Energizing Productivity

Hydraulic lift

Situation:

High connected power to the grid leads to expensive fees.
Brake energy is wasted by using a brake resistor.

Problem:

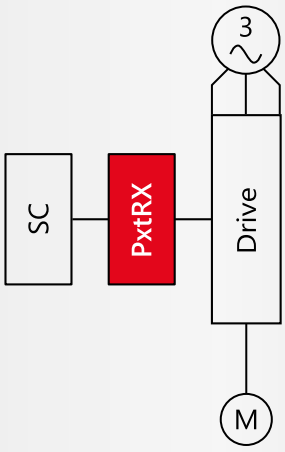
Sufficient energy must be supplied on demand.

Intention:

Reduce the connected load and improve the energy efficiency.

Solution:

> PxtRX + Super capacitor: Provides the drive with the required energy on demand and stores brake energy.



Results:

1. Reduction of the connected load leads to significant cost savings
2. Reuse stored brake energy improves energy efficiency

- Increasing energy efficiency
- Reducing mains load peaks
- Managing braking energy

Further information:

Hydraulic lift

We look forward to hearing from you!

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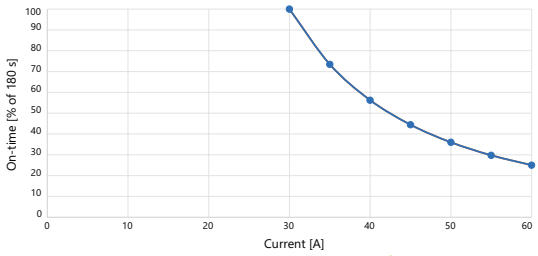
Technical data PxTRX

Version December 09, 2020

Criteria	PxTRX
Weight	10.0 kg
Dimensions H x W x D	380 x 105 x 217 mm
Ambient temperature	-10°C up to +65°C (transport, storage)
	0°C up to +40°C (in operation)
Humidity	≤ 95% (transport, storage)
	≤ 85% (in operation)
Cooling	Forced air cooling via fan. Operation in relation to heat sink temperature. Adjustable, e.g. for UPS application
Limitation for installations in elevated areas	<2000 m: No limitations / overvoltage category III >2000 m: reduction of performance / overvoltage category II
Min. starting voltage level for the system (DC link or Energy storage)	Approx. 45 VDC
Min. Operating voltage level U_{Zmin}	180 VDC (Wake-up-phase: U_{ZStart} 48-180 VDC)
Max. Operating voltage level U_{Zmax}	848 VDC (UL) / 1000 VDC (IEC)
Max. Voltage level energy storage U_{Cmax}	800 VDC
Operation conditions	U_Z > U_C. Otherwise immediate stop = safe separation of DC link from energy storage
24 VDC In	Galvanically isolated. For communication tasks with PxTRX without connecting it to DC link or energy storage, e.g. for setting parameters at the desk (Note: not protected against polarity reversal)
Energy of integrated capacities	0 kJ
External capacities[1]	PxTEX DLCM (Double-Layer Capacitor Module) Batteries No limitation of capacities
Ground rule for power flow	P_C = P_Z
Max. Energy Storage current I_C	30 A continuous 60 A peak for 45s (I_{eff} =30 A at t_{cycle} = 180s)

[1] Data refer to connection to a DC link of a drive controller with 400 V AC supply voltage. Other data on request.

PxTRX: Current Carrying Capacity (I_{eff} max. 30 A)



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Technical data PxTRX

Version December 09, 2020

Criteria	PxTRX
Max. Power P_{max}[1] (for UC = 800 VDC)	24 kW continuous 48 kW peak for 45s
Operation frequency level	15 kHz, in operation load-dependent reduction down to 7.5 kHz Adjustable to 18 kHz (with power reduction)
Load monitoring	DC link side and energy storage side (in each case I^2t)
Connection DC link	Front, top
Connection Energy storage	Front, bottom
Communication	3 digital inputs 3 digital outputs K-Bus interface for operating data output 4 LEDs SD card Reset button for restart Boot button for boot loading from SD card
Firmware-Updates	On Koch company site (Fabrikle) or With SD-Card at customers site or Via PxTCC (USB K-Bus interface) with PC
Protection	Internal fuses. External capacities have to be fused separately.
Precharging circuit	Connection directly to DC link interference-free possible, independent from further precharging circuits
Reverse polarity protection	To DC link: In case connecting with reverse polarity PxTRX blocks and disconnects the DC link side from energy storage side
Charging protection	To DC link
Charging protection switch LSS	Connection of charged Energy storage modules interference-free possible (But: No protection against connecting with reverse polarity!)
Max. cable length to DC link	20 m
Max. cable length to energy storage modules	20 m
Parallel operation	Theoretically unlimited number of devices Self-adjusting Automated Master-/Slave-setting for communication

[1] Data refer to connection to a DC link of a drive controller with 400 V AC supply voltage. Other data on request.

