

# Maxstar® 210 Series

TIG/Stick Welding  
Power Source



## Quick Specs



### Industrial Applications

Precision Fabrication  
Petro Chemical  
Aerospace  
Food/Beverage Industry  
Dairy  
Shipboard

### Processes

DC TIG (GTAW)  
Pulsed TIG (GTAW-P)  
except STR model  
Stick (SMAW)

**Input Power** 120–480 V, 1-Phase or 3-Phase Power

**Amperage Range** 1–210 A (DC)

**Rated Output** 210 A at 18 V, 60% Duty Cycle

**Net Weight** STR: 36 lb. (16.3 kg)  
Base/DX: 38 lb. (17.2 kg)



Maxstar 210 STR

Maxstar 210



Maxstar 210 DX

**Update and expand.** Front panel memory card data port provides the ability to easily update software and expand product features. See memory cards on page 7. Visit [MillerWelds.com/TIGSoftware](http://MillerWelds.com/TIGSoftware) for the latest software updates and expansions.

**Pro-Set™** eliminates the guesswork when setting weld parameters. Use Pro-Set when you want the speed, convenience and confidence of preset controls. Simply select the feature and adjust until Pro-Set appears on the display.

**Sleep timer** conserves electricity. This programmable feature will power down the machine if it sits idle for a specified time.



Allows for any input voltage hookup (120–480 V) with no manual linking, providing convenience in any job setting. Ideal solution for dirty or unreliable power.

**Blue Lightning™** high-frequency (HF) arc starter for non-contact arc initiation. Provides more consistent arc starts and greater reliability compared to traditional HF arc starters. Base and DX models only.

**Meter calibration** allows digital meters to be calibrated for certification.

**Wind Tunnel Technology™** protects internal electrical components from airborne contaminants, extending the product life.

**Fan-On-Demand™** power source cooling system operates only when needed, reducing noise, energy use and the amount of contaminants pulled through the machine.

## DC TIG Features

**Pulse.** Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion. Base and DX models only. DX models provide extended ranges.

**Exceptionally smooth** and precise arc for welding exotic materials.

## DC Stick Features

**Dual schedule** allows operators to switch welding parameters for specific electrodes without readjusting the machine, minimizing downtime and enhancing quality. STR model only.

**DIG** control allows the arc characteristics to be changed for specific applications and electrodes. Lower the DIG setting for smooth running electrodes like E7018 and increase the DIG setting for stiffer, more penetrating electrodes like E6010.

**Hot Start™** adaptive control provides positive arc starts without sticking. Base and DX models only.

**Stick-Stuck** detects if the electrode is stuck to the part and turns the welding output off to safely and easily remove the electrode. Menu selectable.



Power source is warranted for 3 years, parts and labor.



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# Specifications (Subject to change without notice.)



Welding Mode	Input Power	Welding Amperage Range	Rated Output	Phase	Amps Input at Rated Load Output, 50/60 Hz							Max. Open-Circuit Voltage	Dimensions	Net Weight
					120 V	208 V	240 V	400 V	480 V	KVA	KW			
TIG (GTAW)	208–480 V	1–210 A	210 A at 18.4 V, 60% duty cycle	3-phase	—	14	12	7	6	5.2	4.9	80 VDC (11 VDC*)	H: 13.6 in. (346 mm) W: 8.6 in. (219 mm) D: 19.5 in. (495 mm)	STR: 36 lb. (16.3 kg) Base/DX: 38 lb. (17.2 kg)
	120 V	1–210 A	125 A at 15 V, 60% duty cycle	1-phase	—	24	20	12	10	4.9	4.9			
Stick (SMAW)	208–480 V	5–210 A	160 A at 26.4 V, 60% duty cycle	3-phase	—	15	13	8	6	5.5	5.2			
	120 V	5–100 A	90 A at 23.6 V, 60% duty cycle	1-phase	—	26	22	13	11	5.3	5.3			
	208–480 V	5–210 A	160 A at 26.4 V, 60% duty cycle	3-phase	—	15	13	8	6	5.5	5.2			
	120 V	5–100 A	90 A at 23.6 V, 60% duty cycle	1-phase	23	—	—	—	—	2.8	2.8			

\*Low OCV sense voltage for Stick and Lift-Arc™ TIG.

**IP23 rating** — This equipment is designed for outdoor use. It may be stored, but is not intended to be used outside during precipitation unless sheltered.

