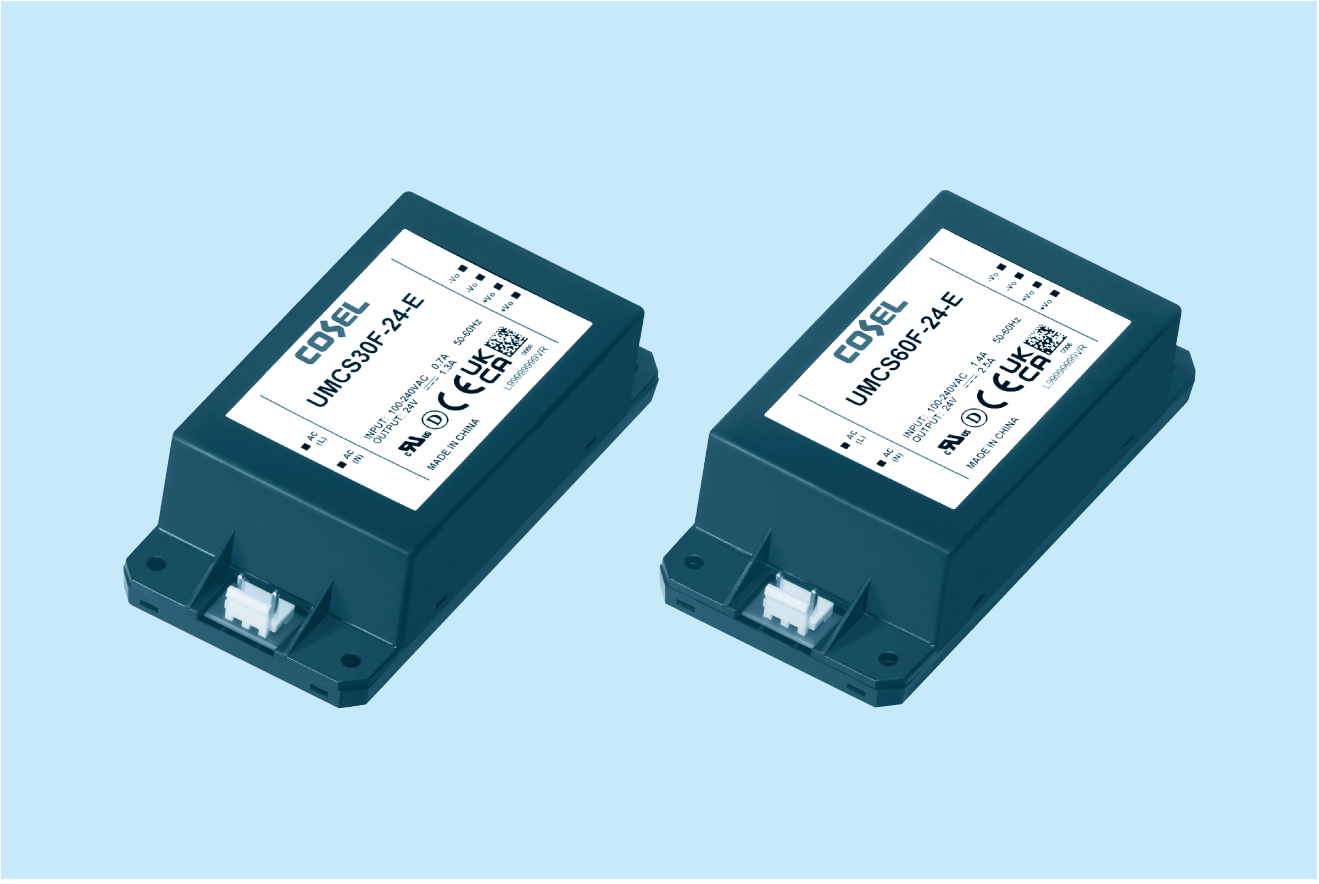
COSEL

Medical electric equipment | World wide | Cost Effective | Safety Approvals | EMI | Inrush current limiting | OCP | OVP

UMCS-series



Feature

For medical electric equipment
Medical Isolation Grade 2MOPP
4kV isolation
Suitable for BF application
Low leakage current
Economical design
Class II

Safety agency approvals

ANSI/AAMI ES60601-1, EN60601-1 3rd,
C-UL (CAN/CSA-C22.2 No.60601-1),
UL62368-1, EN62368-1,
C-UL (CAN/CSA-C22.2 No.62368-1)

CE marking

Low Voltage Directive
RoHS Directive

UKCA marking

Electrical Equipment Safety Regulations
RoHS Regulations

5-year warranty (Refer to Instruction Manual)

