

Medical  
electric  
equipment

World wide

Cost  
EffectiveSafety  
Approvals

EMI

Inrush  
current  
limiting

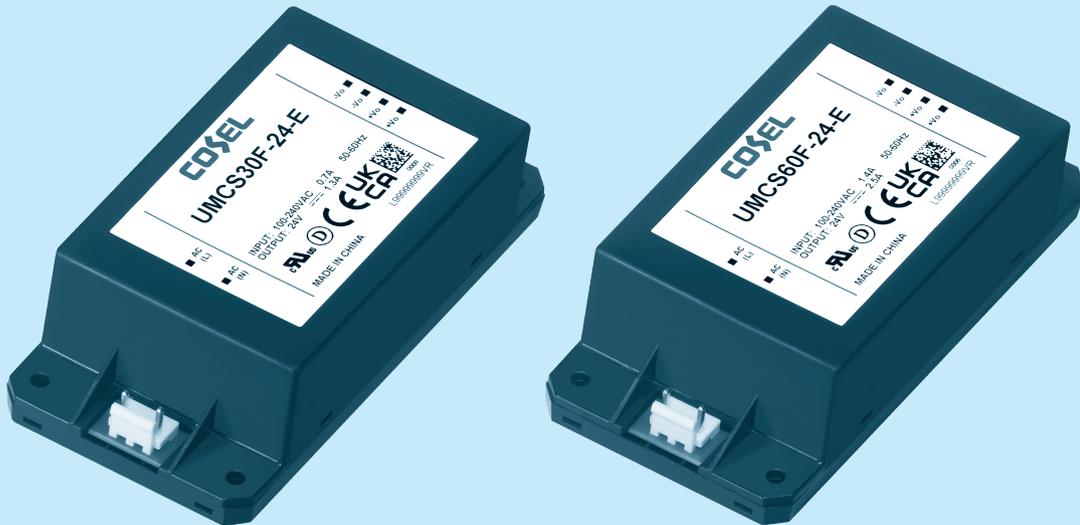
OCP



OVP

# UMCS-series

カタログ、取扱説明書、製品仕様書は英語版のみとなります。



## 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)  
Complies with IEC60335-1

## 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

# UMCS30F

UMC S 30 F - □ - □

① ② ③ ④ ⑤ ⑥



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

□ Class II

\*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[μA]	ACIN 264V	200max				
TOUCH CURRENT[μA]	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 lo=100%	150 (Bandwidth 20MHz)				
	TEMPERATURE REGULATION[mV]	0~+45℃	100max	120max	240max	480max
	START-UP TIME[ms]	ACIN 115V	40typ			
		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/s <sup>2</sup> (2G) , 3minutes period, 60minutes each along X, Y and Z axis				
	IMPACT	196.1m/s <sup>2</sup> (20G) , 11ms, once each X, Y and Z axis				
SAFETY AND EMC	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1, ANSI/AAMI ES60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), EN60601-1 3rd, Complies with IEC60335-1				
	EMC EMISSION	Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B				
	EMC IMMUNITY	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	55.9X35.7X109.2mm [2.2X1.4X4.3 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 (lo=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 (lo=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.

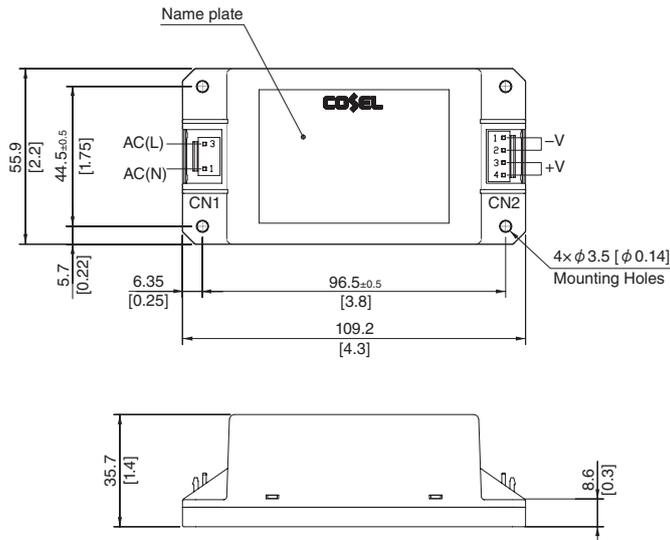
\* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25℃ of ambient temperature.