Operating temperature range is 14 to 104°F (-10 to 40°C). Storage temperature range is -22 to 149°F (-30 to 65°C). Portions of the preceding text are contained in EN 60974-1: "Welding power sources for arc welding equipment."

Certified by Canadian Standards Association to both the Canadian and U.S. Standards. All CE models conform to the applicable parts of the IEC 60974 series of standards.

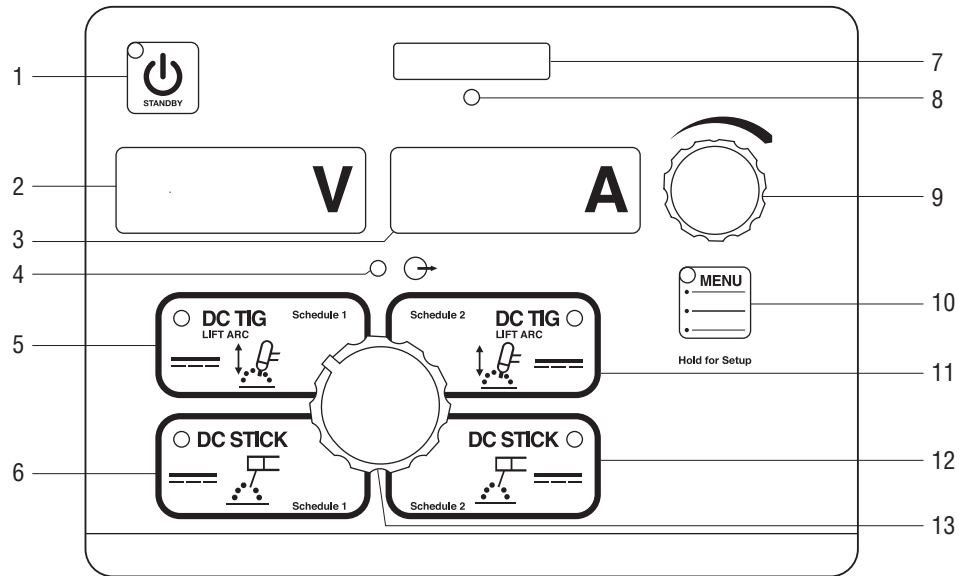
## Performance Data

Input Power	TIG (GTAW) Duty Cycle	Stick (SMAW) Duty Cycle	DC TIG Material Thickness Range	Stick Electrode Maximum Diameter	Generator Requirement
208–480 V	210 A, 60% 175 A, 100%	210 A, 30% 160 A, 60% 125 A, 100%	STR: 0.025–1/4 in. (0.06–6.4 mm) Base/DX: 0.002–1/4 in. (0.05–6.4 mm)	6010: 3/16 in. (4.8 mm) 7018: 5/32 in. (4.0 mm) 7024: 5/32 in. (4.0 mm)	9 kW
120 V	150 A, 40% 125 A, 60% 100 A, 100%	100 A, 40% 90 A, 60% 75 A, 100%			

## TIG Upgrade Chart

Why Upgrade?	Maxstar 210 STR	UPGRADE	Maxstar 210	UPGRADE	Maxstar 210 DX	Upgrade Benefits
<b>Amperage Range</b>	10–210 A	➔	1–210 A	➔	1–210 A	Base and DX models offer wider range and improved low-amperage performance.
<b>Arc Starting</b>	Lift-Arc™ Only	➔	Lift-Arc™ or Blue Lightning™ HF	➔	Lift-Arc™ or Blue Lightning™ HF	Base and DX models provide the ability of non-contact arc starting.
<b>Internal Shielding Gas Valve</b>	No	➔	Yes	➔	Yes	Base and DX models control flow of shielding gas for TIG welding.
<b>Pulsar</b>	No	➔	Easy pulse with Pro-Set™, Off–250 PPS	➔	Full featured with Pro-Set™, Off–500 PPS	Higher speed pulse provides better arc control and faster travel speeds.
<b>Sequencer</b>	No	➔	No	➔	Yes	Improves repeatability on similar parts.

