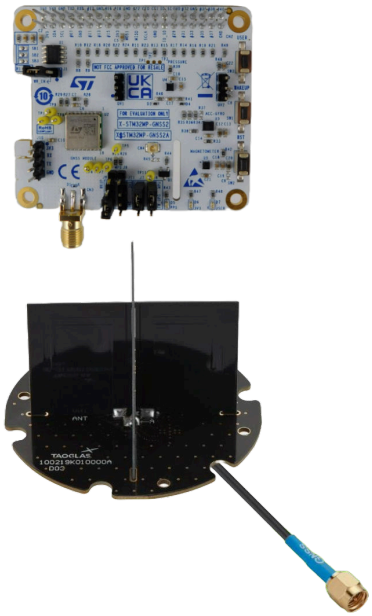
X-STM32MP-GNSS2

Data brief

STM32MP expansion board for Low Power GNSS communication



Features

- Teseo-LIV4F GNSS Receiver
- On board iNEMO inertial module for accelerometer and gyroscope
- QVAR embedded pressure sensor for altitude measurement
- Magnetometer for position accuracy
- LEDs for PPS, power, user
- Keys for reset, wakeup and user
- EEPROM for automatic GPIO setup and driver setup
- Compatible with both STM32MP157F-DK2 and Raspberry Pi's GPIO connector

Description

X-STM32MP-GNSS2 is an STM32 MPU expansion board with Teseo-LIV4F module for Low Power Multi-Constellation GNSS positioning using various sensors for data accuracy.

The X-STM32MP-GNSS2 interfaces with the STM32MP microprocessor via 40 pin GPIO connector pins using I2C, UART, GPIO connections for various components. It is compatible with both STM32MP157F-DK2 and Raspberry Pi's GPIO connector layout.

Teseo-LIV4F is a global navigation satellite system (GNSS) standalone low power module. It embeds the Teseo IV positioning receiver IC working simultaneously on multiple constellations (GPS/Galileo/Glonass/BeiDou/QZSS/IRNSS).

iNEMO inertial module ISM330DHCX has a full-scale acceleration range of ±2/±4/±8/±16 g and a wide angular rate range of ±125/±250/±500/±1000/±2000/±4000 dps.

QVAR Embedded ILPS22QS functions as a digital output barometer, supporting dual full-scale up to 4060 hPa.

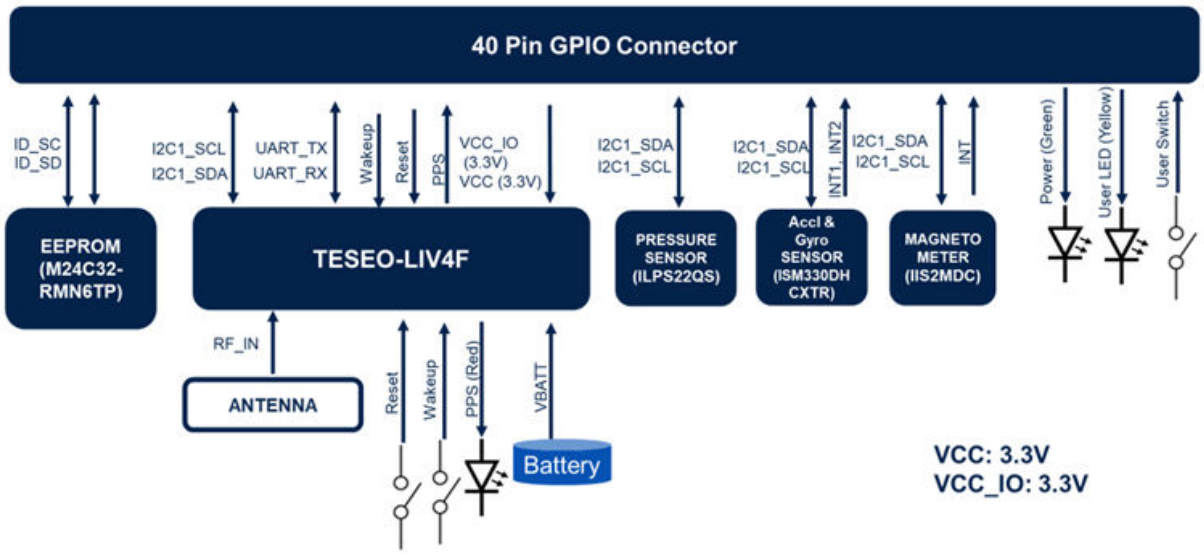
The IIS2MDC is a high-accuracy, ultra-low-power 3-axis digital magnetic sensor having dynamic range up to ±50 gauss.