EMI

Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B,
FCC Part 15-B, FCC Part 18-B

EMS Compliance : EN61204-3, EN61000-6-2

IEC60601-1-2 (2014), EN60601-1-2 (2015)

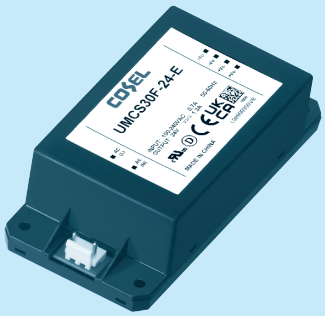
EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-4-11

COSEL AC-DC Power Supplies Medical Type

UMCS30F

Ordering information

UMC	S	30	F	-□	-□
①	②	③	④	⑤	⑥



①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ＊5
T : Terminal block

▣ClassII

＊Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

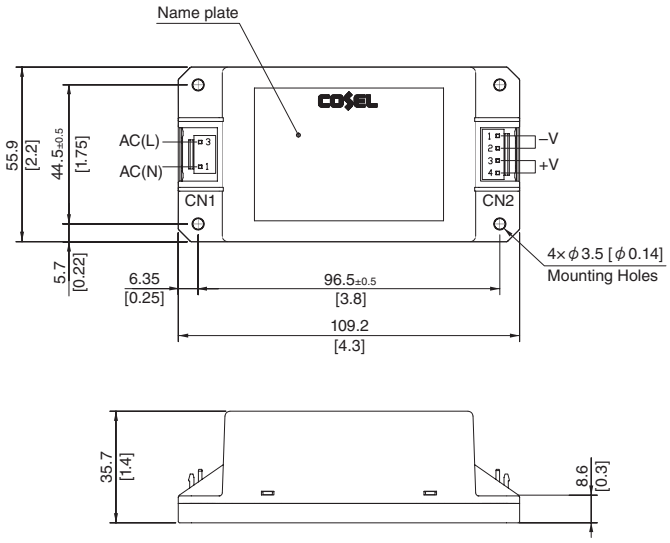
MODEL	UMCS30F-5-E	UMCS30F-12-E	UMCS30F-24-E	UMCS30F-48-E
MAX OUTPUT WATTAGE[W]	15	30	31.2	31.2
DC OUTPUT	5V 3A	12V 2.5A	24V 1.3A	48V 0.65A

SPECIFICATIONS

	MODEL		UMCS30F-5-E	UMCS30F-12-E	UMCS30F-24-E	UMCS30F-48-E
INPUT	VOLTAGE[V]		AC85 - 264 1φ			
	CURRENT[A]	ACIN 115V	0.35	0.7		
		ACIN 230V	0.15	0.3		
	FREQUENCY[Hz]		50/60 (47-63)			
	EFFICIENCY[%]	ACIN 115V	81typ	86typ	88typ	88typ
		ACIN 230V	80typ	87typ	89typ	89typ
	INRUSH CURRENT[A]	ACIN 115V	25typ			
		ACIN 230V	50typ			
	LEAKAGE CURRENT[uA]	ACIN 264V	200max			
	TOUCH CURRENT[uA]	ACIN 264V	75max			
OUTPUT	VOLTAGE[V]		5	12	24	48
	CURRENT[A]		3	2.5	1.3	0.65
	WATTAGE[W]		15	30	31.2	31.2
	LINE REGULATION[mV] ＊1		20max	48max	96max	192max
	LOAD REGULATION[mV] ＊1		100max	120max	150max	240max
	RIPPLE NOISE [mVp-p] ＊2	Io=100%	150 (Bandwidth 20MHz)			
	TEMPERATURE REGULATION[mV]	0~+45℃	100max	120max	240max	480max
	START-UP TIME[ms]	ACIN 115V ACIN 230V	40typ			
	HOLD-UP TIME[ms]	ACIN 115V	20typ			
		ACIN 230V	100typ			
	OUTPUT VOLTAGE SETTING[V]		4.90 to 5.30	11.50 to 12.50	23.00 to 25.00	46.00 to 50.00
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION [A]		Works over 105% of rating and recovers automatically			
	OVERVOLTAGE PROTECTION[V]		5.75 to 7.00	13.80 to 16.80	27.60 to 33.60	55.20 to 67.20
ISOLATION	INPUT-OUTPUT		AC4,000V 1minute, DC500V 100MΩmin (At Room Temperature) 2MOPP			
ENVIRONMENT	OPERATING TEMP.,HUMID. ＊3		-20 to +70℃, 20 - 90%RH (Non condensing)			
	STORAGE TEMP.,HUMID.		-20 to +75℃, 20 - 90%RH (Non condensing)			
	VIBRATION		10 - 55Hz, 19.6m/s² (2G) , 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT		196.1m/s² (20G) , 11ms, once each X, Y and Z axis			
SAFETY AND EMC	AGENCY APPROVALS		ANSI/AAMI ES60601-1, EN60601-1 3rd, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1) , UL62368-1, EN62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1)			
	EMC EMISSON		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B			
	EMC EMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11			
	HARMONIC ATTENUATOR ＊6		Complies with IEC61000-3-2 (Class A) No built-in active PFC			
OTHERS	CASE SIZE/WEIGHT		55.9×35.7×109.2mm [2.2×1.4×4.3 inches] (W×H×D) / 200g max			
	COOLING METHOD		Convection			
WARRANTY	WARRANTY ＊4		5 years (subject to the operating conditions)			