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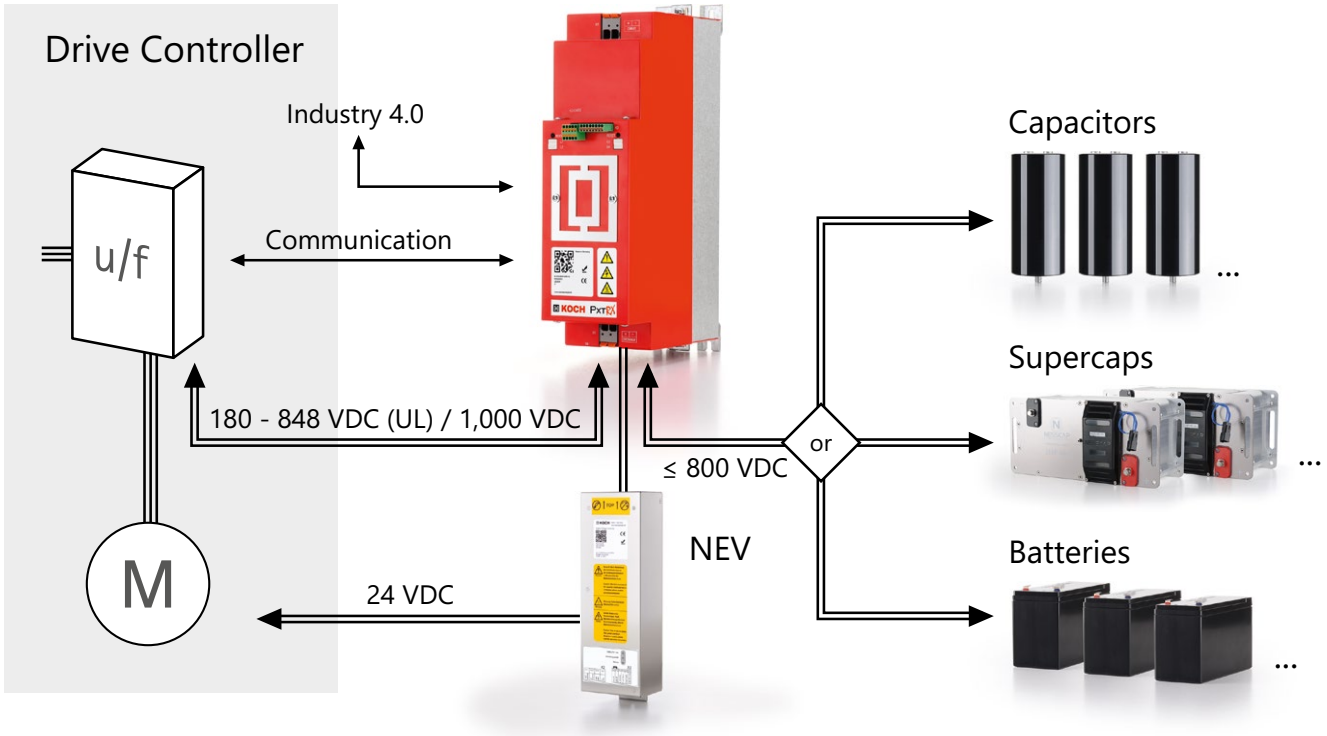
Technical data PxTRX

Version December 09, 2020

Criteria	PxTRX
Retrofit	Can be retrofitted into existing systems
Typeplate/Device information	Electronic via QR-Code and App (Android and iOS): Further device specific information Management-features
Internal digital storage	Operation hours meter

Schematic of PxTRX system



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Subject to technical changes. MK_PRO_ANW-HYDLIFT_ENG_R01_1