

Product Change Notification PCN_MOBILE_2407_034

PCN Identification Data


	Bucher Hydraulics AG Industriestrasse 15 CH-6345 Neuheim	on behalf of	Bucher Hydraulics AG Mobile Drives Obere Neustrasse 1 CH-8590 Romanshorn
Notification No.	PCN_MOBILE_2407_034		
Type of Notification	<input checked="" type="checkbox"/> PCN (Product Change Notification) <input type="checkbox"/> PTN (Product Termination Notification)		
Product Category	MOBILE DCU PSU 800V		
Type of Change	<input checked="" type="checkbox"/> Hardware <input checked="" type="checkbox"/> Software <input type="checkbox"/> Process <input type="checkbox"/> Documentation		
Form / Fit / Function	<input checked="" type="checkbox"/> compatible <input type="checkbox"/> not compatible		
Supplier Contact	Bucher Hydraulics AG - Mobile Helpline		

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PCN History

Revision	Version	Date and Time	Changes
667703	2	Oct/03/2024 16:47:43	Initial Revision

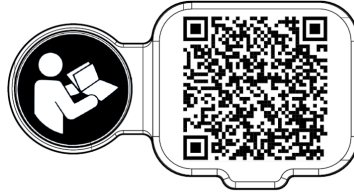
1 Description of Changes

Change Description

NAWR_HW-12784 **Mounting instrucion**

The mounting instructions are no longer provided with the device in hard copy.

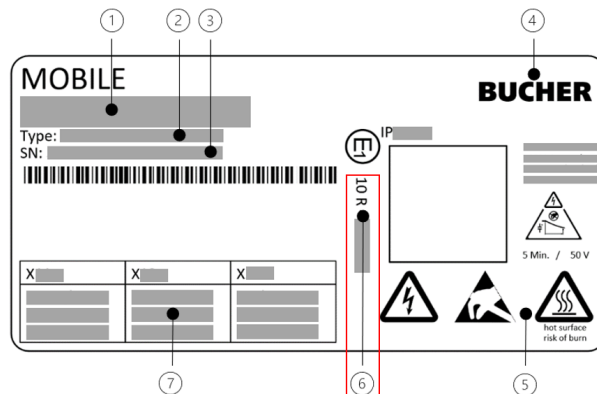
A QR code is attached to the cover of the X31 plug. The instructions can be accessed online via this code and are available in different languages.



NAWR_HW-12780 **Approval identification**

This change refers to the fact of a revised standard of UN ECE R10 from Revision 4 / 5 to Revision 6. The MOBILE units have been approved to the new revision 6 and the name plate we will change in field no. 6 for approval identification as follows:

Previous approval identification	New approval identification
10 R - 05 7105	10 R - 06 10299
10 R - 04 7105 (400V devices)	10 R - 06 10299



NAWR_HW-12270 **Accessory pack**

To optimize processes, the following components are no longer pre-assembled on the device, but are included in an accessory pack with the device:

- Cable grommets
- PE screw
- Clamps
- Screws for fastening the clamps

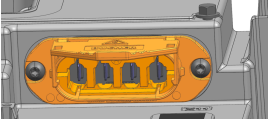
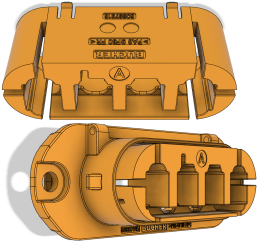
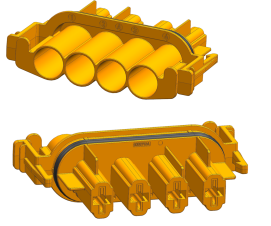
Change Decription