# Maxstar® 210 STR Control Panel



**1. Standby Switch**

**2. Voltmeter Display**

**3. Ammeter Display**

**4. Output Contactor "On" Indicator**

**5. DC TIG (Lift-Arc Schedule 1) Process Menu Parameters**

Amperage 10–210 A

**6. DC Stick (Schedule 1) Process Menu Parameters**

Amperage 10–210 A

DIG Off–100%

**7. Memory Card Port**

**8. Activity Indicator**

**9. Encoder Control**

**10. Menu Button**

**11. DC TIG (Lift-Arc Schedule 2) Process Menu Parameters**

Amperage 10–210 A

**12. DC Stick (Schedule 2) Process Menu Parameters**

Amperage 10–210 A

DIG Off–100%

**13. Process Selector**

## User Menu (Hold Menu button three seconds.)

### DC TIG (Lift-Arc)

1. Remote Trigger = OUTPUT ON/STD

### DC Stick (Schedule 1 and 2)

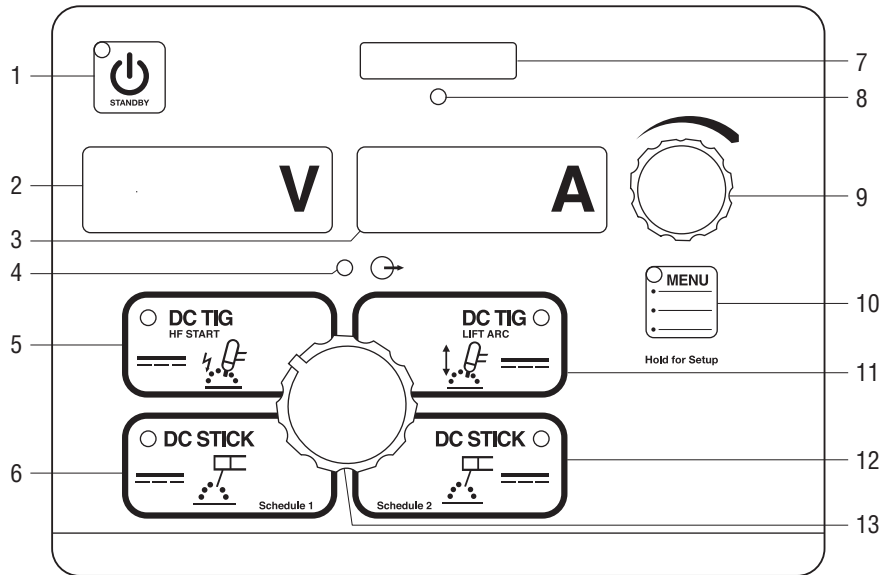
1. Remote Trigger = OUTPUT ON/STD

## Tech Menu (Hold Menu button five seconds.)

1. Arc Time 0.0–9999 hours  
0.0–59 minutes  
0–999,999 cycles  
Resettable

2. Error Log = Error event recorder  
3. Sleep Timer = 1/5/10/15/30/45MIN/1HR  
4. Stick Stuc = OFF/ON  
5. OCV = LOW/NORM  
6. Machine Reset  
7. Software Number  
8. Serial Number

# Maxstar® 210 Control Panel



## 1. Standby Switch

## 2. Voltmeter Display

## 3. Ammeter Display

## 4. Output Contactor "On" Indicator

## 5. DC TIG (HF Start) Process Menu Parameters

Amperage	1–210 A**
Pulse*	Off–250 PPS
Postflow	Auto/Off–50 seconds

## 6. DC Stick (Schedule 1) Process Menu Parameters

Amperage	5–210 A
DIG*	Off–100%

## 7. Memory Card Port

## 8. Activity Indicator

## 9. Encoder Control

## 10. Menu Button

## 11. DC TIG (Lift-Arc) Process Menu Parameters

Amperage	1–210 A**
Pulse*	Off–250 PPS
Postflow	Auto/Off–50 seconds

## 12. DC Stick (Schedule 2) Process Menu Parameters

Amperage	5–210 A
DIG*	Off–100%

## 13. Process Selector

\*Pro-Set parameter selectable. \*\*Amperage range is tungsten size dependent.

