

VT-AGV-3588J AGV Controller



Product Brief

VT-AGV-3588J AGV controller is dedicated for the Automated Guided Vehicle (AGV) industry, boasting outstanding performance and powerful functions for the automation of vehicles, such as standard lift trucks and mobile robots. It comes with a large-capacity configuration of 16GB memory and 128GB storage, easily handling complex computations and large-scale data storage requirements. Equipped with an STM32 series MCU, it provides a reliable control foundation for the entire system, enabling rapid and accurate data processing and instruction execution.









VT-AGV-3588J features three Gigabit Ethernet ports (M12 aviation plugs), dual-band (2.4GHz&5GHz) Wi-Fi, and Bluetooth 5.4, ensuring stable network communication to meet the rapid data transfer needs. The full-function USB Type-C interface supports OTG and DP output for convenient operation and monitoring. In addition, the controller offers rich interfaces for connection of various peripherals, including USB Type-A, CAN 2.0, DI, DO, AI, AO, isolated RS232, RS485, and SSI, ensuring efficient and stable operation of AGVs.

VT-AGV-3588J runs on the ubuntu 22.04 operating system, with flexible integration of Codesys Runtime, which enables customers to develop AGV control solutions for different application scenarios according to their specific needs, achieving more function expansions.

Exterior and Features



VT-AGV-3588J

-  Octa-core processor
-  6 TOPS NPU for AI acceleration
-  AI/AO/DI/DO for industrial data automation
-  Wi-Fi/BT/ETH for network connectivity
-  Low-latency, low-jitter motion control
-  9V-36V wide input voltage range
-  IP65-rated for demanding environments
-  Ubuntu 22.04 + Codesys Runtime

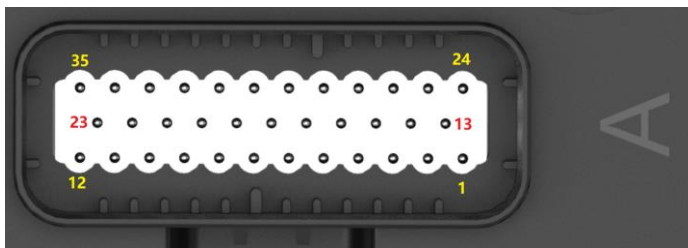
VT-AGV-3588J AGV Controller Datasheet

VT-AGV-3588J			
System	CPU	Quad-core ARM Cortex-A76 MPCore processor (Max. 2.0GHz) + Quad-core ARM Cortex-A55 MPCore processor (Max. 1.7GHz)	
	MCU	STM32F4 Series	
	GPU	ARM Mali-G610 MC4, OpenGL ES 1.1/2.0/3.2, OpenCL 2.2, and Vulkan1.2 supported	
	NPU	6 TOPS, INT4/INT8/INT16/FP16 supported	
	Memory	16GB LPDDR4	
	Storage	128GB eMMC V5.1	
		2Kb EEPROM (Only for hardware information storage)	
Communication	Ethernet	3 x M12, 1000Mbps	
	Wi-Fi & Bluetooth	Wi-Fi IEEE 802.11 a/b/g/n/ac + BT 5.4	
Media	Video processing	8K@60fps H.265 / 8K@30fps H.264 decoder, 8K@30fps H.265/H.264 encoder	
	Display	1 x DisplayPort 1.4a combo with USB 3.0 Type-C, up to 8192 x 4320 @30Hz	
I/O	USB	2 x USB 2.0 Host	1 x USB 3.0 Type-C (OTG, DP)
	Serial port	2 x RS232, isolated (Max. 235kbps)	2 x RS485, isolated (Max.500kbps)
		2 x SSI, isolated (Max. 10mbps)	
	CAN	2 x CAN 2.0	
	Analog input	4 x AI, isolated (2 x 0-20mA, 2 x 0-24V)	
	Analog output	2 x AO, isolated (0-20mA)	
	Digital input	12 x DI, isolated (0-24V at 50mA)	
	Digital output	12 x DO, isolated (0-24V at 0.5A)	
	Relay	2 x All_Ok relay (Self-test Ok output)	
	Antenna	2 x SMA male antenna connector for Wi-Fi and Bluetooth (distance: 3cm)	
Miscellaneous	RTC	Supported	
	Watchdog timer	Supported	
System Control	Button	1 x Reset button (short press to restart, long press to factory reset)	
	LED indicator	1 x Power indicator	3 x ETH connectivity indicator
		1 x Ground fault indicator	1 x Wi-Fi connectivity indicator
		1 x System running status indicator	
Power	Input	9V-36V DC (over-voltage / power failure protection, reverse polarity protection)	
	Consumption	~6W (Power on without applications running)	
Software	OS	Ubuntu 22.04 + Codesys Runtime	
	Protocol	CANOpen, EtherCAT	
Mechanical	Dimensions	239.9mm x 124.9mm x 54.5mm	
	Installation	4 x 6mm bolt	
	IP rating	IP65	
Environmental condition	Temperature	Operating: -20°C~70°C	Storage: -40°C ~ +80°C
	Humidity	5%~95% RH (non-condensing)	

