



ACU28V10K TECHNICAL INFORMTION

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Revision	Date	Name	Change
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2.TECHNICAL DATA 기술자료

2.1 DETAIL SPECIFICATION 상세사양

POWER	UNIT	STANDARD	REMARK
Power ratings	[kW]	10	
Input side voltage range	[V]	650(550~750)	Power Derating between 400~450
Input side current ratings	[A]	15.38(13.1~18.5)	
Output side Voltage range	[V]	28(16~32)	
Output side current ratings	[A]	357.1	
Control Power	[V]	28(16~30)	
Structure(Type)	[-]	Uni-Directional Phase shift Full Bridge converter	
Efficiency @ 80% Load	[%]	Over 94	
Efficiency @ Max Load	[%]	Over 92	

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

MECHANICAL	UNIT	STANDARD	REMARK
Weight	[kg]	13.4	
Size(W*D*H) (mm*mm*mm)	[-]	467*242*110	
Vibration class(G)		6	
Protection Class	[-]	IP69K	

COOLING	UNIT	STANDARD	REMARK
cooling method	[-]	Water cooling	
Required water flow rate	[ℓ/min.]	5 (Max 15)	
Pressure	[bar]	1 (Max 2)	
coolant Temp.	[°C]	50 (30~65)	

CONTROL	UNIT	STANDARD	REMARK
Type of Controller	[-]	Digital/Analog	
Command source and type	[-]	Voltage command from PCU (via CAN)	CAN bps = 250kbps or 500kbps
Command recurrence time	[ms]	10	
Control period(sampling rate)	[kHz]	1	
Control accuracy(steady state)	[V]	±0.1V	
Control Bandwidth	[Hz]	Over than 1,000	

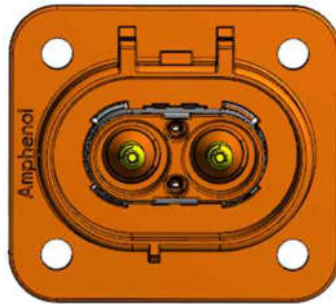
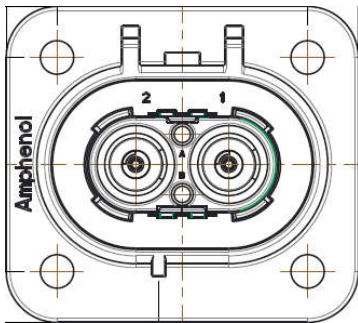
PROTECTION	UNIT	STANDARD	REMARK
Input Under Voltage warning	[V]	540 ~ 550	
Input Under Voltage fail	[V]	Under 550	
Input Over Voltage warning	[V]	750 ~ 770	
Input Over Voltage fail	[V]	Over 770	
Output Under Voltage warning	[V]	16 ~ 17	
Output Under Voltage fail	[V]	Under 16	
Output Over Voltage warning	[V]	30 ~ 32	
Output Over Voltage fail	[V]	Over 32	
Output Over Current	[A]	357	
Peak Current	[A]	357	
Short Current	[A]	430	
Temp Warning	[°C]	80~85	
Temp STOP	[°C]	85	
Temp Re-start	[°C]	Under 75	

2.2 CONNECTOR DATA 커넥터 사양

2.2.1 High Voltage INPUT CONNECTOR 입력커넥터

Vendor : Amphenol

Model No. C10-738025-2(Z)P(Compatible Part No. C10-738026-2(Z)S

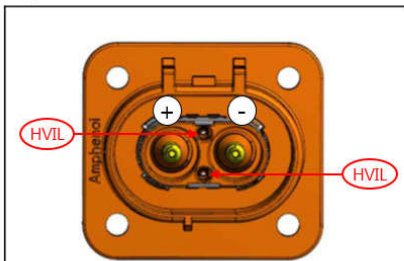


Detailed Contents

◇ E1 : DC INPUT CONNECTOR (High Voltage)

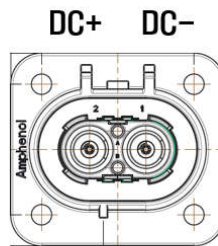
첨부, Unit Side
C10-738025-2(Z)P

첨부, Wiring Side
C10-738026-2(Z)S

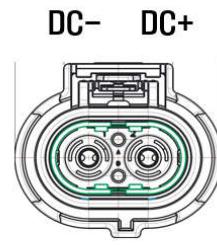


Pin No	I/O	Signal Name	Electrical Specification		Description	Note
			Voltage (Max)	Current (Max)		
1	I	HV_DC (+)	820V	22A	High Voltage Input +	
2	I	HV_DC (-)			High Voltage Input -	
A	I	HVIL 1				Detect Connection
B	I	HVIL 2				Detect Connection