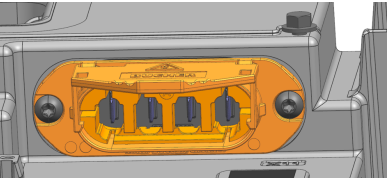
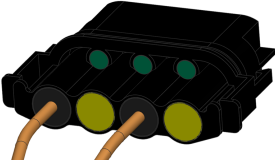
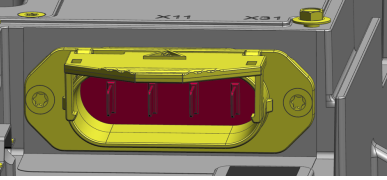
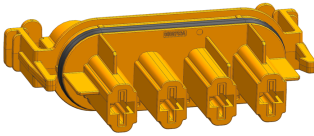
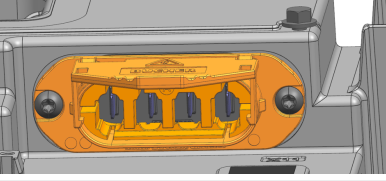
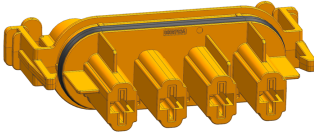
NAWR_HW-11843

High voltage Connector design

The HV plug is being redesigned with the following points in consideration:


- Ensuring availability for the next MOBILE inverter platforms
- The electrical contacts remain unchanged
- New finger protection to increase protection against physical contact
- Introduction of coding to prevent incorrect connection
- Ensuring compatibility in the design

Description	Details of new Connector design
Counter plug (with cover cap) mounted on inverter unit	
Counter plug with implemented "BUCHER" logo and finger protection (removable in case for backward compatibility)	
Cable connector with printed indication to coding	

Case	Connector design		Compatibility given by
	Device side	Cable side	
1	<p><i>New design</i></p> 	<p><i>Previous design</i></p> 	Removing the finger protection on the device side
2	<p><i>Previous design</i></p> 	<p><i>New design</i></p> 	No action required (fully compatible)
3	<p><i>New design</i></p> 	<p><i>New design</i></p> 	No action required (fully compatible) Coding and protection against physical contact is given

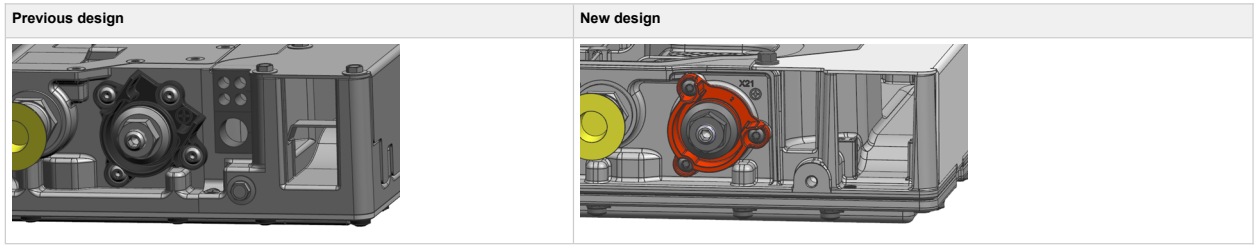
Please note: The corresponding coding to the socket on the device will be described in the hardware manual. In addition to the hardware manual the mounting instruction can be found via QR code on the X31 cover. Details for removing the finger protection and mounting advices are specified in the mounting instruction.

Change Decription

 NAWR_HW-11830

PSU output

The connection area on the PSU output X21 B+ is revised and the plastic part is changed to the color red.
See picture below:



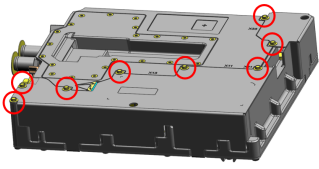
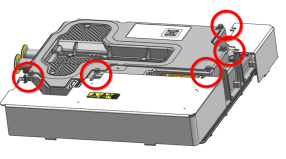
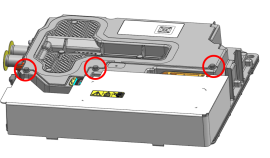
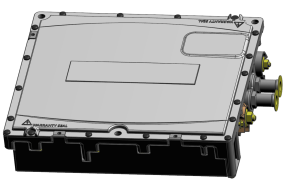