Connector Pinout



A-Connector Profile

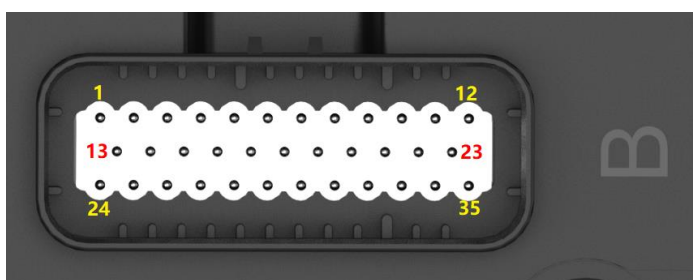


Pinout

Pin	Signal	Description
Pin 1	P_GND	Power ground
Pin 2	RS232_RX0	RS232 receive (Channel 0)
Pin 3	RS232_RX1	RS232 receive (Channel 1)
Pin 4	RS232_TX1	RS232 transmit (Channel 1)
Pin 5	RS485_A0	RS485 A signal (Channel 0)
Pin 6	RS485_B0	RS485 B signal (Channel 0)
Pin 7	RS485_A1	RS485 A signal (Channel 1)
Pin 8	RS485_B1	RS485 B signal (Channel 1)
Pin 9	DAC_GND	DAC analog output ground
Pin 10	AO_OUT2	DAC analog output (Channel 2, 4–20mA)
Pin 11	AO_OUT1	DAC analog output (Channel 1, 4–20mA)
Pin 12	ALL_OK_CO	Self-test OK output (short connect CO & NO)
Pin 13	GND_ISO_232	RS232 signal ground
Pin 14	RS232_TX0	RS232 transmit (Channel 0)
Pin 15	CAN2_L	CAN2 differential signal L
Pin 16	CAN2_H	CAN2 differential signal H

Pin	Signal	Description
Pin 17	GND_ISO_485	RS485 signal ground
Pin 18	USB20_CONN_2_DP	USB2.0-2 DP
Pin 19	USB20_CONN_2_DM	USB2.0-2 DM
Pin 20	GND	Digital ground
Pin 21	AI_V1	ADC analog input (0–24V, Channel 1)
Pin 22	AI_A1	ADC analog input (4–20mA, Channel 1)
Pin 23	AGND	ADC analog ground
Pin 24	B+	Power input (+)
Pin 25	CAN1_H	CAN1 differential signal H
Pin 26	CAN1_L	CAN1 differential signal L
Pin 27	CAN_GND	CAN signal ground
Pin 28	GND	Digital ground
Pin 29	USB20_CONN_1_DP	USB2.0-1 DP
Pin 30	USB20_CONN_1_DM	USB2.0-1 DM
Pin 31	VBUS5V0_USB20	USB2.0 5V VBUS
Pin 32	VBUS5V0_USB20	USB2.0 5V VBUS
Pin 33	AI_V0	ADC analog input (0–24V, Channel 0)
Pin 34	AI_A0	ADC analog input (4–20mA, Channel 0)
Pin 35	ALL_OK_NO	Self-test OK output (short connect CO & NO)