The embedded cross dipole active multiband GNSS antenna is included in the package.

Product summary	
Discovery kit with STM32MP157F MPU	STM32MP157F-DK2
STM32 MPU OpenSTLinux software expansion package for GNSS-based applications	X-LINUX-GNSS1
Applications	Guidance and positioning Mobility services

1 Block diagram

Figure 1. **Block diagram**



2 Schematic diagrams

Figure 2. X-STM32MP-GNSS2 schematic diagram (1 of 8)

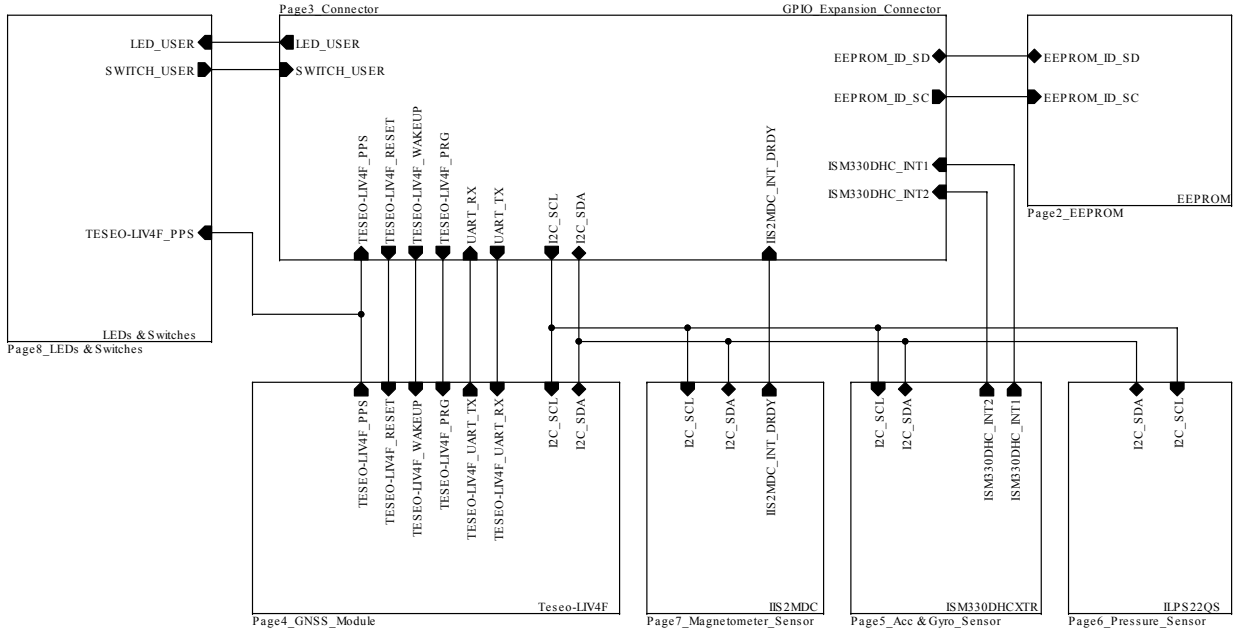


Figure 3. X-STM32MP-GNSS2 schematic diagram (2 of 8)

