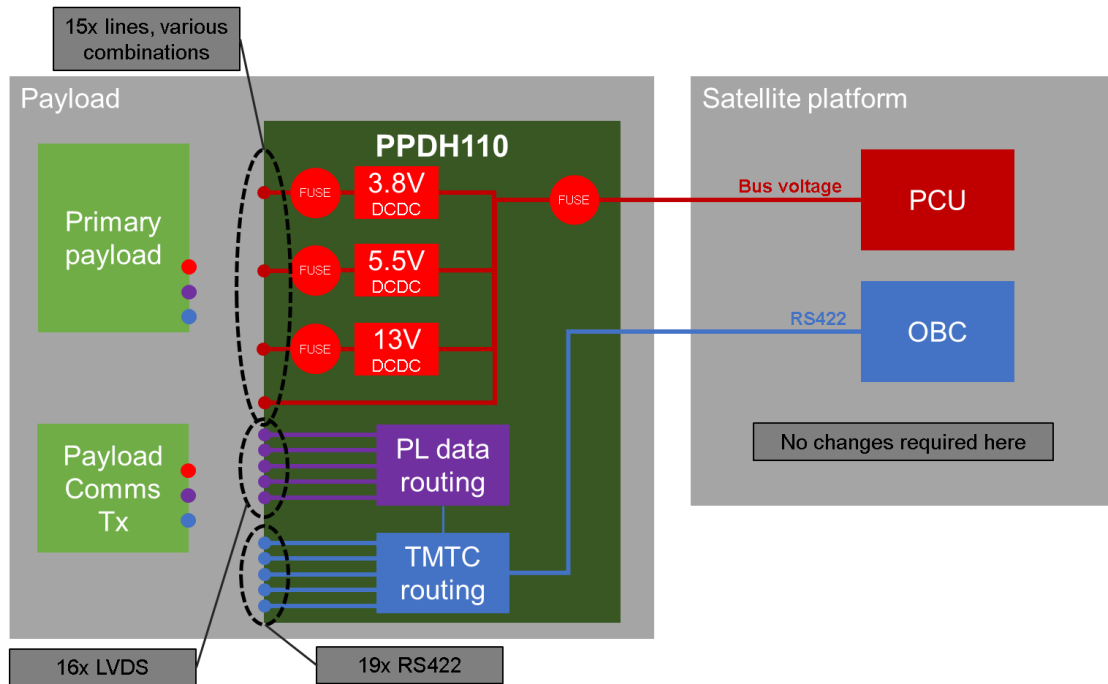# PAYLOAD POWER AND DATA HANDLING

The PPDH110 by Berlin Space Technologies is a sophisticated payload power and data handling unit designed for small satellite payloads. It acts as the single interface unit between the bus and the payload. It has space heritage and is qualified for space.

Its modularity by design makes it easy to adapt to any new payload while leaving the bus unchanged. Thus, any voltages between 1.8V – 40V can be provided and any TMTC interfaces can be provided.

The PPDH110 combines the functions of power conditioning and data handling for the payload units as shown in the table below. Its exact configuration can be easily adapted to the customer's specific payload requirements making it an essential ingredient to a responsive space mission concept.

PPDH110 functions	
Power conditioning functions	**Command and data handling functions**
Supplying regulated DC voltages and bus voltage to payload units	Forwarding telecommands to payload units
Power switching of payload power lines	Switch payload data routing between payload units
Over-current protection for payload units	Payload time synchronisation
Bus power subsystem protection against payload latch-ups	Collecting payload telemetry

15x lines, various combinations

Payload

PPDH110

Primary payload

FUSE 3.8V DCDC

FUSE 5.5V DCDC

FUSE 13V DCDC

Payload Comms Tx

PL data routing

TMTC routing

16x LVDS

19x RS422

Satellite platform

Bus voltage

FUSE

PCU

RS422

OBC

No changes required here

PPDH schematic bock diagram – interface numbers indicate PPDH-2PL version.

CHARACTERISTICS	PPDH110-1PL	PPDH110-2PL	CUSTOM
TMTC Interface	RS422	RS422	RS422 or other
Payload Data Interfaces	13xRS422, 12xLVDS	19xRS422, 16xLVDS	As required
Input Voltage	20.5 V – 25.2 V (23.1 V nominal)	20.5 V – 25.2 V (23.1 V nominal)	23.1V or other
Nominal Current Consumption	0.20 A	0.080 A	TBD
Number of Power-Out Lines	8	15	As required
Output Voltages	23.1V, 13V, 5.5V, 3.8V	23.1V, 13V, 5.5V, 3.8V	Any from 1.8V to 40V
Max Output Power	188W@23.1V, 2x 73W@13V, 2x 24W@5.5V, 2x 28W@3,8V	370W@23.1V, 2x 73W@13V, 2x 24W@5.5V, 2x 28W@3,8V	As required
Size	186 x 98 x 46 mm³	186 x 98 x 67 mm³	TBD
Mass	780 g	1100 g	TBD
Operating Temperature	-15°C to +35°C	-15°C to +35°C	-15°C to +35°C
Design Life	5 years LEO	5 years LEO	5 years LEO
Space Heritage	Yes	Yes	On component level