Model No.	C10-738025-2(Z)P	
Manufacturer	Amphenol	
PIN ARRANGEMENT (PART NO.)	Unit SIDE	C10-738025-2(Z)P
	Wiring SIDE	C10-738026-2(Z)S
Pin Info	Voltage	860 AC
	Current	< 70A
	Wire SQ	2.5~10



Unit SIDE
(Receptacle)

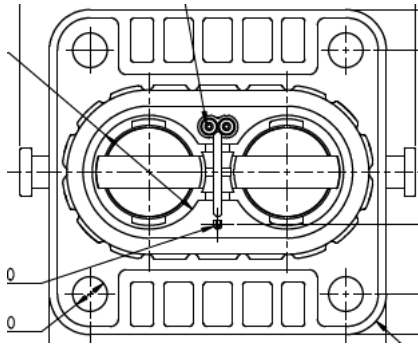


Wiring SIDE
(Plug)

2.2.2 Low Voltage OUTPUT CONNECTOR 출력커넥터

Vendor : Amphenol

Model No. HVSL1200022A1H10(Compatible Part No. HVSL1200062A195)

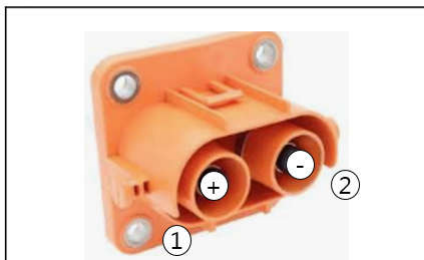


Detailed Contents

◇ E2 : DC OUTPUT Connector (DC28V)

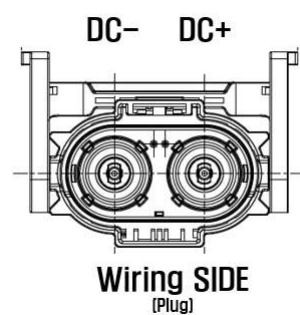
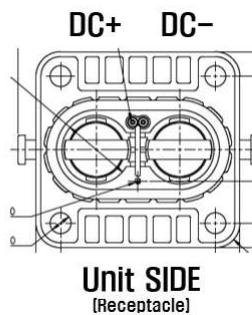
 (pdf)
첨부 Unit Side
HVSL1200022A1H10

 (pdf)
첨부 Wiring Side
HVSL1200062X1XX



Pin No	I/O	Signal Name	Electrical Specification		Description	Note
			Voltage (V)	Current (A)		
1	O	28V_DC (+)	28V	350A	28V Output (+)	
2	O	28V_DC (-)			28V Output (-)	
A	I	HVIL	-	-	-	Detect Connection

Model No.	HVSL1200022A1H10	
Manufacturer	Amphenol	
PIN ARRANGEMENT (PART NO.)	Unit SIDE	HVSL1200022A1H10
	Wiring SIDE	HVSL1200062X1XX
Pin Info	Voltage	< 900V
	Current	< 350A
	Wire SQ	70SQ, 95SQ



2.2.3 COMMUNICATION CONNECTOR 통신커넥터

Vendor : TYCO AMP

Model No. 1-776262-1 (14Pin) (Compatible Part no 776273-1)



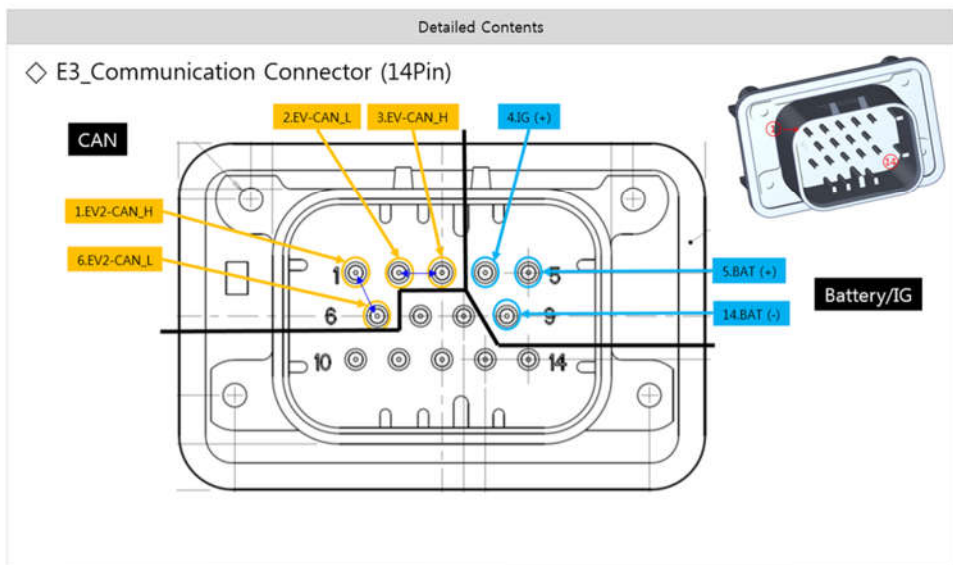
Detailed Contents

◇ E3 : SIGNAL CONNECTOR(14Pin)