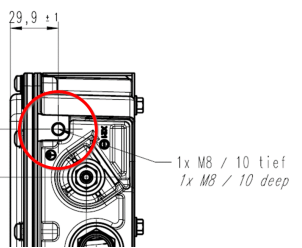
Change Description

NAWR_HW-11829

Aluminum die-cast housing

The enclosure housing case of the inverter is being redeveloped, incorporating the following features:

- Faster and easier assembly of the cover plates
- Additional potential bonding point
- Reduction of the weight

Description	Previous design	New design
<ul style="list-style-type: none"> • Only three screws (instead of six) left to fix the large cover plates. • The screw holes in the sheet metal have been replaced by slots. • The screws do not have to be removed anymore, even with loosened screws the mounting of the plates is possible. 		<p>DCU PSU</p>  <p>PSU</p> 
<ul style="list-style-type: none"> • Adapted design of the housing cover 		
<ul style="list-style-type: none"> • Additional potential bonding point with an M8 thread close to X21 - 	-	 <p>29,9 ± 1</p> <p>1x M8 / 10 tief 1x M8 / 10 deep</p>

	Previous design	New design
Weight	8.4 kg	8.1 kg
Water cooling: Fluid volume	0.16 l	0.21 l
*Decrease in pressure in the water cooler (@ 15 l/min, 65 °C, water / ethylene glycol 50/50 %)	66 mbar	69 mbar

***Please note:** For detailed information of decrease in pressure in the water cooler see MOBILE hardware manual.

Change Description

NAWR_HW-10583 **Extension to digital output**

This change describes the extension of the functions for the flexible outputs FLX_OUT.
It applies for the following MOBILE device variants:

- MOBILE DCU PSU 60 / 5.6
- MOBILE DCU PSU 60 / 2.8
- MOBILE DCU 60 / 60

The devices are characterized also in the type code with indication of "H" at position 14 (EMDAGxxxxxxxxHxxxx).

Function	FLX_OUT1	FLX_OUT2	FLX_OUT3	FLX_OUT4
High-Side-Output	available as before	available as before	available as before	available as before
High-Side-PWM-Output	---	---	newly available	newly available

- The FLX_OUT3 and FLX_OUT4 outputs can now be operated as high-side PWM outputs. The possible frequency range is 25 ... 250 Hz
- The outputs also have a current measurement function, allowing inductive loads to be controlled in a current-regulated mode
- The previous functions remain available on all outputs

Please note: For detailed information about digital output please see MOBILE hardware manual.

NAWR_HW-10582 **Extension to digital input**

This change describes the extension of the functions for the flexible inputs FLX_IN.
It applies for the following MOBILE device variants:

- MOBILE DCU PSU 60 / 5.6
- MOBILE DCU PSU 60 / 2.8
- MOBILE DCU 60 / 60

The devices are characterized also in the type code with indication of "H" at position 14 (EMDAGxxxxxxxxHxxxx).

Function	FLX_IN1	FLX_IN2	FLX_IN3	FLX_IN4
Voltage measurement	available as before	available as before	available as before	available as before
Current measurement (4 ... 20mA)	newly available	newly available	---	---
Low-Side-Switch	---	---	newly available	newly available

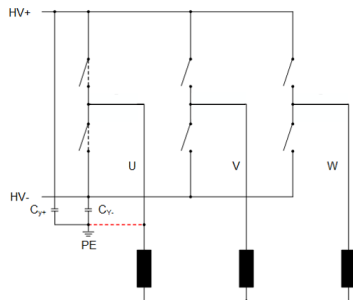
- The FLX_IN1 and FLX_IN2 inputs are extended with a current measurement (4 ... 20mA).
- The FLX_IN3 and FLX_IN4 inputs are extended by a low-side switch, allowing the input to be switched to clamp 31.
- The previous functions remain at all inputs.

Please note: For detailed information about digital input please see MOBILE hardware manual.

NAWR_HW-10576 **Ground fault detection**

The ground fault detection test was already introduced for the previous hardware revisions 000/010/011 with firmware release R6.3. For the new hardware revision HW-012 the hardware circuit has been changed.

