Repair Instruction
Epsilon Timber- & Recycling Cranes

PALFINGER

Replacement YE80011, YE80011A

PALFINGER

Original repair instruction RI-EE-001

Version: 2019/01

English

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Contents

1 General

1.1 Introduction and handling of this document

This PALFINGER original repair instruction contents an technical explanation of repairs on loader cranes and is meant as support during repairs on PALFINGER EPSILON cranes as well as reference information for service and repair work.

This repair instruction is mainly addressed to specialized companies and service workshops from PALFINGER. Appropriate product knowledge and basic product education is required and will be assumed.

1.2 Validity

This repair instruction is valid without any time limitation for the described system.

However, it is possible, that through further developments new versions of this document could be available. PALFINGER reserves the right to change this document at any time.

Please contact PALFINGER immediately if there is anything in the repair instruction that requires further explanation, is described insufficiently or is incorrect. Any suggestions are appreciated and help to make the instruction more user-friendly.

The descriptions, specifications and pictures in the instruction do not qualify for any legal claims. The document does not replace local regulations, education required by law or official valid rules, standards and laws.

The latest version of this repair instruction, as well as any other technical documentation, are available from PALFINGER general representatives or online at *PALDESK* under *Products → Service → Technical guidelines*.

The required registration can be done at www.palfinger.com.

1.3 Symbols in this document

The following symbols and signal words are mentioned in this document:

DANGER

Situation, that will lead to death or serious injuries.

WARNING

Situation, that could lead to death or serious injuries.

CAUTION

Situation, that could lead to minor injuries.

ATTENTION

Situation, that could lead to material damage.

IMPORTANT INFORMATION

Important information for the user.

PLEASE NOTE

Information, which makes working with the unit easier.

1.4 Safety notes

IMPORTANT INFORMATION

Every activity on the crane, especially work, related to service- and repair, requires wearing safety equipment/devices, depending on the particular kind of hazard.

IMPORTANT INFORMATION

Before starting work related to electrical or electronic components on the crane, it must be assured that the system is without power.

WARNING

The hydraulic system on the crane or parts of it can stay under pressure, even when out of service. It must be assured, that the system is depressurized before starting to work on the crane.

WARNING

After every work carried out on the crane, related to maintenance, service or repair, it is absolutely necessary to check the safety system for its correct function.

2 Introduction

As a replacement for the Parker LM3D joysticks, Parker LC6 joysticks will be installed. Some changes have to be made in the cabin.

3 Affected products

YE80011, YE80011A

4 Description

In order to fully replace the Parker LM3D joystick, the replacement kit YBU236 has to be installed. The kit can be ordered from the ETC. it contains an additional control untit with an irreplaceable special software.

A description of the error for evaluating the flashing codes displayed on the control unit can be found in the appendix.

One kit replaces one joystick.

YBU236 contains:

Stk.	Teilenummer	Benennung
1	YE80347	IQAN LC6 Joystick
1	YE80351	Adapter cable kit
1	YE80352	IQAN MC41 master controller inclusive software
1	YE19606	Adapter plate for joystick
4	YE50047	Cylinder head screw M6x20 DIN 912 8.8
4	YE50162	M4x10 DIN7380
4	YE52015	Nut screw M6 DIN934 8