B-Connector Profile

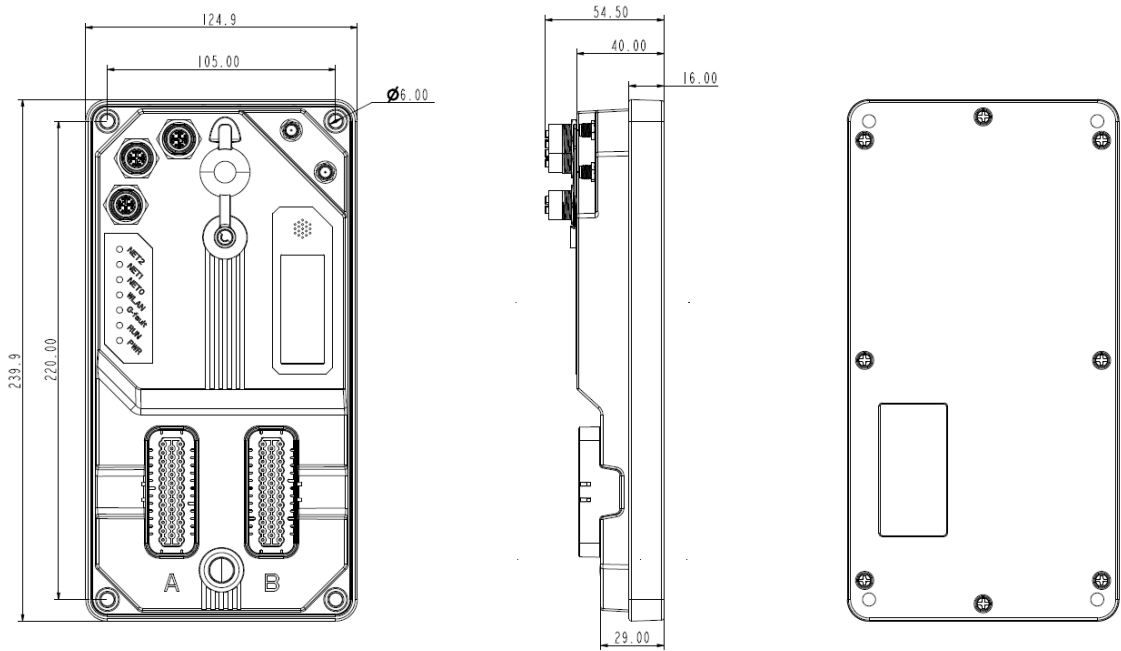


Pinout

Pin	Signal	Description
Pin 1	D_IN10	Digital input (Channel 10)
Pin 2	D_IN11	Digital input (Channel 11)
Pin 3	D_IN8	Digital input (Channel 8)
Pin 4	D_IN7	Digital input (Channel 7)

Pin	Signal	Description
Pin 5	D_IN12	Digital input (Channel 12)
Pin 6	DGND	Digital input ground
Pin 7	D_OUT1	Digital output (Channel 1)
Pin 8	D_OUT2	Digital output (Channel 2)
Pin 9	D_OUT3	Digital output (Channel 3)
Pin 10	D_OUT4	Digital output (Channel 4)
Pin 11	D_OUT5	Digital output (Channel 5)
Pin 12	D_OUT6	Digital output (Channel 6)
Pin 13	D_IN9	Digital input (Channel 9)
Pin 14	D_IN6	Digital input (Channel 6)
Pin 15	D_IN5	Digital input (Channel 5)
Pin 16	ISO_GND	SSI signal ground
Pin 17	CLK1+	SSI_1 differential clock +
Pin 18	CLK1-	SSI_1 differential clock -
Pin 19	D_OUT7	Digital output (Channel 7)
Pin 20	D_OUT9	Digital output (Channel 9)
Pin 21	EX_GND	Digital output ground
Pin 22	D_OUT8	Digital output (Channel 8)
Pin 23	D_OUT10	Digital output (Channel 10)
Pin 24	D_IN1	Digital input (Channel 1)
Pin 25	D_IN2	Digital input (Channel 2)
Pin 26	D_IN3	Digital input (Channel 3)
Pin 27	D_IN4	Digital input (Channel 4)
Pin 28	DATA0+	SSSI_0 differential data+
Pin 29	DATA0-	SSI_0 differential data-
Pin 30	CLK0-	SSI_0 differential clock -
Pin 31	CLK0+	SSI_0 differential clock +
Pin 32	DATA1-	SSI_1 differential data -
Pin 33	DATA1+	SSI_1 differential data +
Pin 34	D_OUT11	Digital output (Channel 11)
Pin 35	D_OUT12	Digital output (Channel 12)

Product Outlines



Ordering Information

Ordering No.	Connectivity	I/O	Protocol	Operating System
VT-AGV-3588J	Ethernet, Wi-Fi, Bluetooth	AI, AO, DI, DO, CAN, USB, DP, COM, All_Ok relay	CANOpen, EtherCAT	Ubuntu 22.04 + Codesys Runtime

Packing List	
VT- AGV-3588J AGV Controller	1
Wi-Fi & Bluetooth antenna	2

Since its establishment in 2002 by two Silicon Valley entrepreneurs, Vantron Technology has been at the forefront of the connected IoT devices and IoT platform solutions. Today, Vantron boasts a global customer base that includes many Fortune Global 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud platforms.

With over 20 years of experience in R&D of intelligent edge hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux, Android to Windows, from embedded to desktop level, and from gateways to servers. In addition, it provides users with system trimming, driver transplantation and more to cater to the unique needs of its users.