

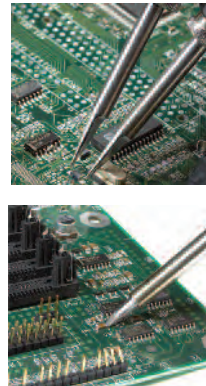
MFR-2200 Series Dual Output

Simultaneous Soldering & Rework Systems



The MFR-2200 Series features dual output capability allowing users to select operation of one hand-piece or two hand-pieces **simultaneously**.

The MFR-2200 Systems below offer a choice of three hand-pieces, however two additional hand-pieces including the desoldering option are also available as upgrade kits (see pages 22 & 25).



Systems	MFR-PS2200 Power Supply	MFR-H1-SC2 Soldering Cartridge Hand-piece	MFR-H2-ST2 Soldering Tip Hand-piece	MFR-H4-TW Tweezer Hand-piece	WS1 Universal Soldering Workstand	MFR-WSPT Tweezer Workstand
Picture Reference		1	2	3		
MFR-2210	1	1			1	
MFR-2220	1		1		1	
MFR-2240	1			1		1
MFR-2211	1	2			2	
MFR-2222	1		2		2	
MFR-2241	1	1		1	1	1

NEW STYLE MFR Tip and Cartridge Hand-pieces.



**Slimmer grip for added
comfort and handling.**



MFR-1100 Series Single Output Soldering & Rework Systems



The MFR-1100 Single Output Series is designed to minimize your training investment, maximize application solutions and increase productivity.

This Series is compact and **versatile** and can be used with either a soldering tip, cartridge or tweezers hand-piece. A shop air desoldering option is also available as an upgrade kit (see pages 22 & 25).



Systems	MFR-PS1100 Power Supply	MFR-H1-SC2 Soldering Cartridge Hand-piece	MFR-H2-ST2 Soldering Tip Hand-piece	MFR-H4-TW Tweezer Hand-piece	MFR-H6-SSC SSC Cartridge Hand-piece	WS1 Soldering Workstand	MFR-WSPT Tweezer Workstand	WS2 Soldering Workstand
Picture Reference		1	2	3	4	5		6
MFR-1110	1	1				1		
MFR-1120	1		1			1		
MFR-1140	1			1			1	
MFR-1160	1				1			1
MFR-1161	1	1			1	1		1

Note: The MFR-1160 replaces the Metcal SP200 Soldering System. The MFR-H6-SSC hand-piece accepts the same SSC cartridges.

SxP
Soldering Cartridges

RxP
Rework Cartridges

Full range on pages 29-30

SxV
Soldering Tips

CxV
Blade Tips

Full range on pages 26-27

TxP
Tweezer Cartridges

Full range on page 31

SSC
Soldering Cartridges
(Previous SP200 System)

Full range on page 17

MFR-1100 & MFR-2200 Series

Soldering & Rework Systems



MFR-2200 and MFR-1100 series



MFR-2200, MFR-1100 and MFR-1300 series (shown on page 14)

Key Features & Benefits

- ▶ SmartHeat® Technology provides exceptional power for high thermal demand applications
- ▶ Single or Dual simultaneous outputs allow for single or dual hand-piece use
- ▶ Five hand-pieces available for increased application solutions for soldering, desoldering (upgrade kit) and rework on one system
- ▶ Each hand-piece has a comprehensive range of cartridges or tips for maximum flexibility
- ▶ Ergonomic hand-pieces for operator safety and comfort

Other Accessories Available:

MFR-CA3	Coil Assembly for Tip Hand-piece (MFR-H2-ST2)
WS1G	Auto-sleep Workstand, Green
MFR-PM70	Power Meter
AC-CP2	Cartridge / Tip Removal Pad
AC-BP	Brass Pad (for Workstand) - Pack of 10

Technical Specifications

Power Supply	MFR-1100	MFR-2200
Ambient Operating Temperature	10 - 40°C (50°F - 104°F)	10 - 40°C (50°F - 104°F)
Maximum Enclosure Temperature	55°C (131°F)	55°C (131°F)
Input Line Voltage	100 - 240 VAC	100 - 240 VAC
Power Consumption	70 Watts maximum	130 Watts maximum
Input Line Frequency	50/60 Hz grounded circuit *	50/60 Hz grounded circuit *
Output Power	60 Watts at 22°C *	60 Watts at 22°C per output (2 outputs)*
Output Frequency	450 KHz	450 KHz
Power Cord (3-wire)	183 cm 18/3 SJT	183 cm 18/3 SJT
Dimensions (approx.) W x D x H	90mm (3.5") x 142mm (5.6") x 197mm (7.8")	170mm (7") x 200mm (8") x 152.5mm (6")
Weight	2.3kg (5.05 lbs)	2.97 kg (6.55 lbs)
Surface Resistivity	10 ⁵ -10 ⁹ Ohms	10 ⁵ -10 ⁹ Ohms
Certification / Marking	cTUVus, CE	cTUVus, CE