5 Modification

5.1 Adjust console cover

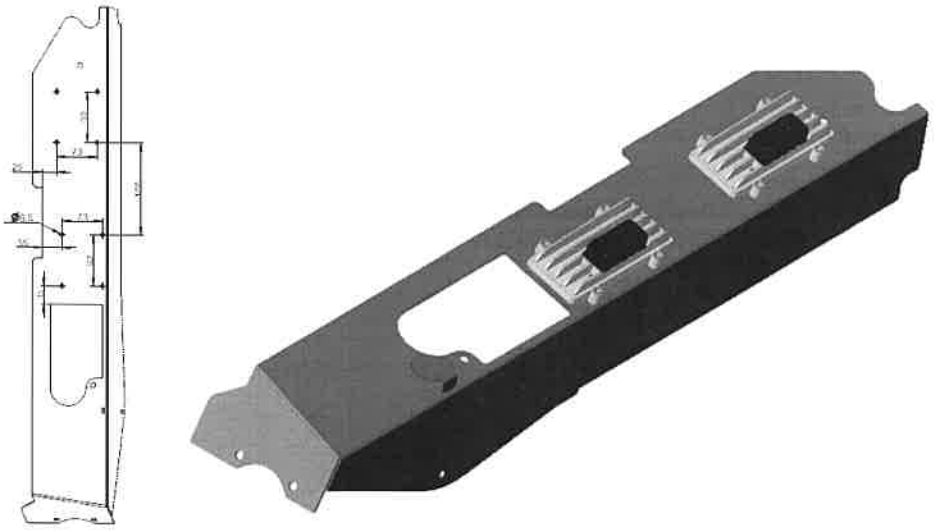
To mount the IQAN MC41 modules, the console cover must be adapted as follows.

Then pre-assemble the module according to the illustration.