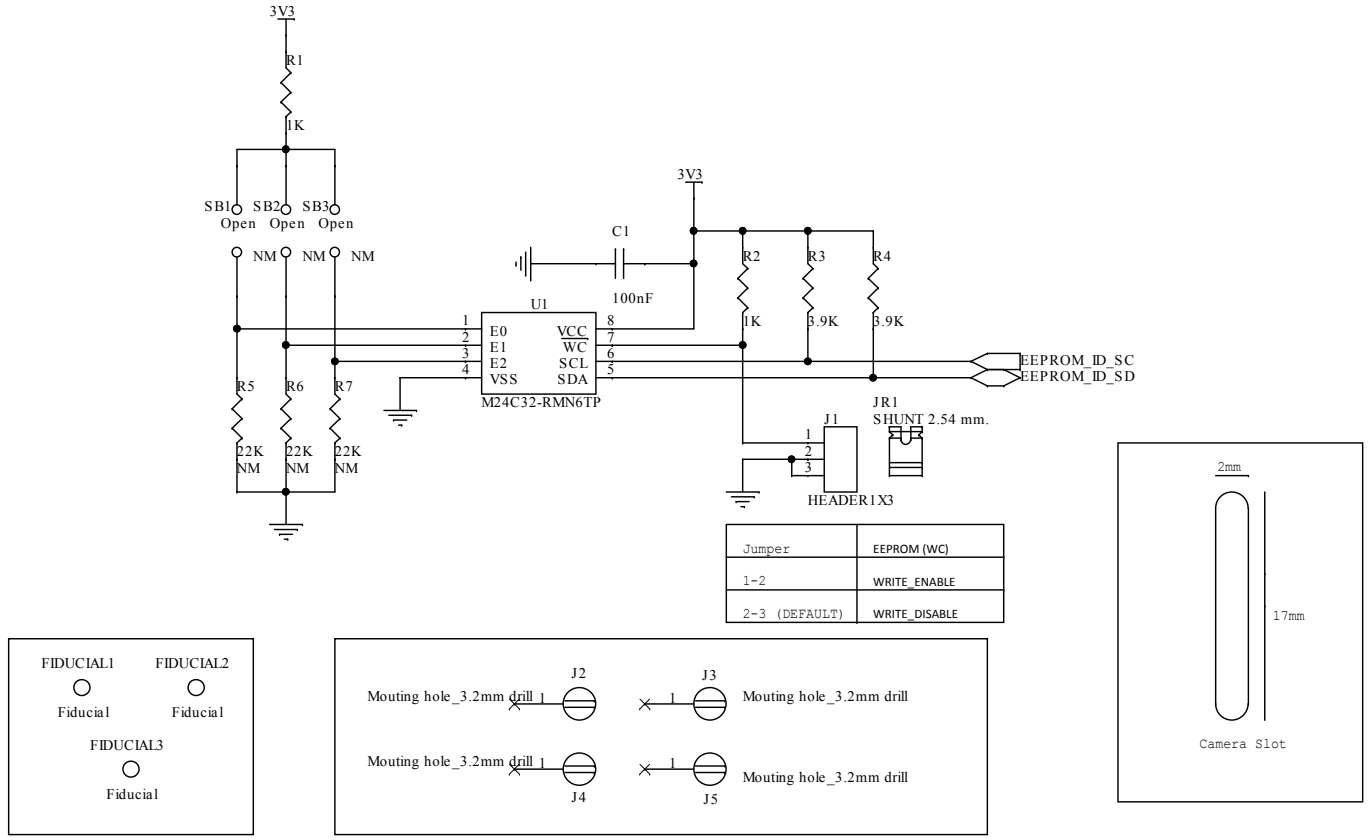


Figure 4. X-STM32MP-GNSS2 schematic diagram (3 of 9)