Soldering Handle and Coil Assembly

Tip-to-Ground Potential	< 2 mV RMS	< 2 mV RMS
Tip-to-Ground Resistance	<2 ohms	<2 ohms
Idle Temperature Repeatability	± 1.1°C (2°F) in still air	± 1.1°C (2°F) in still air
Handle Cord Assembly Length	122 cm – burn proof, ESD safe	122 cm – burn proof, ESD safe
Connector	8-pin circular DIN	8-pin circular DIN
Workstand W x D x H	100 mm (4") x 200 mm (8") x 100 mm (4")	100 mm (4") x 200 mm (8") x 100 mm (4")
Workstand Weight	0.69 kg (1.51 lbs)	0.69 kg (1.51 lbs)

* RF SmartHeat Technology provides greater power. More details at www.metcal.com/smartheat

MFR-1150 Single Output

Soldering & Desoldering Systems with Venturi

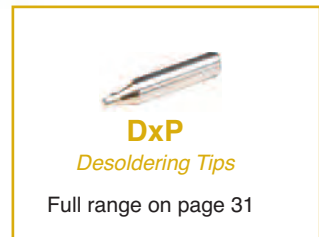
The MFR-1150 Desolder System with Venturi Workstand provides a compact and easy **shop air option**.

Key Features & Benefits

- ▶ Venturi workstand
- ▶ 2 in 1 Desolder hand-piece (Pistol or Pencil)
- ▶ **MFR-H5-DS & MFR-WSDSX are compatible for use with all MFR systems (available under MFR-UK5 upgrade kit)**
- ▶ Uses DxD desolder cartridges and replaceable coil assembly (MFR-HDCA)



Part No.	Description
MFR-1150	Complete System
<i>Includes:</i>	
MFR-PS1100	Power Supply
MFR-H5-DS	Desolder hand-piece
MFR-WSDSX	Workstand with venturi box for desolder hand-piece
MFR-FTKIT	Fittings and air hose kit
AC-TC	Desolder tip cleaner tool



Technical Specifications

	MFR-PS1100 Power Supply
Input Line Voltage	100-240 VAC
Power Consumption	70 Watts max.
Input Line Frequency	50/60Hz *
Output Power	60 Watts Max *
Output Frequency	450 KHz
Dimensions W x D x H	90mm x 200mm x 152.5mm (3.5" x 8" x 6")

* RF SmartHeat Technology provides greater power. More details at www.metcal.com/smartheat



Collection chamber replacement

	MFR-1150 System
Idle Tip temperature stability	+/- 1.1°C (2°F) in still air
Ambient Operating Temperature	10 - 40°C (50 - 104°F)
Maximum Enclosure Temperature	55°C (131°F)
Tip to ground Potential	<2mV
Tip to ground resistance	<2 Ohms
Surface resistivity	10 ⁵ – 10 ⁹ Ohm
Approvals	cTUVus, CE



Remove grip for Pencil config.



MFR-UK5 Upgrade Kit
Compatible with all MFR Series Power Supplies

	MFR-H5-DS Desolder Hand-piece
Power Cord (3-wire)	183cm (72")
Solder Hand-piece cable length	152 cm (60"), burn proof, ESD safe
Hand piece connector	8 pin power connector

	MFR-WSDSX Workstand
Input voltage	24V
Input power	15W
Workstand dimensions	100mm x 200mm x 140mm (4" x 8" x 5.5")
Noise level	< 55 dB
Recommended Air pressure input	550kPa (80PSI) - Shop air only
Vacuum suction force	0.85 bar (25" Hg)

MFR-1300 Dual Switchable Output Soldering & Desoldering Systems with Internal Air

The MFR-1300 Desoldering and Rework System features a innovative desoldering hand-piece and a power supply with an **internal pump** providing 0.7 bar of vacuum suction force making through-hole desoldering easy.