-> use YE50047 + YE52015

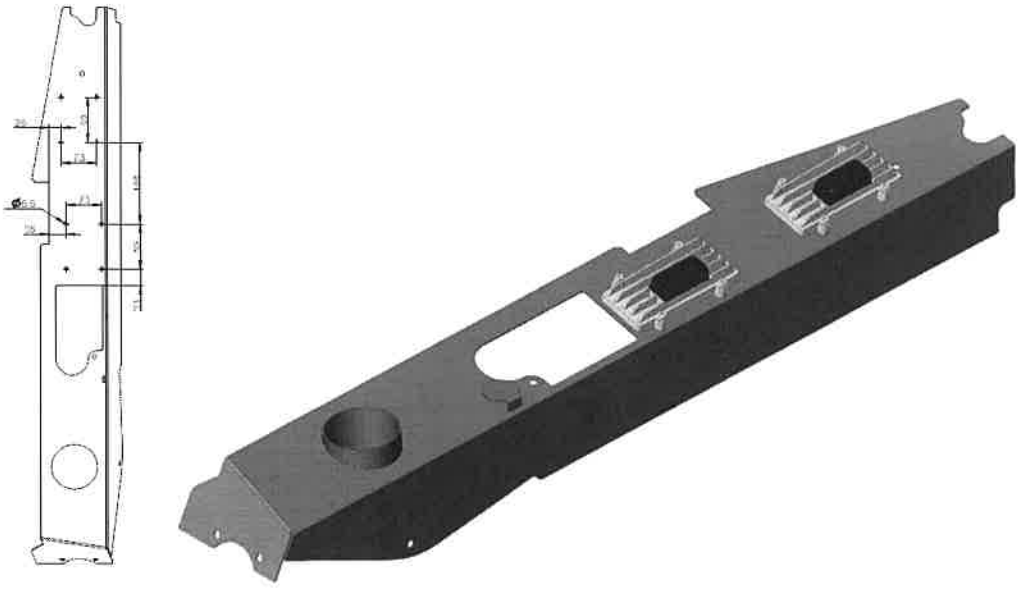
5.1.1 CAE

See YE19161_EDIT.pdf



5.1.2 CAEXL

See YE19165_EDIT.pdf

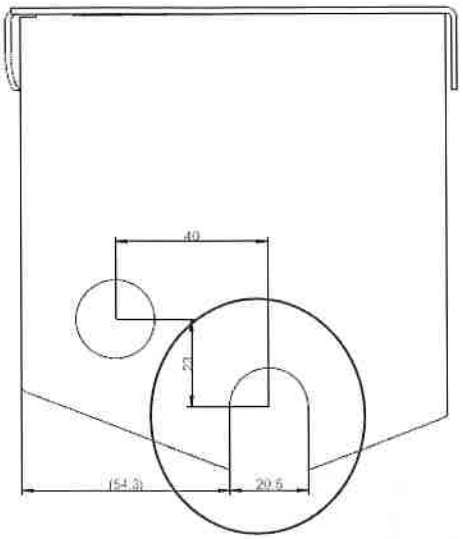


5.2 Adjust joystick mounting support

An entrance hole must be prepared for the wiring harness

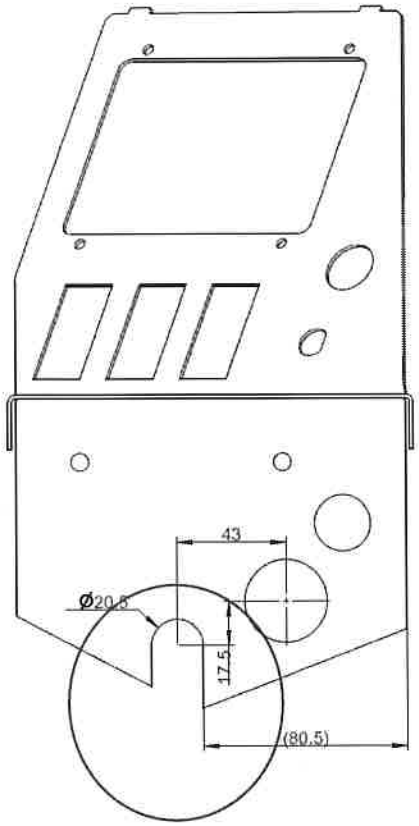
LEFT Joystick:

see YE16159_EDIT.pdf



RIGHT Joystick:

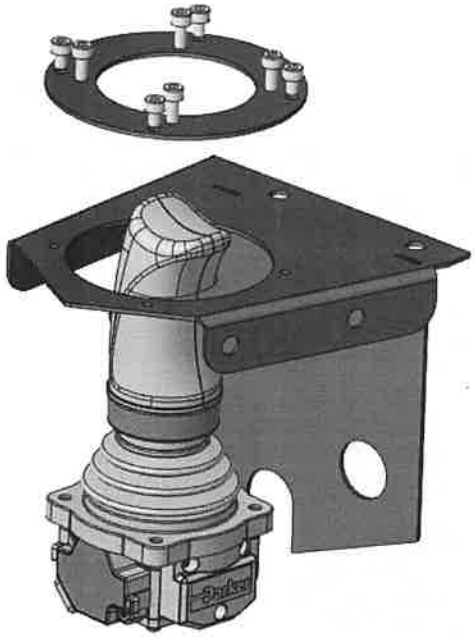
see YE19157_EDIT.pdf

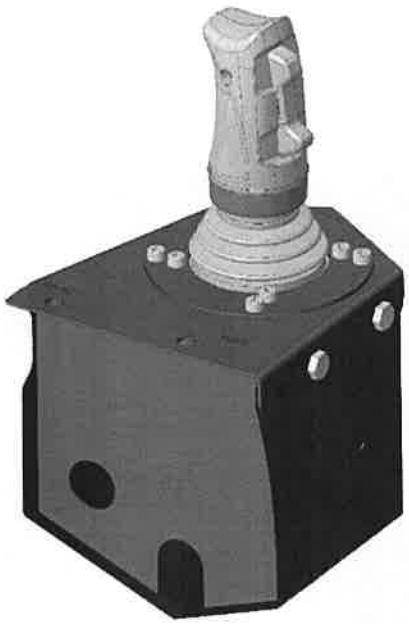


5.3 Mount joystick

Use adapter plate

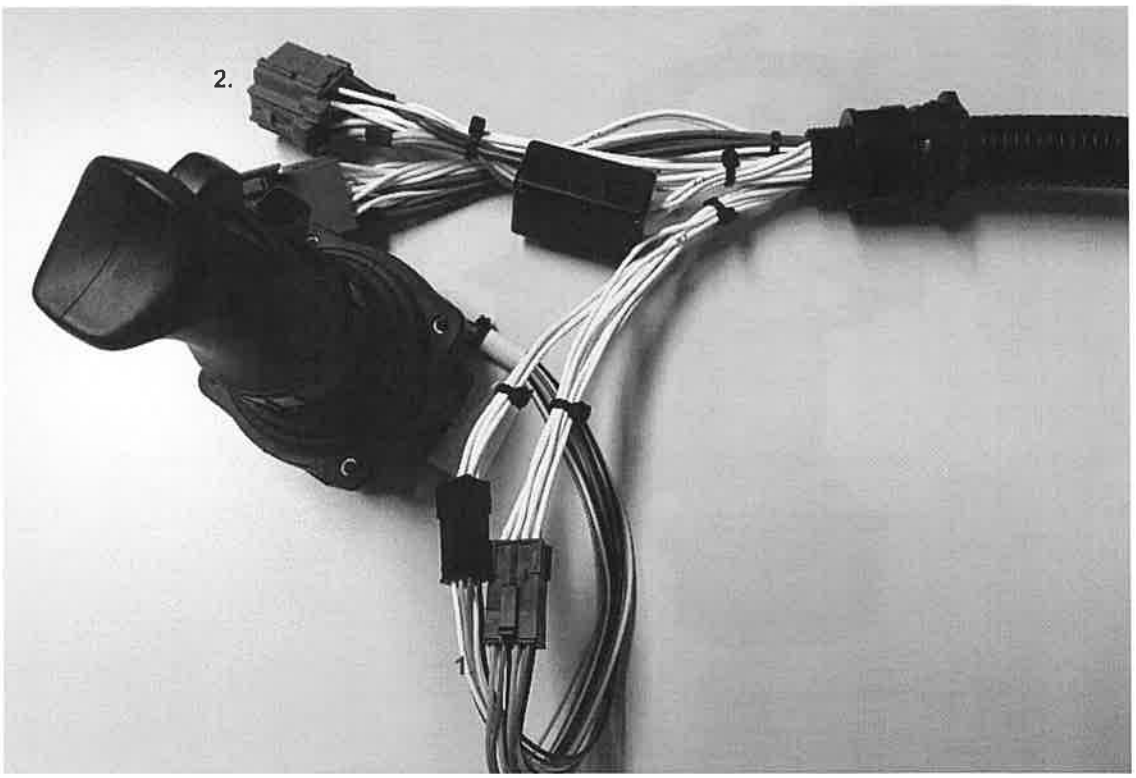
1. Mount adapter plate with M4 screws and nuts
2. Thread joystick from below
3. Mount joystick with M4-Screws