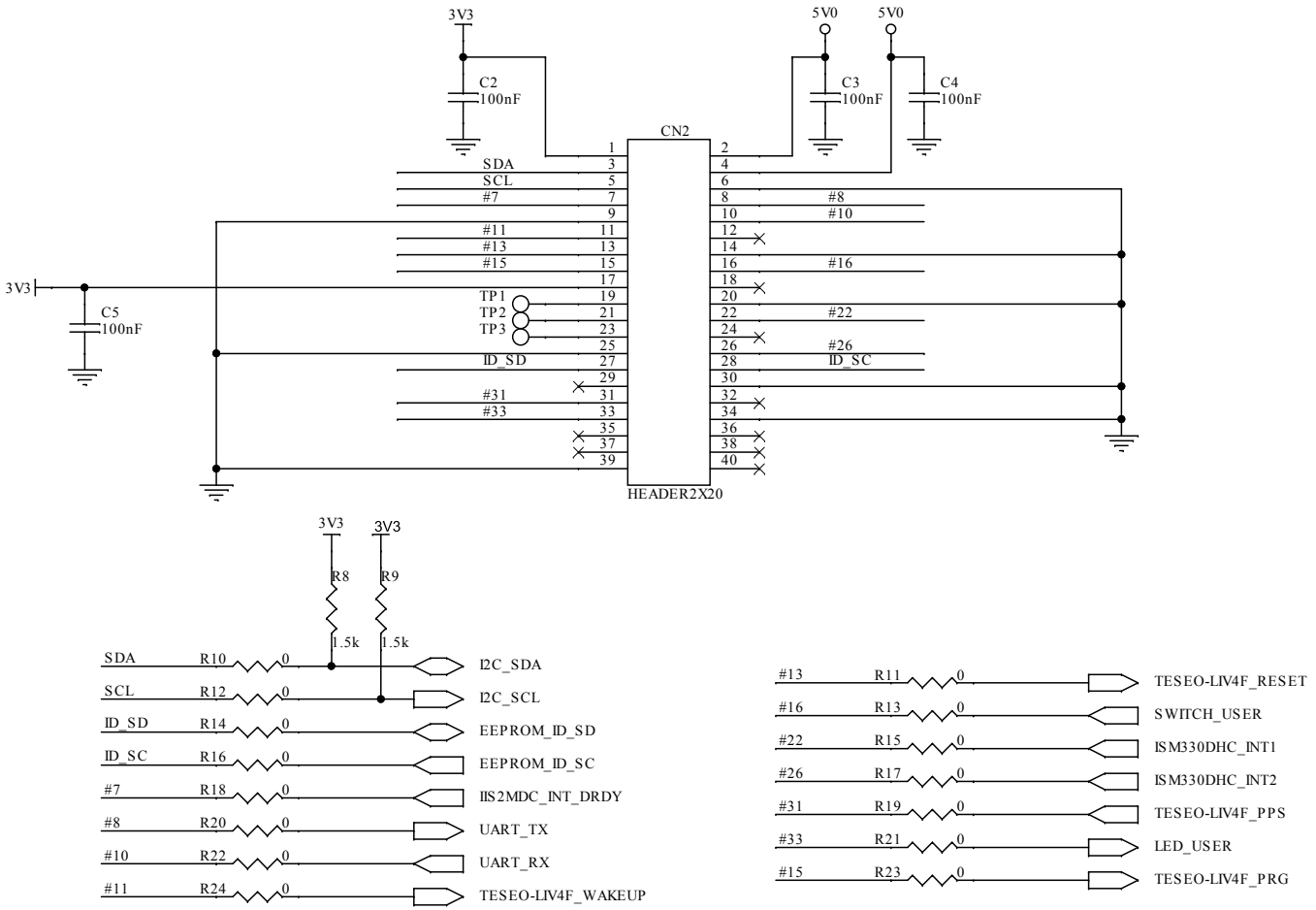


Figure 5. X-STM32MP-GNSS2 schematic diagram (4 of 8)