\* 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

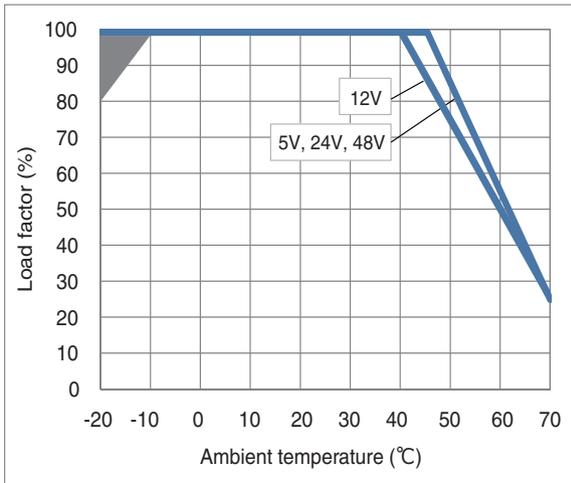
I/O Connector	Mating Connector	Terminal	Mfr.
CN1	B2P3-VH	Reel : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.
CN2	B4P-VH	Chain : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.

<Pin Assignments>

CN1		CN2	
Pin No.	Input	Pin No.	Output
1	AC(N)	1, 2	-V
2		3, 4	+V
3	AC(L)		