＊1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%typ) load.
＊2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.
When the load factor is low (Io=0~20%typ), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.
＊3 Output power derating is required. Refer to "Derating"
＊4 Consult us about details.
＊5 The listed option may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
＊6 Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
＊ All parameters not specially mentioned are measured at ACIN 230V, rated load and 25℃ of ambient temperature.
＊ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
＊ Parallel operation is not possible with this model.
＊ Acoustic noise may be heard from the power supply when used for pulse load.

External view



Mating connector and terminal of CN1, CN2

I/O Connector		Mating Connector	Terminal	Mfr.
CN1	B2P3-VH	VHR-3N	Reel : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.
CN2	B4P-VH	VHR-4N	Chain : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.

<Pin Assignments>

CN1

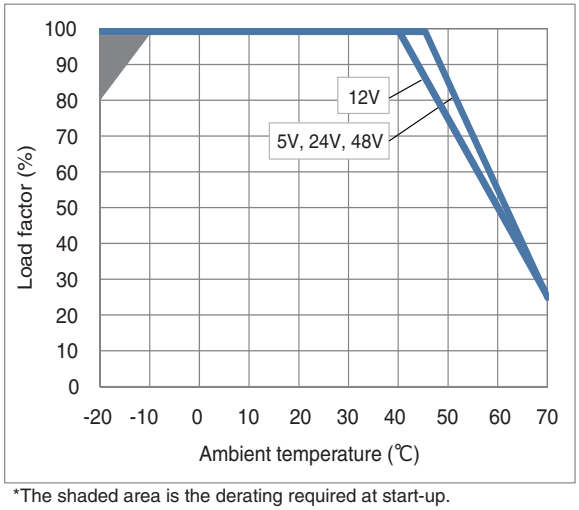
Pin No.	Input
1	AC(N)
2	
3	AC(L)

CN2

Pin No.	Output
1, 2	-V
3, 4	+V

※ Dimensions in mm, [ ] = inches
※ Tolerance : ±1 [±0.04]
※ Weight : 200g max
※ Case material : PBT
※ Maximum current per contact at CN2 is 5A
※ Mounting torque : 0.49N·m max

Derating Curve



*The shaded area is the derating required at start-up.

Fig.1 Derating curve depending on ambient temperature

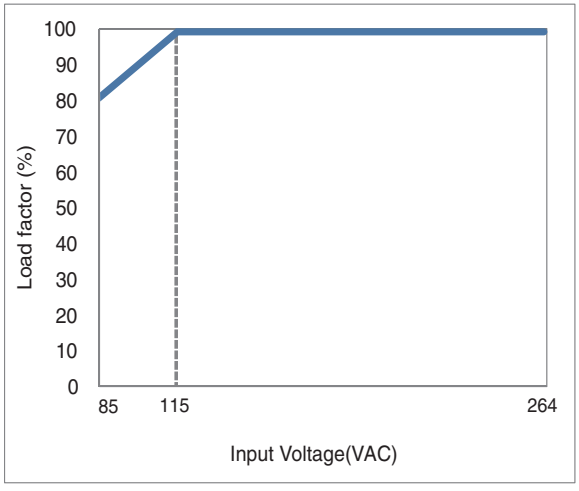


Fig.2 Derating curve depending on input voltage

■The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be inluenced by the heat from the power supply.Please consult us for more details.