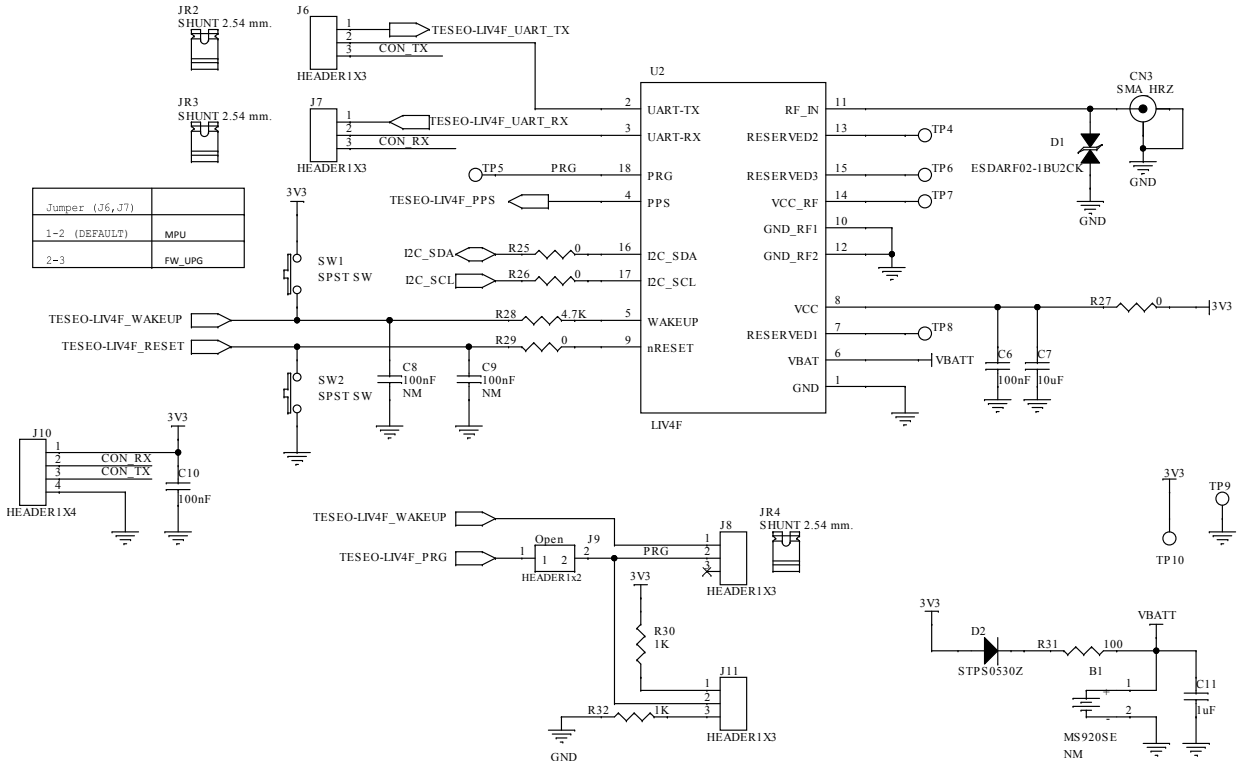
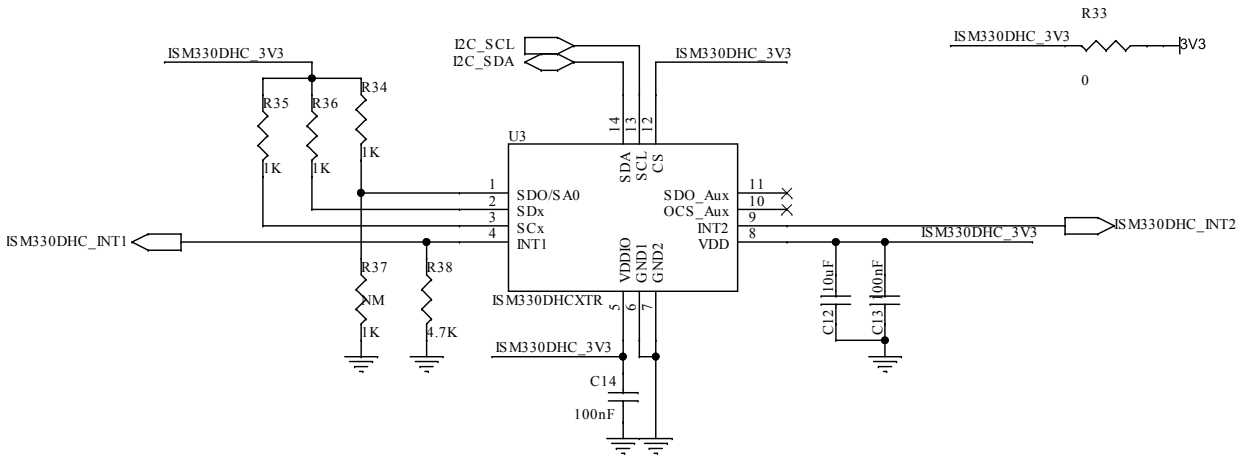