첨부, 776262-1
 3D_776262-1

PIN No.	I/O	Signal Name	Electric Spec		Description	Wiring Path	Note
			V	A			
1	I/O	EV2-CAN_H	5	0.1	EV2 CAN High (LDC Backup)	-	LDC
2	I/O	EV-CAN_L	5	0.1	EV CAN Low (LDC Main)	-	LDC
3	I/O	EV-CAN_H	5	0.1	EV CAN High (LDC Main)	-	LDC
4	I	IG (+)	-	-	IG ON Signal	Vehicle	KEY ON
5	I	BAT (+)	28	1.2	+24V [VDC]	Battery	BATT ON
6	I/O	EV2-CAN_L	5	0.1	EV2 CAN Low (LDC Backup)	-	LDC
7							
8							
9	I	BAT(-)	28	0.1	24V[Ground]	GND	
10							
11							
12							
13							
14							

Model No	776262-1	
Manufacturer	TYCO	
PIN ARRANGEMENT (PART NO.)	Unit SIDE	776262-1
	Wiring SIDE	776273-1
Pin Info	Voltage	< 60V
	Current	< 17A
	Wire SQ	0.5~1.25



2.3 CAN Protocol 통신 프로토콜

2.3.1 Network Specification 네트워크 설정

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

2.3.2 CAN ID Definition CAN ID 정의

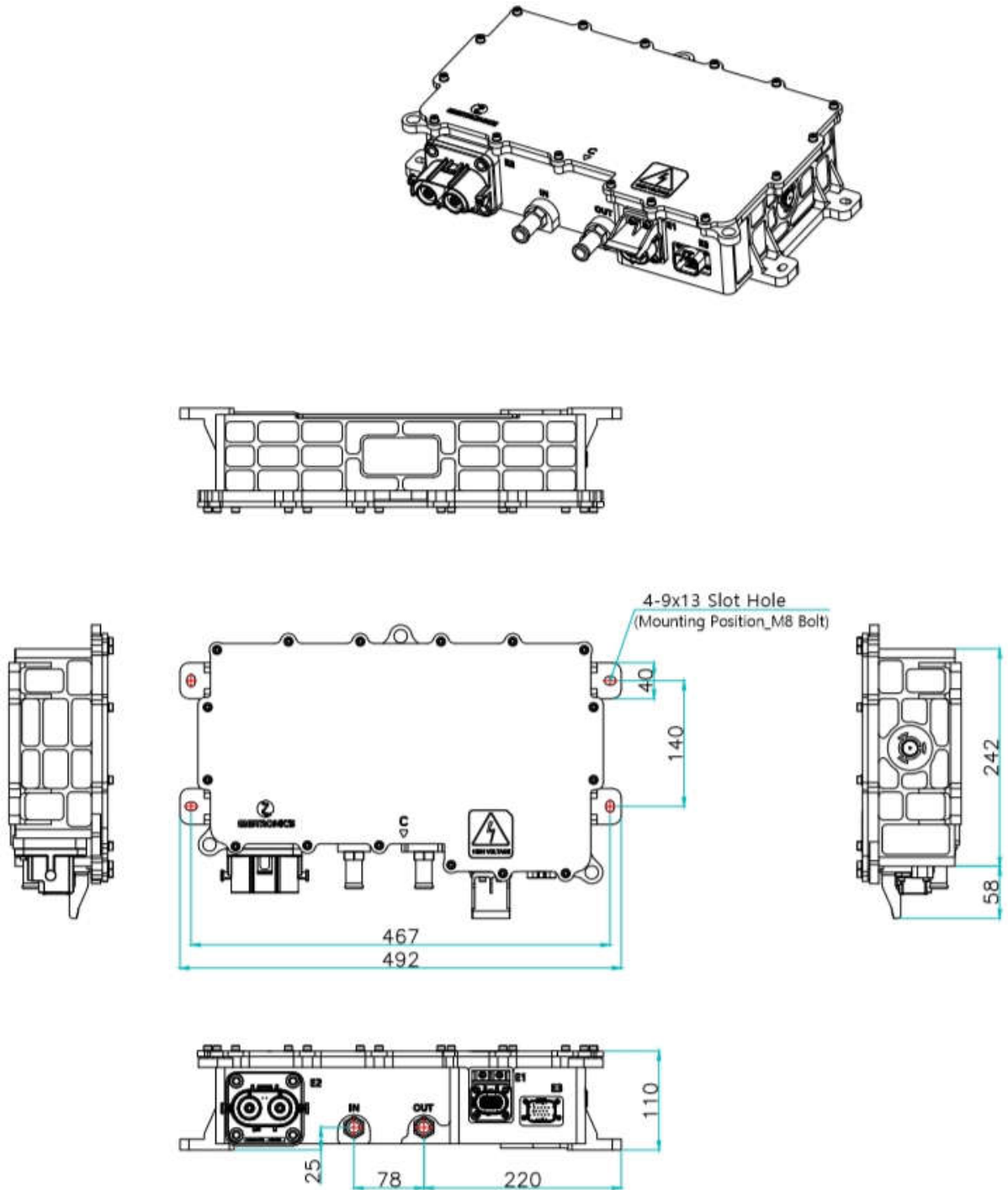
CAN Identifier Definition					
Definition	Cycle Time	CAN ID	Send Type	Sender(ECU)	Reciever(ECU)
DC/DC Convertor Control ID	100	0x18FF31EF	Period	Vehicle Control Unit	DCDC Converter
DC/DC Convertor Status ID	100	0x18FF041A	Period	DCDC Converter	Vehicle Control Unit
DC/DC Convertor Fault ID	100	0x18FF051A	Period	DCDC Converter	Vehicle Control Unit
DC/DC Converter DM1 ID	1000	0x18FECA1A	Cycle	DCDC Converter	Cluster
TPCM	0	0X18ECFF1A	NoMsgSendType	DCDC Converter	Cluster
TPDT	0	0X18EBFF1A	NoMsgSendType	DCDC Converter	Cluster
DCDC UDS Protocol (Send)	0	0X18DAF91A	NoMsgSendType	DCDC Converter	Diagnostic Module