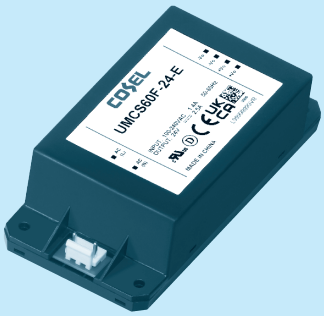
COSEL AC-DC Power Supplies Medical Type

UMCS60F

Ordering information

UMC	S	60	F	-□	-□
①	②	③	④	⑤	⑥

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ＊5
T : Terminal block



ClassII

＊Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

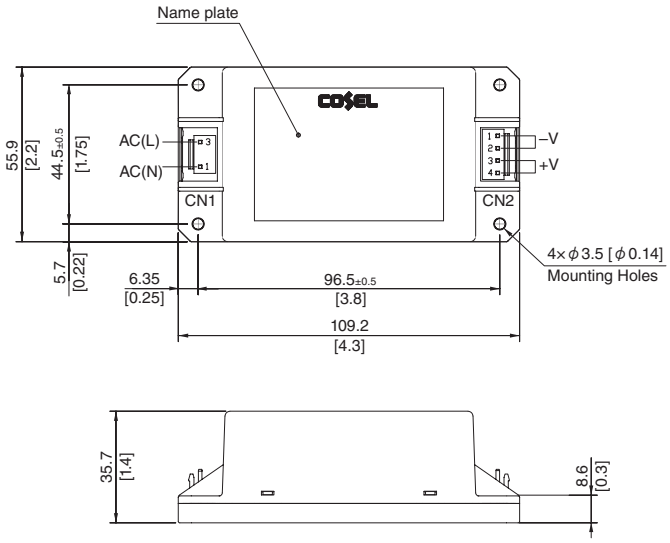
MODEL	UMCS60F-5-E	UMCS60F-12-E	UMCS60F-24-E	UMCS60F-48-E
MAX OUTPUT WATTAGE[W]	30	54	60	60
DC OUTPUT	5V 6A	12V 4.5A	24V 2.5A	48V 1.25A

SPECIFICATIONS

	MODEL		UMCS60F-5-E	UMCS60F-12-E	UMCS60F-24-E	UMCS60F-48-E
INPUT	VOLTAGE[V]		AC85 - 264 1φ			
	CURRENT[A]	ACIN 115V	0.7	1.4		
		ACIN 230V	0.3	0.7		
	FREQUENCY[Hz]		50/60 (47-63)			
	EFFICIENCY[%]	ACIN 115V	80typ	87typ	88typ	89typ
		ACIN 230V	80typ	88typ	90typ	91typ
	INRUSH CURRENT[A]	ACIN 115V	25typ			
		ACIN 230V	50typ			
	LEAKAGE CURRENT[uA]	ACIN 264V	200max			
	TOUCH CURRENT[uA]	ACIN 264V	75max			
OUTPUT	VOLTAGE[V]		5	12	24	48
	CURRENT[A]		6	4.5	2.5	1.25
	WATTAGE[W]		30	54	60	60
	LINE REGULATION[mV] ＊1		20max	48max	96max	192max
	LOAD REGULATION[mV] ＊1		100max	120max	150max	240max
	RIPPLE NOISE [mVp-p] ＊2	Io=100%	150 (Bandwidth 20MHz)			
	TEMPERATURE REGULATION[mV]	0~+40℃	100max	120max	240max	480max
	START-UP TIME[ms]	ACIN 115V ACIN 230V	40typ			
	HOLD-UP TIME[ms]	ACIN 115V	20typ			
		ACIN 230V	100typ			
	OUTPUT VOLTAGE SETTING[V]		4.90 to 5.30	11.50 to 12.50	23.00 to 25.00	46.00 to 50.00
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION [A]		Works over 105% of rating and recovers automatically			
	OVERVOLTAGE PROTECTION[V]		5.75 to 7.00	13.80 to 16.80	27.60 to 33.60	55.20 to 67.20
ISOLATION	INPUT-OUTPUT		AC4,000V 1minute, DC500V 100MΩ min (At Room Temperature) 2MOPP			
ENVIRONMENT	OPERATING TEMP.,HUMID. ＊3		-20 to +70℃, 20 - 90%RH (Non condensing)			
	STORAGE TEMP.,HUMID.		-20 to +75℃, 20 - 90%RH (Non condensing)			
	VIBRATION		10 - 55Hz, 19.6m/s² (2G) , 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT		196.1m/s² (20G) , 11ms, once each X, Y and Z axis			
SAFETY AND EMC	AGENCY APPROVALS		ANSI/AAMI ES60601-1, EN60601-1 3rd, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1) , UL62368-1, EN62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1)			
	EMC EMISSON		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B			
	EMC EMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11			
	HARMONIC ATTENUATOR ＊6		Complies with IEC61000-3-2 (Class A) No built-in active PFC			
OTHERS	CASE SIZE/WEIGHT		55.9×35.7×109.2mm [2.2×1.4×4.3 inches] (W×H×D) / 230g max			
	COOLING METHOD		Convection			
WARRANTY	WARRANTY ＊4		5 years (subject to the operating conditions)			

＊1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%typ) load.
＊2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.
When the load factor is low (Io=0~20%typ), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.
＊3 Output power derating is required. Refer to "Derating"
＊4 Consult us about details.
＊5 The listed option may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
＊6 Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
＊ All parameters not specially mentioned are measured at ACIN 230V, rated load and 25℃ of ambient temperature.
＊ Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
＊ Parallel operation is not possible with this model.
＊ Acoustic noise may be heard from the power supply when used for pulse load.