## User Menu (Hold Menu button three seconds.)

### DC TIG (HF Start)

1. Tungsten Size = .020–1/8 in. or .05–3.2 mm
2. Remote Trigger = STD/HOLD/OUTPUT ON

### DC TIG (Lift-Arc)

1. Tungsten Size = .020–1/8 in. or .05–3.2 mm
2. Remote Trigger = STD/HOLD/OUTPUT ON

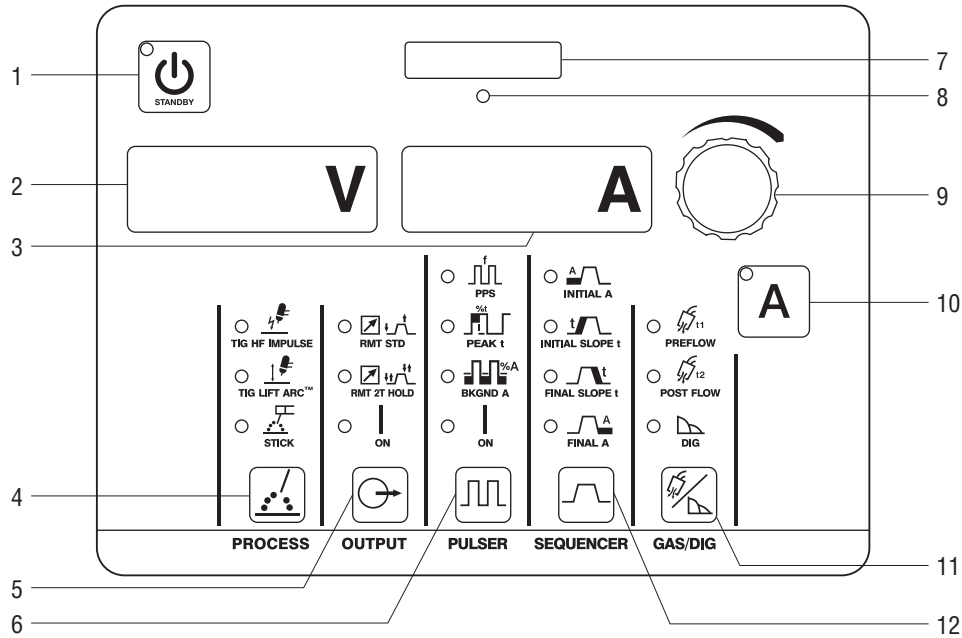
### DC Stick (Schedule 1 and 2)

1. Hot Start = ON/OFF
2. Remote Trigger = OUTPUT ON/STD

## Tech Menu (Hold Menu button five seconds.)

1. Arc Time = 0.0–9999 hours  
0.0–59 minutes  
0–999,999 cycles  
Resettable
2. Error Log = Error event recorder
3. Sleep Timer = 1/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Machine Reset
7. Software Number
8. Serial Number

# Maxstar® 210 DX Control Panel



## 1. Standby Switch

## 2. Voltmeter Display

## 3. Ammeter Display

## 4. Process/ Arc Starting

TIG: HF Impulse, Lift-Arc  
STICK: Adaptive Hot Start

## 5. Output Control

Standard Remote,  
2T Trigger Hold,  
Output ON

## 6. Pulser Control

Pulses per Second\* DC: 0.1–500 PPS  
Peak Time\* 5–95%  
Background Amps\* 5–95%

## 7. Memory Card Port

## 8. Activity Indicator

## 9. Encoder Control

## 10. Amperage Button

TIG 1–210 A\*\*  
Stick 5–210 A

## 11. Gas/DIG

Preflow 0.0–25.0 seconds  
Postflow Auto/Off–50 seconds  
DIG\* Off–100%

## 12. Sequencer Control

Initial Amps 1–210 A\*\*  
Initial Slope 0.0–25.0 seconds  
Weld Time 0.0–999 seconds  
Final Slope 0.0–25.0 seconds  
Final Amps 1–210 A\*\*

\*Pro-Set parameter selectable. \*\*Amperage range is tungsten size dependent.

## User Menu (Press Gas and Amperage buttons.)

1. Tungsten Size = .020–1/8 in./GEN or .05–3.2 mm
2. Remote Trigger = 2T/3T/4T/4TL/4TLE
3. Stick Hot Start = ON/OFF

## Tech Menu (Hold Gas and Amperage buttons three seconds.)

1. Arc Time 0.0–9999 hours  
0.0–59 minutes  
0–999,999 cycles  
Resettable
2. Error Log = Error event recorder
3. Sleep Timer = 1/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Weld Timers = OFF/ON
7. Locks = OFF/1–4
8. Meter Display
9. External Pulse Control = OFF/ON
10. Machine Reset
11. Software Number
12. Serial Number

# Maxstar® 210 Models/Packages

## Build an Air-Cooled Package

Select desired stock number for each step.



#907 683  
Maxstar 210 shown.



#301 311  
Contractor Kit shown.