2.3.4 DTC CODE

NO	DTC	DTC (HEX)	DTC NAME(ENG.)	Cause of Failure(고장원인)	Failure detection Condition	Failure to Normal Condition	Power source at Failure	Failure Detection Time	Check Lamp
1	C191223	0x591223	LDC Low voltage battery input overvoltage	When the control voltage of LDC exceeds SPEC Sheet	When the control voltage of LDC exceeds SPEC Sheet	Immediately	IGN ON	3sec	0
2	C191224	0x591224	LDC Low voltage battery input undervoltage	When the control voltage of LDC becomes less than SPEC Sheet	When the control voltage of LDC becomes less than SPEC Sheet	Immediately	IGN ON	3sec	0
3	C191203	0x591203	LDC High voltage battery input overvoltage	When the input high voltage of LDC exceeds SPEC Sheet	When the input high voltage of LDC exceeds SPEC Sheet	Immediately	IGN ON	3sec	0
4	C191204	0x591204	LDC High voltage battery input undervoltage	When the input high voltage of LDC becomes less than SPEC Sheet	When the input high voltage of LDC becomes less than SPEC Sheet	Immediately	IGN ON	3sec	0
5	C191213	0x591213	LDC Output Over Voltage	When the output voltage of LDC exceeds SPEC Sheet	When the output voltage of LDC exceeds SPEC Sheet	Reset	IGN ON	3sec	0
6	C191214	0x591214	LDC Output Under Voltage	When the output voltage of LDC becomes less than SPEC	When the output voltage of LDC becomes less than SPEC	Immediately	IGN ON	3sec	0
7	C191234	0x591234	LDC Blocking after low voltage due to overcurrent	When the output power of the LDC is used as the maximum of the SPEC sheet	When the output power of the LDC is used as the maximum of the SPEC sheet	Reset	IGN ON	100ms	0
8	C191233	0x591233	LDC Output Over Current shutdown	When the output current of LDC is used above SPEC Sheet	When the output current of LDC is used above SPEC Sheet	Reset	IGN ON	100ms	0
9	C19124E	0x59124E	LDC Voltage Derate according to Temperature	When the temperature of the LDC exceeds 85 degrees	When the temperature of the LDC exceeds 85 degrees	Immediately	IGN ON	3sec	0
10	C191240	0x591240	LDC Blocking after low voltage due to over Temperature	When the temperature of the LDC exceeds 105 degrees	When the temperature of the LDC exceeds 105 degrees	Reset	IGN ON	100ms	0
12	C191245	0x591245	LDC Disconnection of temperature sensor	When the LDC's internal temperature sensor is faulty	When the LDC's internal temperature sensor is faulty	Immediately	IGN ON	3sec	0
14	C191235	0x591235	LDC Disconnection of Current sensor	When the LDC's internal Current sensor is faulty	When the LDC's internal Current sensor is faulty	Immediately	IGN ON	3sec	0
16	C191252	0x591252	LDC CAN1 BUS OFF	LDC Can1 Line Short	LDC Can1 Line Short	Reset	IGN ON	2sec	0
17	C191262	0x591262	LDC CAN2 BUS OFF	LDC Can2 Line Short	LDC Can2 Line Short	Reset	IGN ON	2sec	0
18	C191212	0x591212	LDC Output Fail	When the output of the LDC is not normal	When the output of the LDC is not normal	Immediately	IGN ON	3sec	0
19	C191256	0x591256	LDC CAN1 TIME OFF	LDC Can1 Line Open	LDC Can1 Line Open	Reset	IGN ON	1sec	0
20	C191266	0x591266	LDC CAN2 TIME OFF	LDC Can2 Line Open	LDC Can2 Line Open	Reset	IGN ON	1sec	0
21	C191263	0x591263	LDC Current Sensor Fault Alarm	LDC Current Sensor Fault	Measurement of current sensor 30A or more before LDC start-up Output voltage after LDC start 24V or less	Immediately	IGN ON	3sec	0
22	C191264	0x591264	LDC Output Connector Disconnect	Output Connector Disconnect	If the control input voltage and output voltage differ by more than 3 volts after LDC startup	Reset	LDC RUN	4sec	0
23	C191265	0x591265	LDC Internal Device Fault	LDC internal device burnout	Output voltage current after LDC startup (output voltage less than 24V when current is less than 10A)	Immediately	LDC RUN	5sec	0