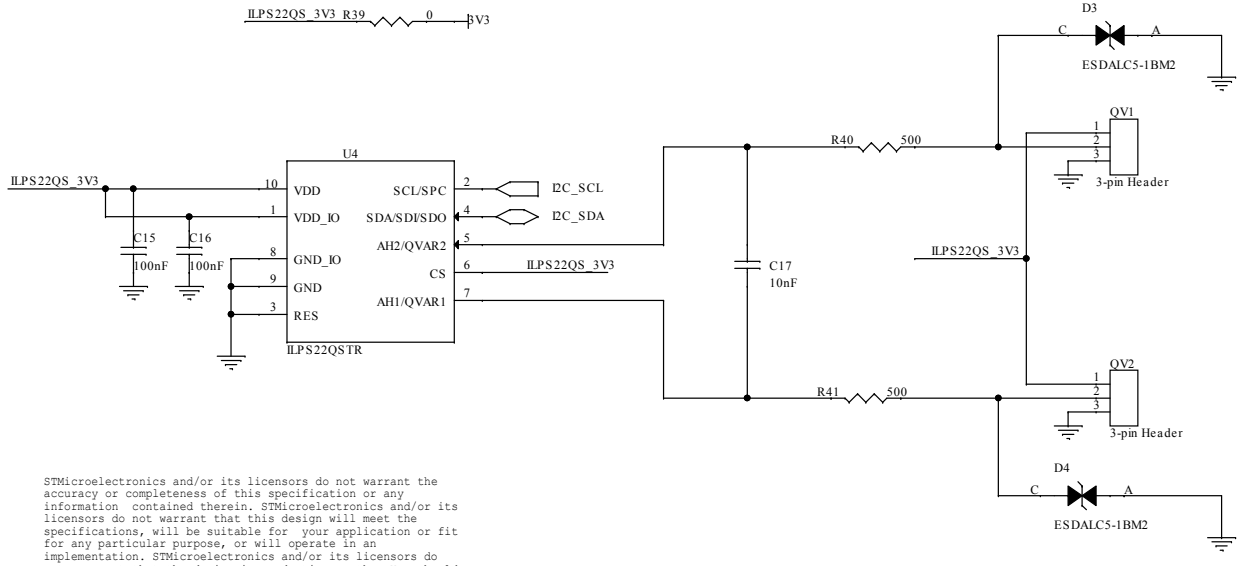


