



AMV03K (Aux Inverter)

TECHNICAL INFORMATION

www.egtronics.co.kr

EGTRONICS CO., LTD
SUWON CITY, GYUNGGI-DO
16675 KOREA
info@egtronics.co.kr

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1. TECHNICAL DATA

1.1 DETAIL SPECIFICATION

POWER	UNIT	STANDARD	REMARK
Rated DC link Voltage	[Vdc]	360	TBD
DC link Voltage range	[Vdc]	270 ~ 450	TBD
Output Voltage	[Vac]	230 (Variable voltage according to RPM)	TBD
Output Current (Con/Peak)	[A]	10 / 50 (100ms) @ 25°C	TBD
Continuous/Peak Power	[kW]	3 / 6	
Switching Frequency	[Hz]	8,000	
Control Method		Current Sensorless (Change according to motor)	TBD

OPERATING CONDITION	UNIT	STANDARD	REMARK
Location	[-]	in Case	
Environ. Temp.(operating)	[°C]	-30 ~ 85	
Environ. Temp(storage)	[°C]	-40 ~ 105	

MECHANICAL	UNIT	STANDARD	REMARK
Weight	[kg]	Under 10	TBD
Size(W*D*H) (mm*mm*mm)	[-]	336 * 268 * 95 (Outermost standard)	TBD
Protection Class	[-]	IP69K	

COOLING	UNIT	STANDARD	REMARK
cooling method	[-]	Water cooling	
Required water flow rate	[ℓ/min.]	12	
Pressure	[bar]	1 (Max 2)	
Coolant Temp.	[°C]	50 (30~65)	
Coolant material	[-]	Water 50% / Glycol 50%	
diameter of Nipple	[Φ]	17.4	TBD

CONTROL	UNIT	STANDARD	REMARK
Type of Controller	[-]	Digital	
Command source and type	[-]	RPM command from VCU (via CAN)	
Command recurrence time	[ms]	10	
Control period(sampling rate)	[kHz]	1	
Control Bandwidth	[Hz]	Over than 1,000	

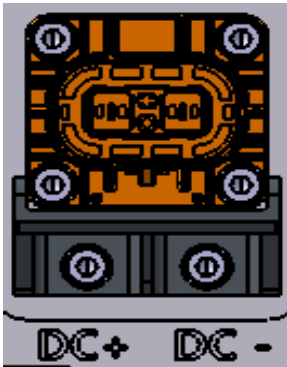
PROTECTION	UNIT	STANDARD	REMARK
Input Under Voltage warning	[V]	-	TBD
Input Under Voltage fail	[V]	Under 270	TBD
Input Over Voltage warning	[V]	-	TBD
Input Over Voltage fail	[V]	Over 450	TBD
Output Over Current	[A]	Over 50	
Temp Power Derating range	[kW]	-	
Temp STOP	[°C]	85	
Temp Re-start	[°C]	Under 75	

1.2 CONNECTOR DATA

1.2.1 INPUT CONNECTOR

Vendor : KET

Model No. MG646169-11(Compatible Part No. MG656989-11)



Detailed Contents

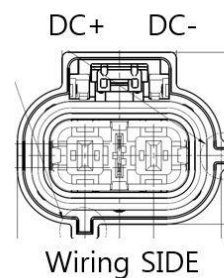
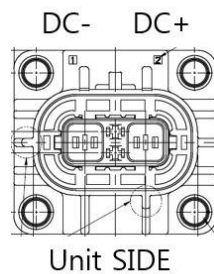
◇ DC Input Connector (High Voltage)



No.	I/O	PIN VOLTAGE(V)	PIN CURRENT(A)	SPECIFICATION
1	I	1000	40	HV IN -
2	I	1000	40	HV IN +

Model Name	HVSC 280 2M Header Type A (MG646169-11)	
Vendor	KET	
PIN ARRANGEMENT	Unit SIDE	MG646169-11
	Wiring SIDE	MG656989-11

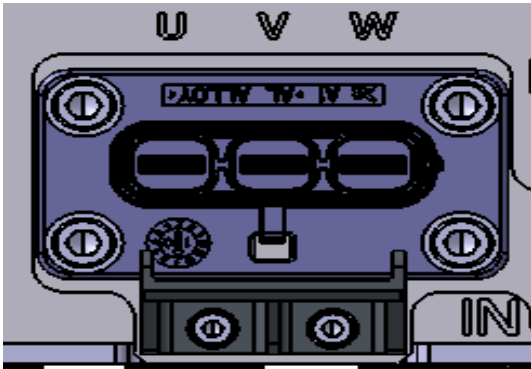
MATERIAL	Current Rating	Up to 40A
	Voltage Rating	DC 1,000V
	Waterproof	IP67, IP69K
	Temperature Range	-40℃ ~ +120℃
	Applicable Terminal	HV : 280(N110) Terminal HVIL: N150 Terminal
	Wire Range	4SQ Shield Wire