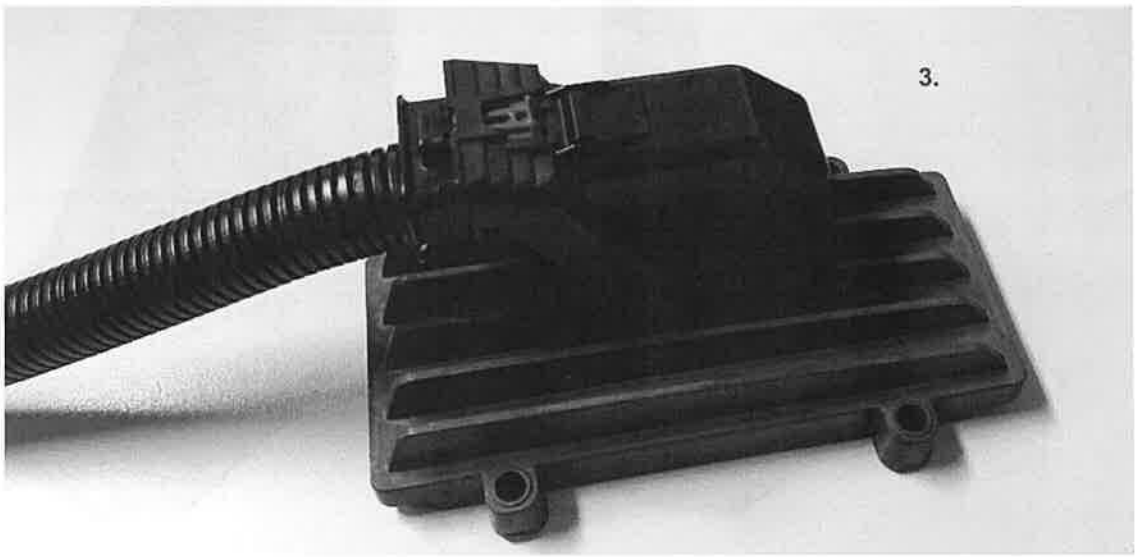


5.4 Connect wiring harness

1. Connect Joystick to Mini-Fit connectors
2. Connect green plugs as before for the LM3D Joystick
   (Joystick in the picture does not correspond to the scope of delivery)



3. Connect Molex connector to MC41



6 Spare parts for IQAN LC6 Joystick

For the replacing joystick LC6, bellows are available as a spare part in the ETC.

Bellow: YE81703

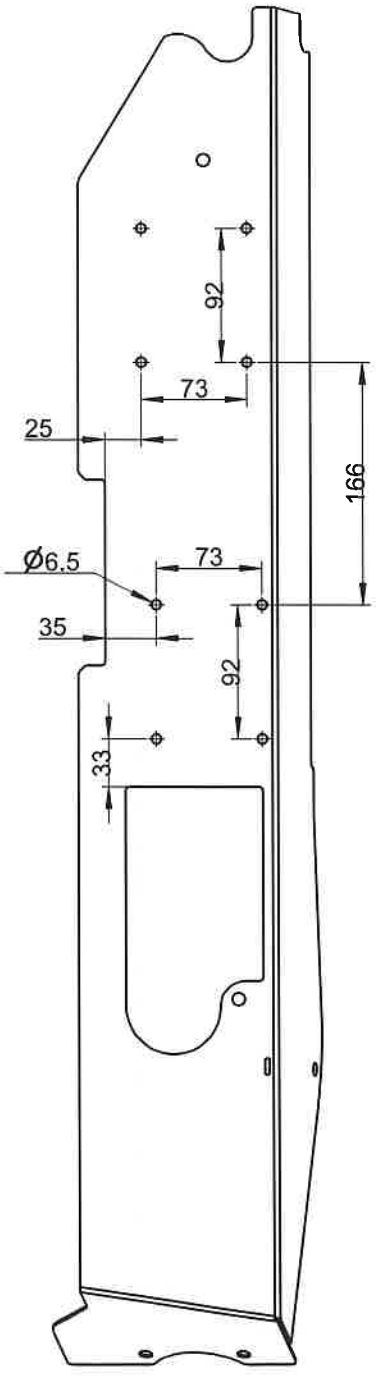
7 Warranty claim

No guarantee can be claimed for the one-off additional expenditure.

