VM23-AR Integrator's Guide

For AR-assisted stakeout with GNSS RTK

V1.0

REVISION

Versions	Revision records	Date
V1.0	The first edition.	2024.1.10
V1.1	Mechanical information updated.	2024.1.23

1. Parameters

VM23-AR is a vision assisted module assembly that allow GNSS RTK to assist stakeout with augmented reality technology. It can improve the stakeout efficiency by visually guiding the RTK pole tip placement. In tendem with FMI's IM19 tilt module, the stakeout job efficiency improvement is at least 50%. The hardware consists of two parts, one is a camera module, the other is a controller module. The hardware connection between the various modules are depicted below. There are two IO connections between the IM19 and VM23-AR controller module. The system MCU should has at least one UART port and one USB 2.0 port available to interface with both the IM19 and VM23-AR.

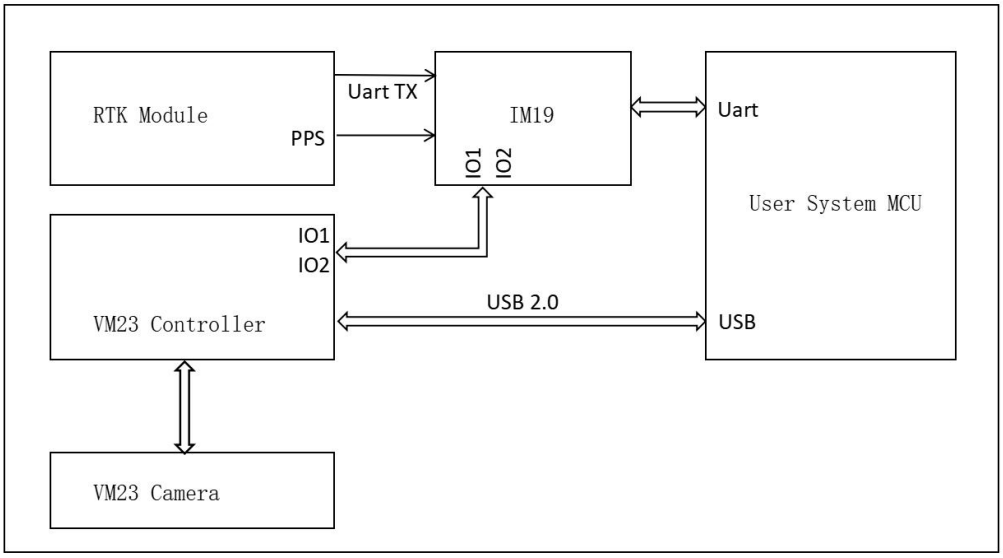

Figure 1 Block Diagram

Sensor size	1/2.8 inch
Aperture	f/2.5
View angle	69.3°±3°
Distortion	＜0.38%
Image Size	Max 1920*1080
Power	3.3V@100mA

Table 1 Key specs of VM23-AR

2. VM23-AR Controller IO Definition

PIN ID	Function
#1	GND
#2	USB_DM
#3	USB_DP
#4	GND
#5	3V3
#6	IO1 (to IM19)
#7	IO2 (to IM19)
#8	GND

Table 2 VM23-AR controller Pin Definition

3. Mechanical

VM23-AR consists of two parts: A controller module (need smt) and camera module, connected by 60 mm FPC. Both are depicted below (unit mm):