1.2.2 OUTPUT CONNECTOR


Vendor : YURA

Model No. 210061 (Compatible Part No. 220002)



Detailed Contents

◇ AC Output Connector (Air Compressor)



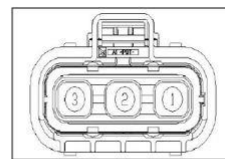
Model Name	210061	
Vendor	YURA	
PIN ARRANGEMENT	Unit SIDE	210061
	Wiring SIDE	220002

No.	I/O	PIN VOLTAGE(V)	PIN CURRENT(A)	PIN NAME	SPECIFICATION
1	O	600	40	W	Match Air Compressor_W
2	O	600	40	V	Match Air Compressor_V
3	O	600	40	U	Match Air Compressor_U

Voltage	Up to 600V
Current Range	40A
Sealing Protection	IP67 & IP69K
Temperature Range	-40℃ ~ 125℃
Shield Effectiveness	510kHz ~ 1.710kHz (40dB ↑) 70MHz ~ 108MHz (30dB ↑)
Electrical shock protection	Female Only (IPXXB)



Unit SIDE



Wiring SIDE

1.2.3 COMMUNICATION CONNECTOR

Vendor : TE

Model No. 776262-1 (Compatible Part No. 776273-1)



Detailed Contents

◇ Communication Connector



No.	I/O	PIN NAME	PIN VOLTAGE /CURRENT		SPECIFICATION	WIRING PATH	REMARK
			(V)	(A)			
1	I/O	BODY-CAN_L	5	0.1	EV2 CAN High	CAN2	VCU
2	I/O	BM1-CAN_L	5	0.1	EV CAN Low	CAN1	VCU
3	I/O	BM1-CAN_H	5	0.1	EV CAN High	CAN1	VCU
4	I	IGNITION_24V	28	0.1	IG ON Signal	IG	KEY ON
5	I	B(+)_24V	28	1.3	+24[VDC]	Battery	BATT ON
6	I/O	BODY-CAN_H	5	0.1	EV2 CAN High	CAN2	VCU
7							
8							
9	I	GND_24V	28	-	24V[Ground]	GND	
10	I	MotorTemp+	5	0.1	Motor Temp Sensor (+)	Compressor	Check Temperature
11	I	MotorTemp-	5	0.1	Motor Temp Sensor (-)		
12							
13							
14	I	APU SW	28	0.5	Air Purge Unit Switch Signal, Battery – Contact	APU	On/Off Signal

Model Name	776262-1	
Vendor	TE	
PIN ARRANGEMENT	Unit SIDE	776262-1
	Wiring SIDE	776273-1
PIN Voltage / PIN Current	Voltage(Max) : 600VAC Current(Max) : 24AWG-3A	

1.3 CAN Protocol

1.3.1 Network Specification

Network Specification		
Layer		Specification
Physical Layer	Network Type	Bus Type
	Bus Wire Medium	Twisted Pair Wires
	Data Rate	250kbps (2.0B)
	ID type	Extended
	Bit Timing	80 %

1.3.2 CAN ID Definition

CAN Identifier Definition					
Definition	Cycle Time	CAN ID	Send Type	Sender	Receiver
AMV03K Control ID	100	0x18FF10EF	Period	Vehicle Control Unit	AMV03K
AMV03K Status ID	100	0x18FF01F6	Period	AMV03K	Vehicle Control Unit
AMV03K Fault ID	100	0x18FF02F6	Period	AMV03K	Vehicle Control Unit