Key Features & Benefits

- ▶ Self-contained powerful vacuum pump
- ▶ 2 in 1 ergonomic and flexible hand-piece
- ▶ Recyclable collection chamber with increased capacity
- ▶ Quick and easy change collection chamber
- ▶ Dual switchable output
- ▶ Powered by Smartheat® Technology
- ▶ Compatible with previous MFR Desolder range



Part No.	Description
MFR-1350	Desolder System with Internal Pump*
MFR-1351	Solder / Desolder System with Internal Pump**
<i>Includes:</i>	
MFR-PS1300	Power Supply
MFR-H5-DS	Desolder hand-piece*
MFR-H1-SC2	Solder Cartridge hand-piece*
MFR-WSDSU	Workstand for Desolder hand-piece*
WS1	Workstand for Solder hand-piece*



Technical Specifications

	MFR-1350/51
Input Line Voltage	100-240 VAC
Input Line Frequency	50/60Hz
Power Consumption	110 Watts max. (Power Supply MFR-PS1300)
Output Power	60 Watts Max *
Output Frequency	450 KHz *
Idle Tip temperature stability	+/- 1.1°C (2°F) in still air
Ambient Operating Temperature	10 - 40°C (50 - 104°F)
Maximum Enclosure Temperature	55°C (131°F)
Noise level	< 55 dB
Vacuum suction force	0.7 bar (21in Hg at Vacuum pump at sea level)
Power Cord (3-wire)	183cm (72")
Desolder Hand-piece cable length	152 cm (60"), burn proof, ESD safe
Solder Hand-piece cable length	122 cm (48"), burn proof, ESD safe
Hand piece connector	8 pin power connector
Tip to ground Potential	<2mV
Tip to ground resistance	<2 Ohms
Surface Resistivity	10 ⁵ – 10 ⁹ Ohms
Approvals	cTUVus, CE
Dimensions (approx.) W x D x H	170mm x 200mm x 152.5mm (7" x 8" x 6")
Workstand dimensions	100mm x 200mm x 100mm (4" x 8" x 4")

* RF SmartHeat Technology provides greater power. More details at www.metcal.com/smartheat



Pencil



Pistol

Accessories and Spare Parts

For MFR and PS Series



Hand-pieces and replacement coils

PS-HC3		Soldering Handle with PS-CA3 Coil Assembly (PS-900)
PS-H3	1	Soldering Handle without Coil Assembly (PS-900)
PS-CA3	2	Coil Assembly for PS-HC3 / PS-H3 Hand-piece (PS-900)
MFR-H1-SC2	3	Cartridge Solder / Rework Hand-piece (MFR)
MFR-H2-ST2	4	Tip Solder Hand-piece (MFR)
MFR-CA3		Coil Assembly for MFR-H2-ST2 Hand-piece (MFR)
MFR-H4-TW	5	Precision Tweezer Hand-piece (MFR)
MFR-H6-SSC	6	SSC Cartridge Solder Hand-piece (MFR)
MFR-H5-DS	7	Desolder Hand-piece
MFR-HSREC		Cartridge Solder / Rework Hand-piece with long cord (1.83m / 6ft)
MFR-HSRLR	8	Cartridge Solder / Rework Hand-piece with long reach access

Workstands

WS1		Universal Auto Sleep Workstand
WS2		Round Auto Sleep Workstand
WS2-NS	9	Solder Workstand (PS-900)
MFR-WSPT	10	Non Sleeper Precision Tweezer Workstand
MFR-WSDSX	11	Venturi Workstand for Desolder Hand-piece
MFR-WSDSU		Non Sleeper Workstand for Desolder Hand-piece
WS1CB		Solder Rework Cradle Replacement for WS1 Workstand
WS2CB		Solder Rework Cradle Replacement for WS2 Workstand
MFR-WSDSCB		Replacement cradle for all MFR Desolder Workstands * for all rectangular MFR workstands

Upgrade Kits

MFR-UK1		Solder Cartridge Hand-piece (MFR-H1-SC2) and Workstand (WS1)
MFR-UK2		Solder Tip Hand-piece (MFR-H2-ST2) and Workstand (WS1)
MFR-UK4		Tweezer Cartridge Hand-piece (MFR-H4-TW) and Workstand (MFR-WSPT)
MFR-UK5		Desolder Hand-piece (MFR-H5-DS) and Workstand (MFR-WSDSX)
MFR-UK6		Solder Cartridge Hand-piece (MFR-H6-SSC) and Workstand (WS2)
MFR-H5-DS-C		Desolder Hand-piece (MFR-H5-DS) and Workstand cradle (MFR-WSDSCB)



