installation may be damaged due to incorrect operation. *Read and observe the following information carefully!*

No.	Functional test	Ok	Tested by
1	**Enable bypass**		
1.1	1. Check requirements: • ATICS® is in switch position „I“. • The indicator light (next to the bypass switch) lights up green. **2. Change bypass switch quickly to position „II“.** The yellow „ALARM“ LED lights up on the ATICS®. The message „Manual mode“ appears on the display.		
1.2	Observe messages on the ATICS® as well as potentially connected TM… alarm indicator and operator panels or MK… alarm indicator and test combinations. Acknowledge the acoustic message.		
2	**Press „TEST“ button - check the changeover period**		
2.1	Check the changeover period Press the „TEST“ button for at least one second, then select „Manual changeover“. The device switches to the redundant line within a preset time. Read off and note down the changeover period t(1->2): _____ ms. • The indicator light (next to the bypass switch) lights up red. The bypass switch may not be operated. • ATICS® indicates the modified switch position in the inspection window.		

No.	Functional test	Ok	Tested by
3	**Press „RESET" button – trigger the switching back function**		
3.1	Press „RESET" button for at least one second. The device switches to the preferred line within a preset time. • The indicator light (next to the bypass switch) lights up green. The bypass switch may be operated.		
4	**Disable bypass**		
4.1	1. Check requirements: • ATICS® is in switch position „I". • The indicator light (next to the bypass switch) lights up green. 2. Change bypass switch quickly to position „I". • The yellow „ALARM" LED goes out. • No message is shown on the display.		

5.3 Finishing the functional test

No.	Functional test	Ok	Tested by
1	**Establish readiness for operation** Reattach covers, check labelling. Activate fuses according to the guidelines which apply to the site of use, check readiness for operation of ATICS®. Keep this document in an easily accessible location near to the devices.		

5.4 Signature

The settings were adjusted to the existing installation.

Initial commissioning (workshop test)

Date/Place	Comment	Tested by

On-site commissioning

Date/Place	Comment	Tested by

Recurrant test

Date/Place	Comment	Tested by
Date/Place	Comment	Tested by
Date/Place	Comment	Tested by
Date/Place	Comment	Tested by
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