8 Appendix

4. YE19161_EDIT.pdf
5. YE19165_EDIT.pdf
6. YE16159_EDIT.pdf
7. YE19157_EDIT.pdf
8. Error Codes

APPENDIX



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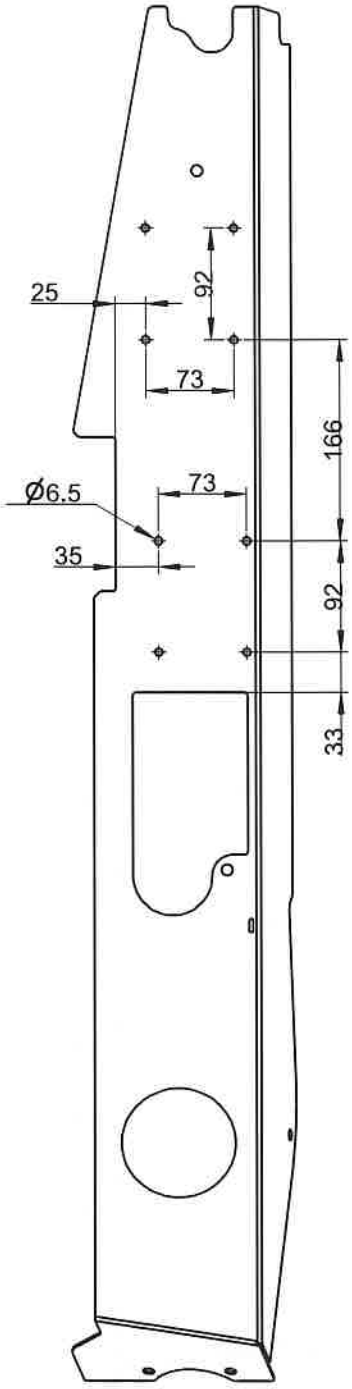
Gepr.	23-Mai-2019	H. Steindl	-	[kg]	
Geändert	-				
Zeichnung nur in Verbindung mit PNORM 01.08.01 gültig		-	Benennung		
		-	-		
		Schutzvermerk ISO 16016 beachten			
		Konstruktion 019	Dokument-Nr.		Version
PALFINGER EPSILON TIMBER & RECYCLING CRANES		Seite 1/1	YE19161_EDIT		– Rev



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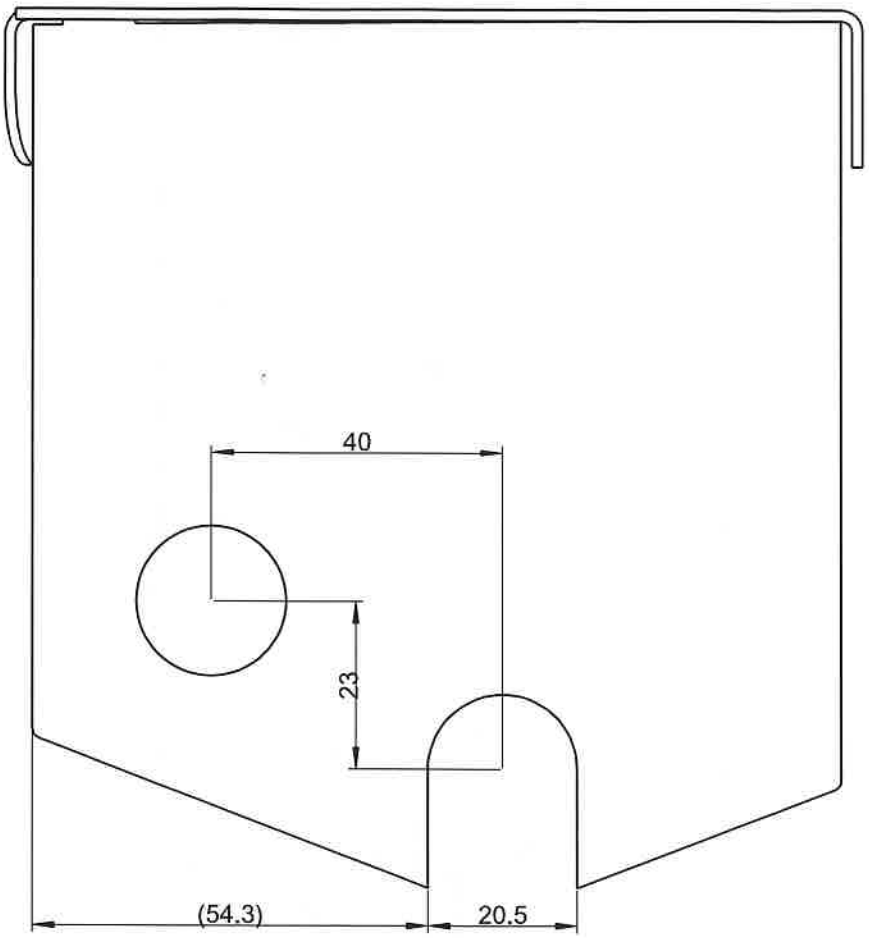
Gepr.	23-Mai-2019	H. Steindl	-	[kg]	
Geändert	-				
Zeichnung nur in Verbindung mit PNORM 01.08.01 gültig		-	Benennung		
		-	-		
		Schutzvermerk ISO 16016 beachten			
		Konstruktion 019	Dokument-Nr.		Version
PALFINGER EPSILON TIMBER & RECYCLING CRANES		Seite 1/1	YE19165_EDIT		– Rev. 0