When an inverter output is connected to ground and a large Y capacitor is connected between ground and HV+/-, a high capacitive current flows which can destroy the power modules. A ground fault detection test is performed every time shortly before the motor is switched on. An isolation fault with the DTC 0x2BF4FF (output A) or 0xABF4FF (output B) is raised if a ground fault is detected.



Change Description

NAWR_HW-10494

Extension to CAN FD

The CAN interface is extended for CAN FD. The interface is compatible with the previous version of devices. The termination remains unchanged.

Public CAN		Previous device	New device
CAN function		Classic CAN	Classic CAN, CAN FD incl. Signal Improvement Capability
Standard compliance		SAEJ1939	SAEJ1939, ISO 11898-2, CIA 601-4
Transmission rate Classic CAN	kBit/s	125, 250, 500	125, 250, 500, 1000
Transmission rate CAN FD	kBit/s	---	1000, 2000, 5000, 8000
Capacity* CAN_H - GND / CAN_L - GND	pF	170	60
Capacity* CAN_H - CAN_L	pF	85	40
Common-Mode Choke	uH	51	51

* incl. ESD-protection and CAN-transceiver

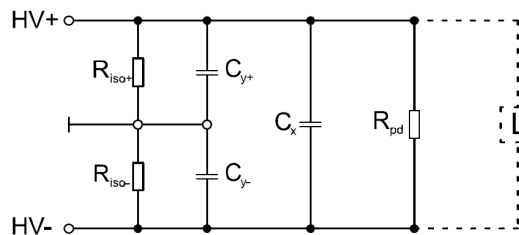
Please note: For detailed information about CAN FD extension see MOBILE hardware manual.

NAWR_HW-10089

Increase of insulation resistance

The insulation resistance in DC link is increased. Other characteristics remain unchanged.

			Previous device (400V) EMDAG3..., EMDAG4...	Previous device (800V) EMDAG2..., EMDAG3..., EMDAG4...	New device EMDAG2..., EMDAG3..., EMDAG4...
Insulation resistance	R_{iso}	MΩ	10	20	>50



HV+, HV- DC HV electric circuit
 R_{iso+} , R_{iso-} Resulting resistance per HV potential
 R_{pd} Resistance for passive discharge
 C_x Capacity of the X-capacitors
 C_{y+} , C_{y-} Resulting capacitance of Y-capacitors, parasitic capacitance, capacitance between HV+ or HV- and electrical ground
 L Load
 \perp Electrical ground

Change Decription

NAWR_HW-10034

Dataset transfer

- Processor architecture has changed
- Only new firmware release R7 can run on new device HW-012
- Old firmware and data sets (R5.x, R6.x) are no longer compatible to new device HW-012
- New firmware R7 has extensions, but is functionally compatible (for details see release notes in the firmware package)
- Data sets from R6.x must be migrated to R7.0 using Parameter Manager (see following short description)

The diagram shows the workflow for dataset transfer. It starts with an old device (HW010/011) and its dataset (R6.x). The Parameter Manager software is used to upload this dataset. In the software interface, the 'Show only differences' option is enabled. The user then selects all parameters (Ctrl+A) and clicks 'Copy / Merge'. Finally, the new dataset (R7.x) is downloaded to the new device (HW012).

The Parameter Manager can be used via software tool MOBILE Engineer and MOBILE Starter. How to use the Parameter Manager for Dataset transfer is described in the Application Note PDF *Dataset Merge*. Please use the LOGintern area to get access to the Application Note (category Power Electronics (Mobile Drives); subcategory Documents).

The new firmware release package R7.0 can also be downloaded in the LOGintern area (subcategory Firmware).

However in case of assistance for dataset migration do not hesitate to contact the support team via support.rh@bucherdrives.com.

NAWR_HW-9879

Change to pre-charge

This change describes the effect of pre-charge.

Old device: When the previous device is enabled and the HVDC is switched off, the DC link capacity was charged to 20 ... 23 V by standby currents.

New device: The internal power supply is changed to prevent the DC link from charging to 20...23V and avoid the effect of pre-charge.