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Lead-Free Process Identification

WS1G	12	Green Universal Auto Sleep Workstand
WS2G		Green Solder Workstand (PS-900)
WS1CG		Green Solder Rework Cradle Replacement for WS1 Workstand
WS2CG		Green Solder Rework Cradle Replacement for WS2 Workstand
AC-CK1	13	Green Identification Ring for OKI Cartridges (Pack of 50)
AC-CK3		Green Identification Ring for SSC Cartridges (Pack of 50)
AC-CK4	14	Green Identification Ring for OKI Tips (Pack of 50)

Miscellaneous Accessories

AC-BRUSH	15	Soft Brass Brush
AC-CP2		Cartridge and Tip Removal Pad
AC-FX1	16	Fume Extraction Kit
AC-IK		Interlocking / Mounting Kit
MFR-PM70		Power Meter for MFR Series
PS-PM900		Power Meter for PS-900
AC-Y10		Yellow Sponge for WS1 Workstand (Pack of 10)
AC-YS4		Yellow Sponge Round for WS2 Workstand (Pack of 10)
AC-BP		Brass Pad (Pack of 10)

Desoldering Accessories

MFR-DC10	17	Disposable Collection Chamber for MFR-H5-DS (pack of 10)
MFR-DC100		Disposable Collection Chamber for MFR-H5-DS (pack of 100)
MFR-HDCA	18	Coil Assembly for MFR Desolder Hand-piece
MFR-PG		Replacement Pistol grip for MFR-H5-DS Hand-piece
AC-SK1		Seal Kit Collection Chamber (pack of 2)
AC-VP		Vacuum Port
AC-VL		ESD Air Hose
AC-VPF		Vacuum Port Filter (pack of 5)
LM-PS		Power supply for MFR-WSDSX with multi plug adapters
AC-TC		Desoldering Tip Cleaner Tool

SxP Soldering & Rework Cartridges



SxP SOLDERING & REWORK CARTRIDGES

Compatible with: MFR-1110, MFR-1161, MFR-1351, MFR-2211, MFR-2241 Systems and MFR-H1-SC hand-piece

CHISEL		SFP-CH10 STP-CH10 SCP-CH10	CONICAL		SFP-CN04 STP-CN04 SCP-CN04		
		SFP-CH15 STP-CH15 SCP-CH15			SFP-CNB04 STP-CNB04 SCP-CNB04		
		SFP-CHB15 STP-CHB15 SCP-CHB15			SFP-CNL04 STP-CNL04 SCP-CNL04		
		SFP-CH20 STP-CH20 SCP-CH20			SFP-CN05 STP-CN05 SCP-CN05		
		SFP-CHL20 STP-CHL20 SCP-CHL20			SFP-CNB05 STP-CNB05 SCP-CNB05		
		SFP-CH25 STP-CH25 SCP-CH25			SFP-CNL06 SCP-CNL06		
		SFP-CH30 STP-CH30 SCP-CH30		BEVEL		SFP-BVL10 STP-BVL10 SCP-BVL10	
		SFP-CH35 STP-CH35 SCP-CH35			HOOF		SFP-DRH05 STP-DRH05 SCP-DRH05
		SFP-CH50 STP-CH50 SCP-CH50					SFP-DRH610 STP-DRH610 SCP-DRH610
	HOOF				STP-WV20 SFP-WV20 SCP-WV20		SFP-DRH15 STP-DRH15 SCP-DRH15
		STP-WV30 SFP-WV30 SCP-WV30		SFP-DRH615 STP-DRH615 SCP-DRH615			
				SFP-DRH35 STP-DRH35 SCP-DRH35			
			KNIFE		SFP-DRK50 STP-DRK50 SCP-DRK50		

F = FR4 / Fiberglass, for most standard applications T = Temperature Sensitive C = Ceramic for high thermal demand applications.