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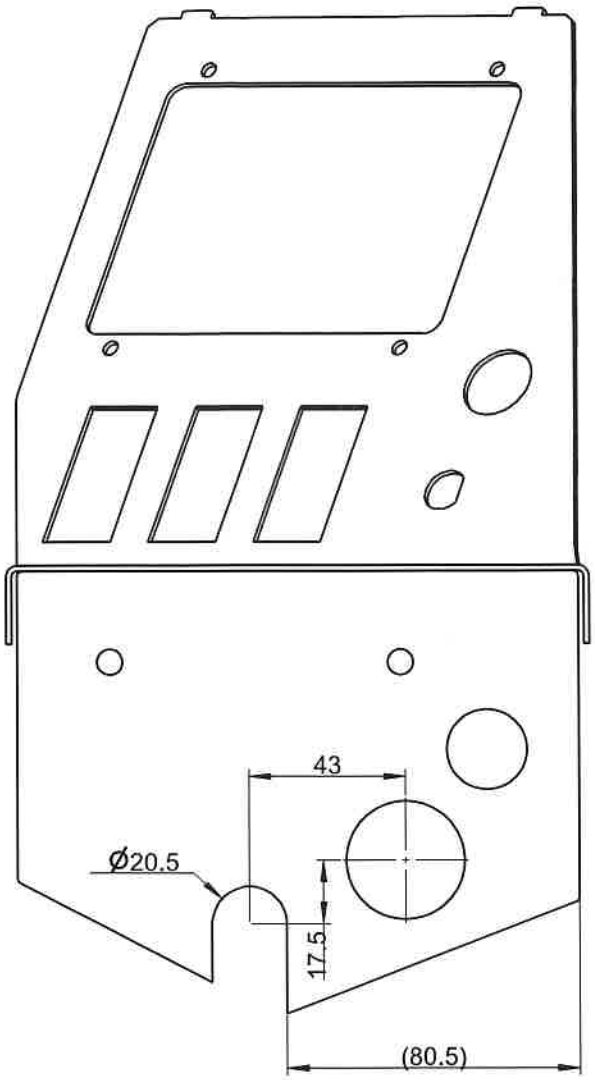
Gepr.	23-Mai-2019	H. Steindl	-	[kg]	
Geändert	-				
Zeichnung nur in Verbindung mit PNORM 01.08.01 gültig		-	Benennung		
		-	-		
		Schutzvermerk ISO 16016 beachten			
		Konstruktion 019	Dokument-Nr.		Version
PALFINGER EPSILON TIMBER & RECYCLING CRANES		Seite 1/1	YE19159_EDIT		– Rev



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Gepr.	23-Mai-2019	H. Steindl	-	[kg]	
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Zeichnung nur in Verbindung mit PNORM 01.08.01 gültig		-	Benennung		
		-			
		Schutzvermerk ISO 16016 beachten			
		Konstruktion 019	Dokument-Nr.		Version
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Appendix B

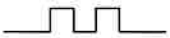
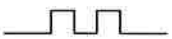
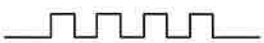
Error codes, messages and actions

If one of the following error is detected, a message will be presented with an error code on the module. In some cases, the module will turn off or at least shut down the outputs, to increase safety.