External view



Mating connector and terminal of CN1, CN2

I/O Connector		Mating Connector	Terminal	Mfr.
CN1	B2P3-VH	VHR-3N	Reel : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.
CN2	B4P-VH	VHR-4N	Chain : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.

<Pin Assignments>

CN1

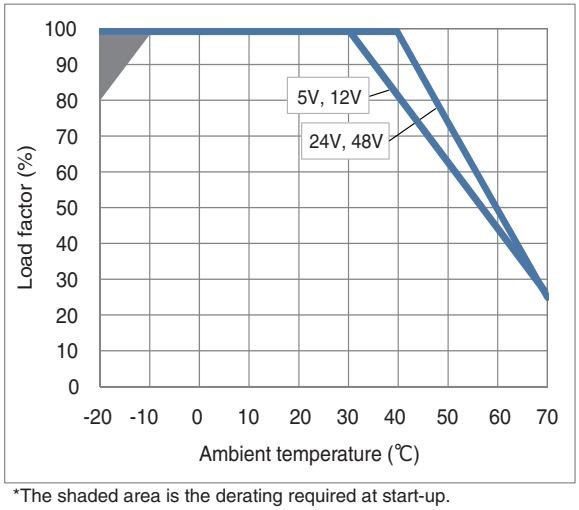
Pin No.	Input
1	AC(N)
2	
3	AC(L)

CN2

Pin No.	Output
1, 2	-V
3, 4	+V

※ Dimensions in mm, [ ] = inches
※ Tolerance : ±1 [±0.04]
※ Weight : 230g max
※ Case material : PBT
※ Maximum current per contact at CN2 is 5A
※ Mounting torque : 0.49N·m max

Derating Curve



*The shaded area is the derating required at start-up.

Fig.1 Derating curve depending on ambient temperature

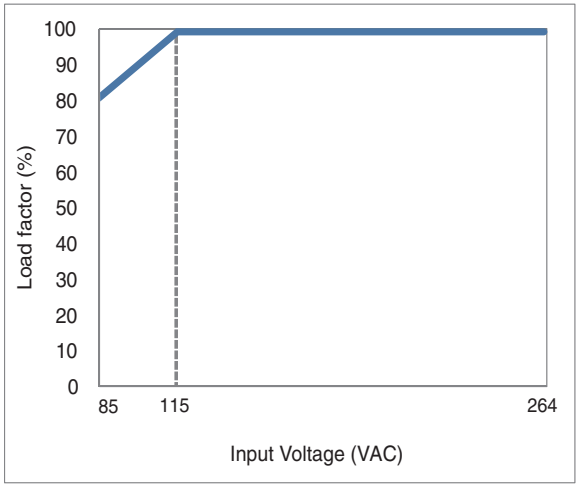
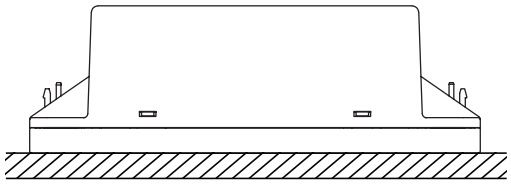


Fig.2 Derating curve depending on input voltage

■The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be inluenced by the heat from the power supply.Please consult us for more details.

Assembling and Installation Method

■When the power supply is used with natural convection cooling, the standard mounting position is horizontal.



Side view

■AC voltage exists on the primary side. Therefore, in order to prevent electric shock, or to meet the leakage current requirements of the safety standard, you need to secure an insulation distance of at least 5mm.

Instruction Manual

■Please read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual https://www.cosel.co.jp/redirect/en/UMCS/
Before using our product https://en.cosel.co.jp/technical/caution/index.html

UMCS NOTICE

Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Parallel operation
						Material	Single sided	Double sided	
UMCS30F	Flyback converter	20 to 125	0.7	250V 2.5A	Thermistor	CEM-3	Yes		No
UMCS60F	Flyback converter	20 to 125	1.4	250V 2.5A	Thermistor	CEM-3/ FR4	Yes	Yes	No