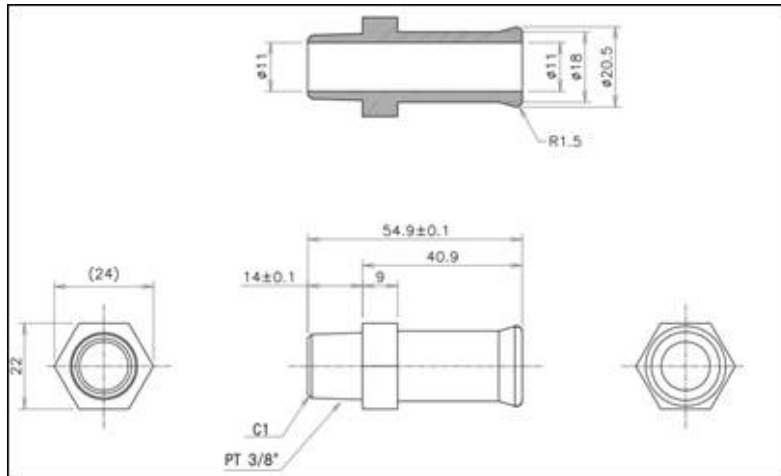
3. MECHANICAL SPECIFICATION 기구적 사양

3.1 DIMENSION 기구 치수 및 형상



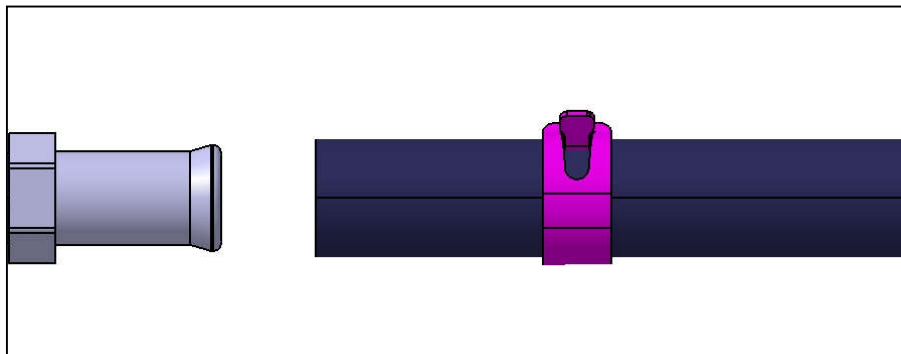
3.2 COOLING NIPPLE SPECIFICATION 냉각수 니플 사양

Vendor : EGTronics



Nipple+Hose+Hose Clip Assy

└ Hose Inside Diameter: 19mm



Assy_ISO View