NAWR_HW-3348

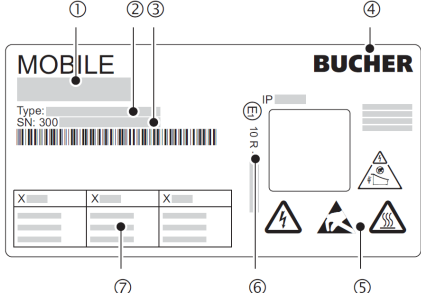
Change to ambient conditions

This change refers to the ambient conditions and describes the installation height of the devices, so called altitude that has increased according table below:

Altitude previous		Altitude new	
0 ... 2000 m AMSL	Overvoltage category II	0 ... 3000 m AMSL	Overvoltage category II for systemvoltage up to 600 VAC
2000 ... 4000 m AMSL	Overvoltage category I	3000 ... 4000 m AMSL	Overvoltage category I for systemvoltage up to 600 VAC or overvoltage category II for systemvoltage up to 300 VAC

2 Marking of Parts / Traceability of Change

See the following areas on the name plate for identification



The changed devices can be identified based on the Type designation. ②
(see section: Affected Parts)

3 Timing / Schedule

Start of Delivery (production line)	2025-03-17
Availability of Samples	2024-12-16
PTN of previous product	n.a.
Customer forecast for MOBILE inverters delivery until last order call	n.a.
Last order call previous product	2025-03-31
Last delivery previous product	2025-06-30
Last order call repair units previous product	2025-09-30
Product Discontinued	2025-12-31

4 Qualification / Validation

Qualification Report	Qualification documents can be reviewed on site (Bucher Hydraulics AG)
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5 Input to Customer for Risk Assessment Process

Form	No change of outline dimensions.
Fit	No change of outline dimensions.
Function	See MOBILE Software R7 Release Notes.
EMI	EMI relevant changes are approved by ECE R10 certification.
Backward Compatibility	The new units are backward compatible with existing units.

6 Attachments / additional Documentation

Additional Documentation	New 2D and 3D-pdf files are available on Bucher Hydraulics Website (see LOGintern area https://www.bucherhydraulics.com/en/logintern)
Hardware Manual	New MOBILE Hardware Manual (see LOGintern area https://www.bucherhydraulics.com/en/logintern)
Mounting Instructions	New MOBILE Mounting Instructions (see LOGintern area https://www.bucherhydraulics.com/en/logintern)
SW Reference Manual	New MOBILE Software Manual (see LOGintern area https://www.bucherhydraulics.com/en/logintern)

7 Affected Parts

#		Previous device	New device
1	Supplier Part No. Supplier Part Name Supplier Type designation	30010002408 MOBILE DCU PSU 15 / 2.8 010 EMDAG4282153T00010	30010002656 MOBILE DCU PSU 15 / 2.8 012 EMDAG4282153T00012
2	Supplier Part No. Supplier Part Name Supplier Type designation	30010002405 MOBILE DCU PSU 15 / 5.6 010 EMDAG4562153C00010	30010002658 MOBILE DCU PSU 15 / 5.6 012 EMDAG4562153C00012
3	Supplier Part No. Supplier Part Name Supplier Type designation	30010002407 MOBILE DCU PSU 30 / 2.8 010 EMDAG4282303T00010	30010002660 MOBILE DCU PSU 30 / 2.8 012 EMDAG4282303T00012
4	Supplier Part No. Supplier Part Name Supplier Type designation	30010002404 MOBILE DCU PSU 30 / 5.6 010 EMDAG4562303C00010	30010002662 MOBILE DCU PSU 30 / 5.6 012 EMDAG4562303C00012
5	Supplier Part No. Supplier Part Name Supplier Type designation	30010002406 MOBILE DCU PSU 60 / 2.8 010 EMDAG4282603T00010	30010002664 MOBILE DCU PSU 60 / 2.8 012 EMDAG4282603TH0012
6	Supplier Part No. Supplier Part Name Supplier Type designation	30010002403 MOBILE DCU PSU 60 / 5.6 010 EMDAG4562603C00010	30010002537 MOBILE DCU PSU 60 / 5.6 012 EMDAG4562603CH0012