- ※ 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

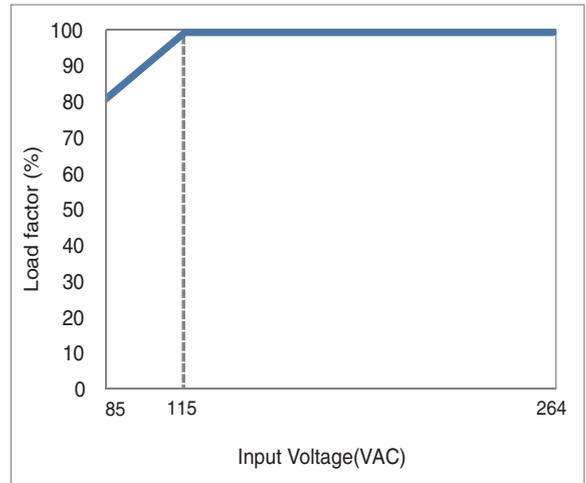


Fig.2 Derating curve depending on input voltage

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

# UMCS60F

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

Class II

\*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

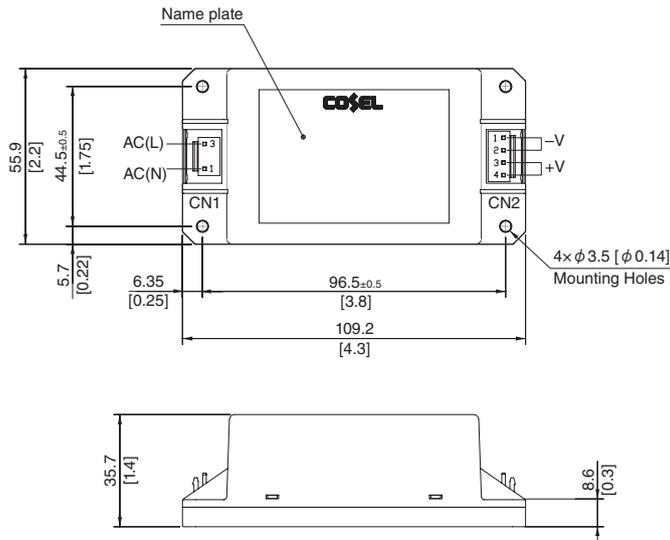
## SPECIFICATIONS

	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[μA]	ACIN 264V	200max				
TOUCH CURRENT[μA]	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 lo=100%	150 (Bandwidth 20MHz)				
	TEMPERATURE REGULATION[mV]	0~+40℃	100max	120max	240max	480max
	START-UP TIME[ms]	ACIN 115V	40typ			
		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/s <sup>2</sup> (2G) , 3minutes period, 60minutes each along X, Y and Z axis				
	IMPACT	196.1m/s <sup>2</sup> (20G) , 11ms, once each X, Y and Z axis				
SAFETY AND EMC	AGENCY APPROVALS	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1, ANSI/AAMI ES60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), EN60601-1 3rd, Complies with IEC60335-1				
	EMC EMISSION	Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B				
	EMC IMMUNITY	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	55.9X35.7X109.2mm [2.2X1.4X4.3 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 (lo=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 (lo=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

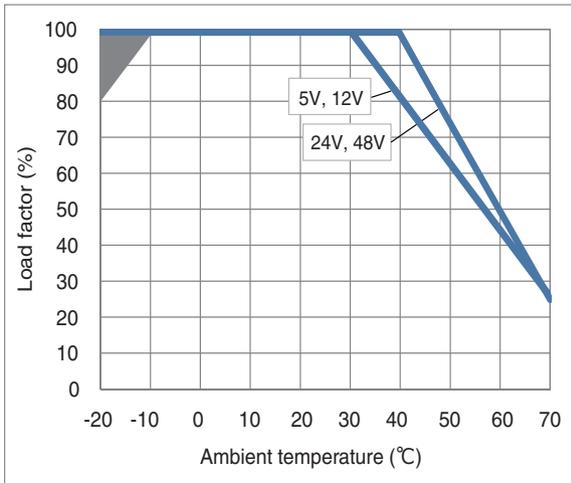
I/O Connector	Mating Connector	Terminal	Mfr.
CN1	B2P3-VH	Reel : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.
CN2	B4P-VH	Chain : SVH-21T-P1.1 Loose piece : BVH-21T-P1.1	J.S.T.

<Pin Assignments>

CN1		CN2	
Pin No.	Input	Pin No.	Output
1	AC(N)	1, 2	-V
2		3, 4	+V
3	AC(L)		

- ※ 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

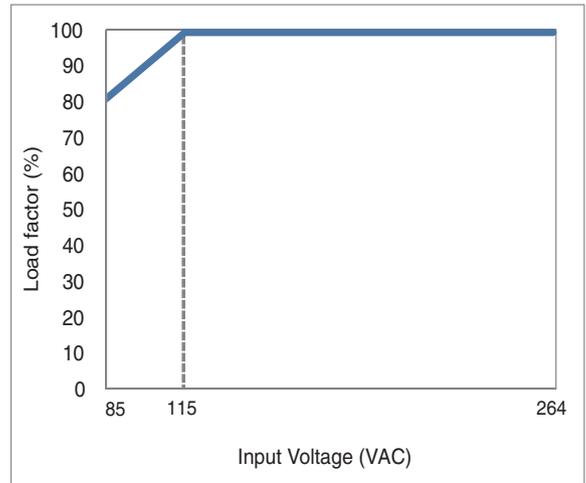
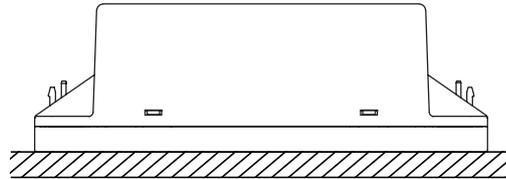


Fig.2 Derating curve depending on input voltage

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced 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.

## 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