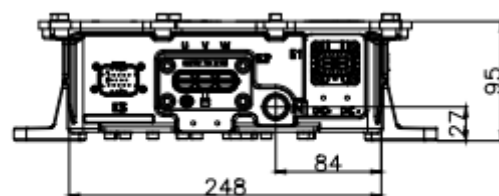
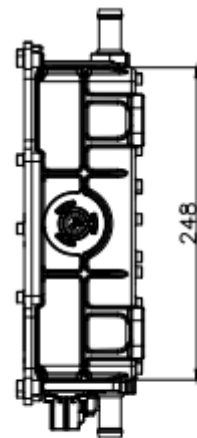
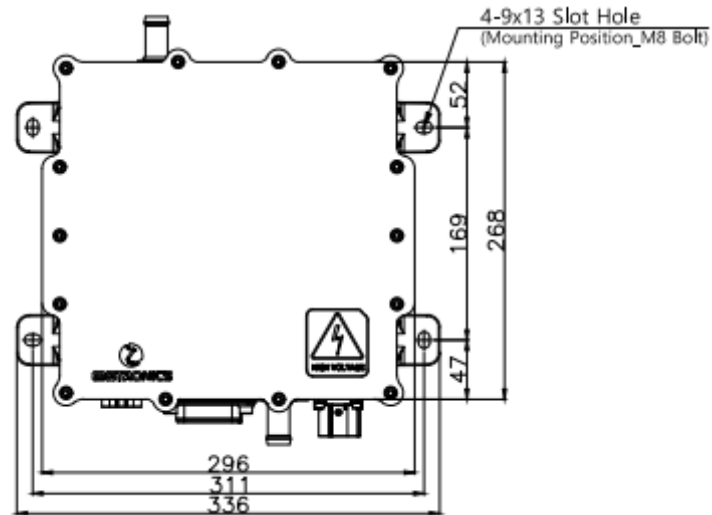
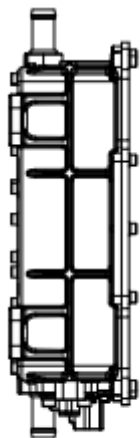
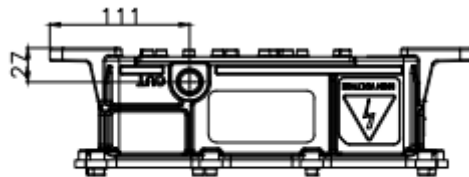
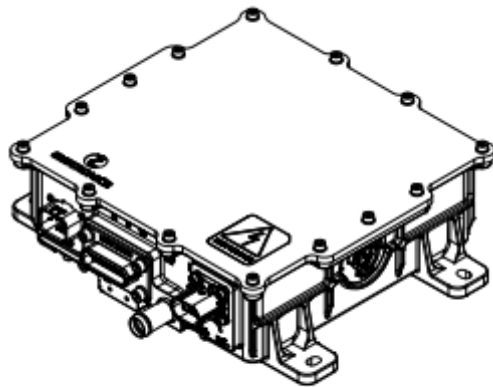
1.3.3 CAN Data Definition

ECU	Message	ID (HEX)	Send Type	Cycle Time (ms)	Signal Name	Signal Value	Start Position	Length (bits)	Factor	Offset	Min	Max	Timeout Time(ms)
VCU	INV03K_Control	0x18FF10EF	Periodic	100ms	INV03K Enable	0/1: (Disable/Enable)	1.1	1	1	0	0	1	1000
					INV03K CtrlMode	0: Override Disabled 1: Speed Control	1.2	1	1	0	0	1	
					INV03K Speed Request	RPM Command (1000 ~ 1700 rpm)	2.1	16	1	-10000	-10000	10000	
ECU	Message	ID (HEX)	Send Type	Cycle Time (ms)	Signal Name	Signal Value	Start Position	Length (bits)	Factor	Offset	Min	Max	Timeout Time(ms)
INV03K	INV03K_Status	0x18FF01F6	Periodic	100ms	MotInvRdy (Motor Inverter Ready)	0/1 (Not Ready/Ready)	1.1	1	1	0	0	1	1000
					MotInv_Mode_Status (Motor Controllable)	0/1 (Stop/Run)	1.2	1	1	0	0	1	
					Mot_CtrMod (Motor Control Mode)	Motor Control Mode (0: None, 1: Speed mode)	1.4	1	1	0	0	1	
					Mot_Inv_Fault (Motor Inverter Fault)	0/1 (Not Fault/Fault)	1.5	1	1	0	0	1	
					APU_Signal_R	APU Real Signal Stats (1: Open, 0: Close)	1.8	1	1	0	0	1	
					MotInv_Temp_C (Motor Inverter Temperature)	-40 ~ 150[°C] 8bits (1.0°C)	2.1	8	1	-40	-40	150	
					Inv_Battery_V (Low Battery Voltage[Control])	10.0 ~ 36.0[V] 8bits (0.2V)	3.1	8	0.2	0	0	36	
					Inv_Power_kW (Motor Inverter Power)	0 ~ 6 [kW] 8bits(0.1kW)	4.1	8	0.1	0	0	6	
					Mot_ActRotSpd_rpm (Actual Motor Rotation Speed)	0 ~ 1700[rpm] 12bits (1.0rpm)	5.1	12	1	0	0	1700	
					Inv_IptVol_V (Capacitor Voltage[Motor Inverterside])	0.0 ~ 600[V] 12bits (0.1V)	6.5	12	1	0	0	600	
					Comp_Temp_C (Air Compressor Temperature)	-50 ~ 200[°C] 8bits (1.0°C)	8.1	8	1	-50	-50	200	