RxP Rework Cartridges

Compatible with: MFR-1110, MFR-1161, MFR-1351, MFR-2211, MFR-2241 Systems, MFR-H1-SC and MFR-H1-SC2 hand-pieces. All dimensions shown are in mm (inches)

RxP REWORK CARTRIDGES								
BLADE			A	B	D	SMT TYPE		
		RFP-BL1 RCP-BL1	10 (0.41)	-	-	-		
		RFP-BL2 RCP-BL2	15.6 (0.62)	-	-	-		
TUNNEL		RFP-DL1 RCP-DL1	5.18 (0.204)	10.16 (0.40)	3.22 (0.127)	Tunnel SOIC-14-16		
		RFP-DL2 RCP-DL2	5.18 (0.204)	4.32 (0.17)	2.29 (.09)	Tunnel SOIC-8		
		RFP-DL3 RCP-DL3	6.86 (.270)	11.15 (0.44)	2.29 (.09)	Tunnel SOIC-16		
SLOT		RFP-SL1 RCP-SL1	2.34 (.092)	1.37 (.054)	1.78 (.07)	0805 Chip Package		
		RFP-SL2 RCP-SL2	3.48 (.137)	1.63 (.064)	1.78 (.07)	1206 Chip Package		
QUAD		RFP-QD4 RCP-QD4	12.70 (.500)	11.43 (.450)	3.81 (.150)	15.24 (.600)	13.97 (.550)	PLCC 32
		RFP-QD6 RCP-QD6	17.78 (.700)	16.76 (.660)	3.81 (.150)	17.78 (.700)	16.76 (.660)	PLCC 44
		RFP-QD7 RCP-QD7	25.27 (.995)	24.38 (.960)	5.59 (.220)	25.27 (.995)	24.38 (.960)	PLCC 68
		RFP-QD10 RCP-QD10	20.32 (.800)	19.30 (.760)	3.81 (.150)	20.32 (.800)	19.30 (.760)	PLCC 52
		RFP-QD15 RCP-QD15	13.34 (.525)	12.32 (.485)	2.79 (.110)	13.34 (.525)	12.32 (.485)	TQFP 80
		RFP-QD19 RCP-QD19	16.13 (.635)	16.13 (.635)	3.30 (.130)	16.13 (.635)	16.13 (.635)	QFP 44
		RFP-QD20 RCP-QD20	16.51 (.650)	16.51 (.650)	3.30 (.130)	22.48 (.885)	22.48 (.885)	QFP 100

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TxP Tweezer Cartridges

DxP Desoldering Tips

Compatible with: MFR-1140, MFR-2240, MFR2241 Systems and MFR-H4-TW hand-piece

TxP Tweezer Cartridges		Compatible with: MFR-1140, MFR-2240, MFR2241 Systems and MFR-H4-TW hand-piece	
BLADE		TFP-BLP1 TTP-BLP1 TCP-BLP1	1.0mm x 14mm (.04" x .55")
		TFP-BLP2 TTP-BLP2 TCP-BLP2	2.0mm x 14mm (.08" x .55")
		TFP-CNP1 TTP-CNP1 TCP-CNP1	Conical 0.4mm x 19.1mm (.015" x .75")
HEAVY DUTY			A
		TFP-BLH40 TTP-BLH40 TCP-BLH40	6.35mm (.25")
		TFP-BLH50 TTP-BLH50 TCP-BLH50	16mm (.62")
		TFP-BLH60 TTP-BLH60 TCP-BLH60	20.5mm (.81")
		TFP-BLH70 TTP-BLH70 TCP-BLH70	28mm (1.1")

Compatible with: MFR-1150, MFR-1350, MFR-1351 systems with MFR-H5-DS hand-piece and previous MFR-DSX, -DSI, -SDX, -SDI Systems with MFR-HDS hand-piece.
All dimensions shown are in mm (inches)

DxP Desoldering Tips		Compatible with: MFR-1150, MFR-1350, MFR-1351 systems with MFR-H5-DS hand-piece and previous MFR-DSX, -DSI, -SDX, -SDI Systems with MFR-HDS hand-piece. All dimensions shown are in mm (inches)		
		A	B	TYPE
	DFP-CN2	0.64	1.78	Standard
	DCP-CN2	(.025)	(.070)	
	DFP-CN3	0.76	2.03	Standard
	DCP-CN3	(.030)	(.080)	
	DFP-CN4	1.02	2.28	Standard
	DCP-CN4	(.040)	(.090)	
	DFP-CN5	1.27	2.64	Standard
	DCP-CN5	(.050)	(.104)	
	DFP-CN6	1.52	2.84	Standard
	DCP-CN6	(.060)	(.112)	
	DFP-CN7	2.41	3.63	Standard
	DCP-CN7	(.095)	(.143)	
	DFP-CNL3	0.76	2.03	Long Reach
	DCP-CNL3	(.030)	(.080)	
	DFP-CNL4	1.02	2.28	Long Reach
DCP-CNL4	(.040)	(.090)		
DFP-CNL5	1.27	2.64	Long Reach	
DCP-CNL5	(.050)	(.104)		

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