Figure 6. **X-STM32MP-GNSS2 schematic diagram (5 of 8)**



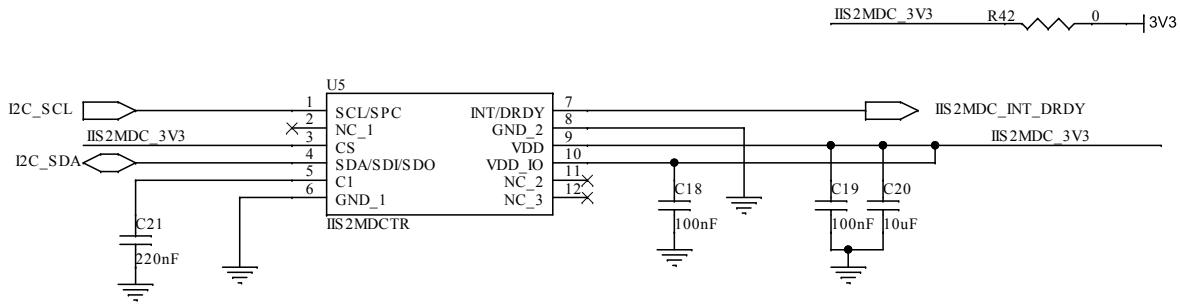
Accelerometer and Gyroscope

Figure 7. **X-STM32MP-GNSS2 schematic diagram (6 of 8)**



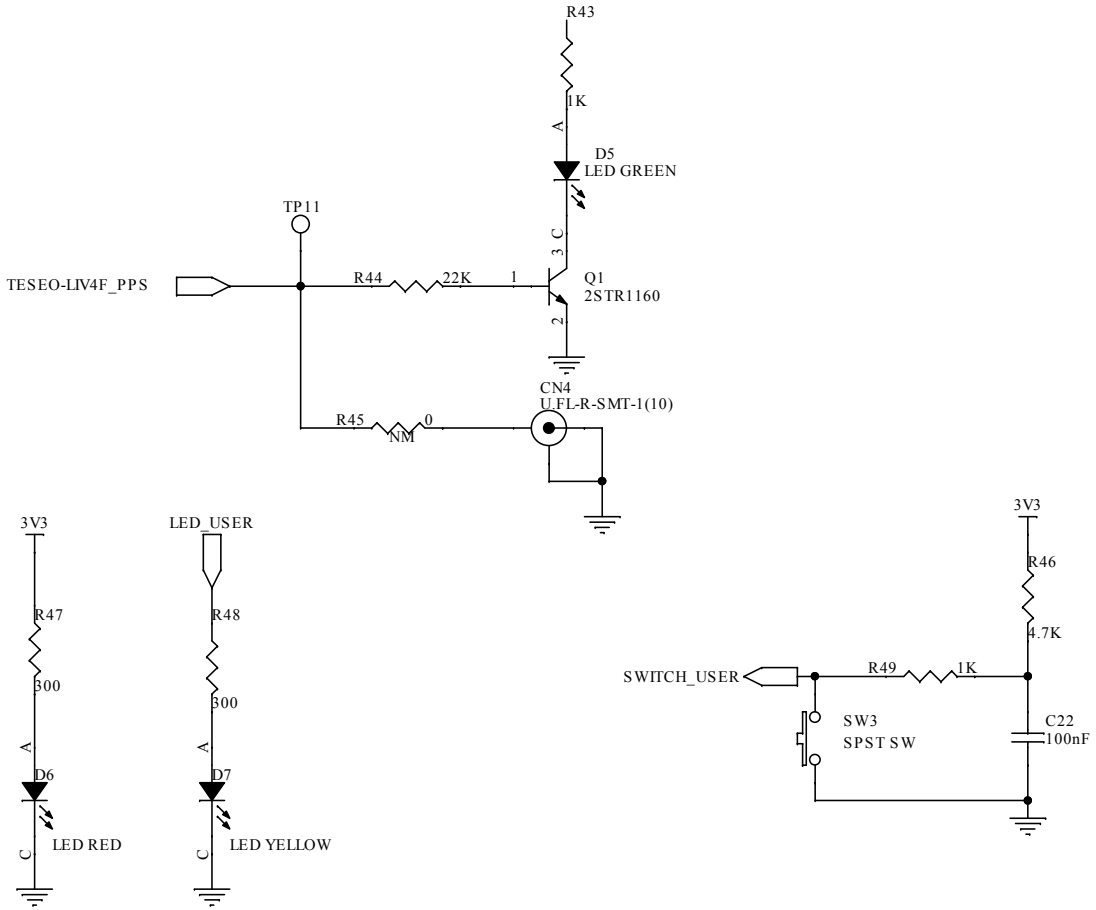
Pressure Sensor

Figure 8. X-STM32MP-GNSS2 schematic diagram (7 of 8)



Magnetometer

Figure 9. **X-STM32MP-GNSS2 schematic diagram (8 of 8)**



3 X-STM32MP-GNSS2 versions

Table 1. X-STM32MP-GNSS2 versions

PCB version	Schematic diagrams	Bill of materials
X$STM32MP-GNSS2A(1)	X$STM32MP-GNSS2A schematic diagrams	X$STM32MP-GNSS2A bill of materials

1. *This code identifies the X-STM32MP-GNSS2 evaluation board first version. It is printed on the board PCB.*

Revision history

Table 2. **Document revision history**

Date	Revision	Changes
13-Nov-2023	1	Initial release.
26-Sep-2024	2	Updated Description.