ECU	Message	ID (HEX)	Send Type	Cycle Time (ms)	Signal Name	Signal Value	Start Position	Length (bits)	Factor	Offset	Min	Max	Timeout Time(ms)
INV03K	INV03K_Fault	0x18FF02F6	Periodic	100ms	InvBatOvFlt (Battery Voltage Above Normal Operation)	0/1 (Not Fault/Fault)	1.1	1	1	0	0	1	1000
					InvBatUvFlt (Battery Voltage Below Normal Operation)	0/1 (Not Fault/Fault)	1.2	1	1	0	0	1	
					InvDcBatOvFlt (DC-link Voltage Above Normal Operation)	0/1 (Not Fault/Fault)	1.3	1	1	0	0	1	
					InvDcBatUvFlt (DC-link Voltage Below Normal Operation)	0/1 (Not Fault/Fault)	1.4	1	1	0	0	1	
					InvOverTemp (Inverter Over Temperature)	0/1 (Not Fault/Fault)	1.5	1	1	0	0	1	
					InvSenTemp (Inverter NTC Thermistor Signal Line Cut)	0/1 (Not Fault/Fault)	1.6	1	1	0	0	1	
					InvUnderTemp (Inverter NTC Thermistor Signal Line Short)	0/1 (Not Fault/Fault)	1.7	1	1	0	0	1	
					InvOverCurrFlt (Inverter IGBT Over Current)	0/1 (Not Fault/Fault)	1.8	1	1	0	0	1	
					InvCircuitIGBTSenIn (Inverter Gate fault)	0/1 (Not Fault/Fault)	2.1	1	1	0	0	1	
					InvCanABusOff (CANA Bus Off)	0/1 (Not Fault/Fault)	2.2	1	1	0	0	1	
					InvCanATimeOut (CANA Time Out)	0/1 (Not Fault/Fault)	2.3	1	1	0	0	1	
					InvCanBBusOff (CANB Bus Off)	0/1 (Not Fault/Fault)	2.4	1	1	0	0	1	
					InvCanBTimeOut (CANB Time Out)	0/1 (Not Fault/Fault)	2.5	1	1	0	0	1	
					MotInvPowerFlt (Inverter Output Power Fault)	0/1 (Not Fault/Fault)	2.6	1	1	0	0	1	
MotOverTemp (Motor Over Temperature)	0/1 (Not Fault/Fault)	2.7	1	1	0	0	1						
MotTempSenFlt (Motor Temp Sensor Data Out of Range)	0/1 (Not Fault/Fault)	2.8	1	1	0	0	1						

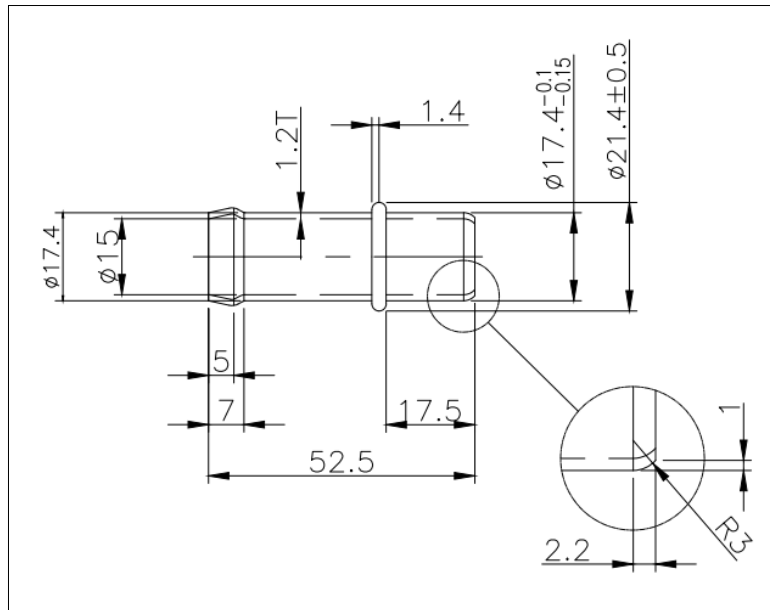
2. MECHANICAL SPECIFICATION

2.1 DIMENSION



2.2 COOLING NIPPLE SPECIFICATION

Vendor : EGTronics



Nipple+Hose+Hose Clip Assy

└ Hose inside Diameter: 19 mm