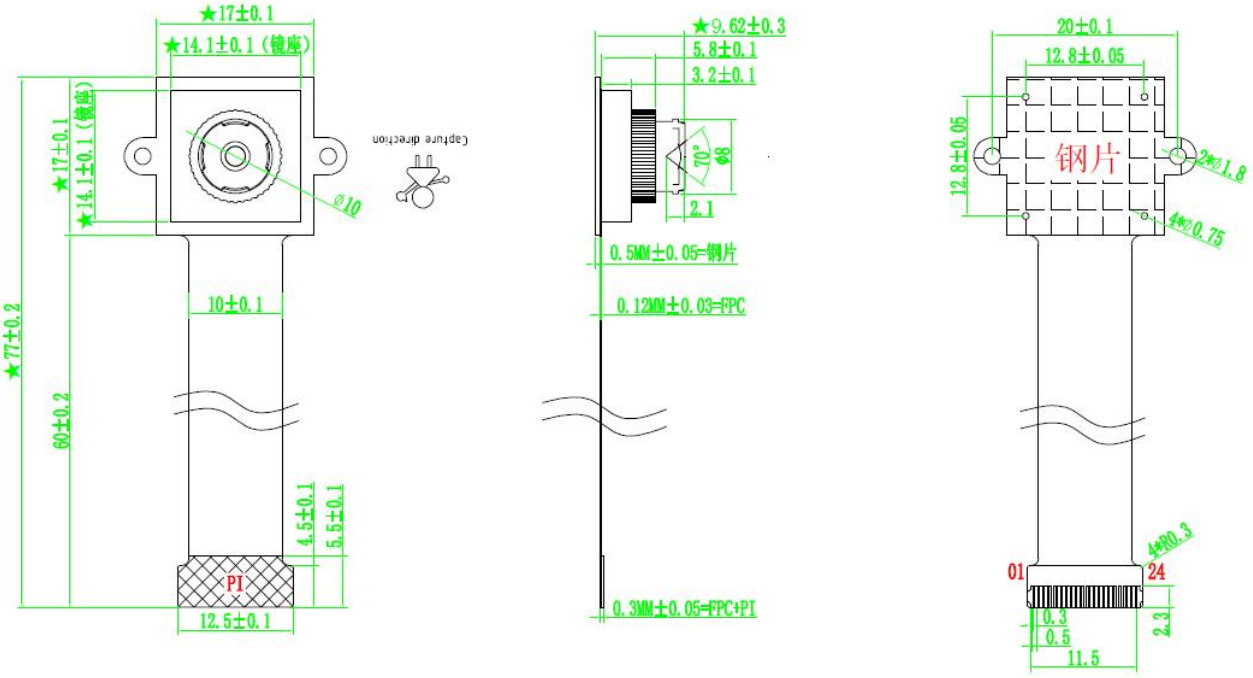

Figure 2 VM23-AR camera module

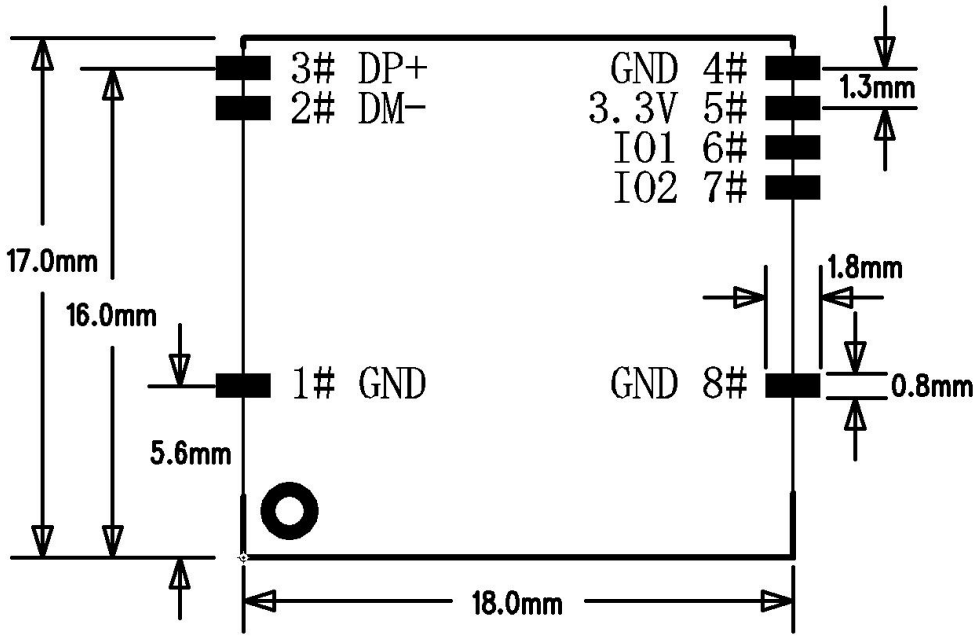

Figure 3 VM23-AR controller module

4. Software SDK

A software SDK is required for both VM23 calibration at factory and stakeout operations in the field. A separate document (VM23 joint calibration guide) will be provided.