WARNING
Don't use the machine if an error message or error code is activated.

LED indicator showing different MC4x modes

Status	Flash (yellow)
Normal operation	
Application not loaded	
No application available	
Waiting for restart	

Error code	Error	Primary Flash (red) Error category	Secondary Flash (yellow) Error description
1:1	Output		
1:2	Input		
1:3	VREF		
2:1	Power supply		
2:2	Temperature		
3:1	CAN, no contact		
3:2	IDtag error		
3:3	System mismatch		
3:4	CAN error (bus off)		
4:1[a]	Stopped, critical		
4:2[b]	Stopped, critical		
4:3[c]	Stopped, critical		

a. Followed by a longer sequence of flashes, contact Parker.
b. Followed by a longer sequence of flashes. Possible causes include reverse feed on startup, critical under-voltage and critical temperature.
c. Followed by a longer sequence of flashes, contact Parker.

Failure modes, external faults on power drivers

The following table has information about the actions taken by the IQAN-MC4xFS when certain failure causing conditions occur. Failure modes for internal faults are included in the total PFHd for the module.

Output pin configuration	Failure mode	Expected channel status[a]			Comment
		Start up	On	Off	
Current out	Broken wire		open load	open load	
	Short to GND (HS)	critical error	overload	overload	
	Short to GND (LS)	critical error	overload	overload	SCG while off: coil is energized for ≦50 ms before detection
	Short to Battery (HS)	(no contact)	open load	-	Prevents module startup => LED showing Stopped, Critical
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Short LS+ to LS-		overload	-	
	Overload		overload	n/a	
	Insufficient voltage on +BAT		saturated	n/a	
	Insufficient voltage on +BAT, current saturated < 70%		open load	n/a	
PWM out HS+LS	Broken wire		open load	open load	
	Short to GND (HS)	critical error	overload	overload	
	Short to GND (LS)	critical error	overload	overload	SCG while off: coil is energized for ≦50 ms before detection
	Short to Battery (HS)	(no contact)	-	-	Prevents module startup => LED showing Stopped, Critical
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	

Output pin configuration	Failure mode	Expected channel status[a]			Comment
		Start up	On	Off	
Digital out HS+LS	Broken wire		open load*	open load	*with multiple low sides, open load while on is detected only when combined load is showing undercurrent. Can be disabled in IQANdesign
	Short to GND (HS)		overload	overload	
	Short to GND (LS)		-	overload	
	Short to Battery (HS)	(no contact)	*	-	Prevents module startup => LED showing Stopped, Critical *SCB while on can be detected as undercurrent (open load) in configurations with one low-side
	Short to Battery (LS)	(no contact)	overload	-	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	
	Under current		open load	n/a	See under current threshold. Can be disabled in IQANdesign
Digital out HS	Broken wire		open load*	open load	*Open load while on is detected by under current. Can be disabled in IQANdesign
	Short to GND (HS)	critical error	overload	-	
	Short to Battery (HS) coil energized	(no contact)	*	open load	Prevents module startup => LED showing Stopped, Critical *SCB while on can be detected as undercurrent (open load)
	Overload		overload	n/a	
	Under current		open load	n/a	See under current threshold. Can be disabled in IQANdesign
PWM out HS	Broken wire		-	open load	
	Short to GND (HS)		-		
	Short to Battery (HS) coil energized	(no contact)	-	open load	Prevents module startup => LED showing Stopped, Critical
	Overload		overload	n/a	Power driver thermal protection shut down