Step #1 • Select Maxstar		Step #2 • Select Cable Set/TIG Torch/Regulator OR Contractor Kit	
<b>Select One</b> Maxstar 210 STR #907 682 Maxstar 210 #907 683 Maxstar 210 DX #907 684		<b>For Maxstar 210 STR Only — Select All (Cable Set/TIG Torch/Regulator)</b> No. 2 Stick Cable Set #195 196 Weldcraft A-150V (WP-17) TIG Torch #WP-17V-25-2 Flow Gauge Argon Regulator #31-50-580	
		<b>For Maxstar 210 OR 210 DX — Select One</b> Foot Control Contractor Kit #301 309 Fingertip Control Contractor Kit #301 311	
Maxstar comes with adjustable shoulder strap, 8-ft. power cord (no plug) and two 50-mm Dinse-style connectors.		See page 7 for descriptions and kit contents.	

## Build a Water-Cooled Package

Select desired stock number for each step.



#907 683 Maxstar 210 shown with #301 318 Small Runner Cart and Coolant System.



#300 429 remote shown.



#300 185 kit shown.

Step #1 • Select Maxstar/Cart/Coolant System	Step #2 • Select Remote Control	Step #3 • Select Torch Kit
<b>Select One</b> Maxstar 210 #907 683 Maxstar 210 DX #907 684	<b>Select One</b> Wireless Foot (recommended) #300 429 RFCS-14 HD Foot #194 744 RCC-14 E/W Fingertip #151 086 RCCS-14 N/S Fingertip #043 688 RMS-14 Pushbutton #187 208 RMLS-14 Momentary/Maintained #129 337 RHC-14 Hand #242 211 020 Wireless Hand #300 430	<b>Select One</b> W-250 (WP-20) Kit #300 185 (recommended) W-280 (WP-280) Kit #300 990
<b>Select One</b> 2-Wheel Trolley Cart #300 971 Small Runner Cart #301 318		
<b>Select All (Coolmate/Bracket/Coolant)</b> Coolmate™ 1.3 #300 972 Mounting Bracket #301 312 (required for mounting to Coolmate 1.3) Low-Conductivity Coolant #043 810 (must be ordered in quantities of 4)		
Maxstar comes with adjustable shoulder strap, 8-ft. power cord (no plug) and two 50-mm Dinse-style connectors.	See page 7 for remote descriptions.	See page 7 for kit contents.

# Genuine Miller® Accessories



## 2-Wheel Trolley Cart #300 971

Easy-to-manuever two-wheel cart features single-cylinder rack, chain for cylinder, cable holders, torch holder, storage area, and filler rod storage area. Works with Dynasty/Maxstar 210 and 280 with Coolmate 1.3 cooler. Straps also included for mounting Dynasty®/Maxstar® 200 with Coolmate 1 cooler.



## Small Runner™ Cart #301 318

Designed for Dynasty/Maxstar 210 and 280 with Coolmate 1.3 cooler. Cart features single-cylinder rack, foot pedal holder, two cable/torch holders, and two TIG filler rod holders.



## Coolmate™ 1.3 #300 972

1.3-gallon cooler designed to cool torches up to 280 amps. *Note: Requires #301 312 Mounting Bracket to mount to Maxstar 210.*



## Performance TIG Gloves

#263 345 X-Small (Women's)  
#263 346 Small (Women's)  
#263 347 Medium  
#263 348 Large  
#263 349 X-Large  
Completely unlined, goat grain leather with triple-padded palm.



## No. 2 Stick Cable Set #195 196

Consists of 15-foot electrode cable with holder and work cable with clamp. 200 A, 100% duty cycle.

## Memory Cards

### Memory Card Expansion

#301 151 14-Pin Automation Expansion  
Provides the ability to access common automation functions through the 14-pin connection.

#301 152 14-Pin Modbus® Expansion  
Provides the ability to access basic and advanced functions through the 14-pin connection.

### Memory Card (Blank) #301 080

A blank, commercially available memory card used for transferring software updates and expandable features from your computer to the machine.

## TIG Torches, Kits and Connectors

### Contractor Kits

#301 309 150 A RFCS-14 HD Foot Pedal Kit  
#301 311 150 A RCCS-14 Fingertip Kit  
All-in-one TIG/Stick welding kit comes with either a RFCS-14 HD foot control or RCCS-14 fingertip control, Weldcraft™ A-150 TIG torch, 200-amp Stick electrode holder and 300-amp work clamp with 15-foot (4.6 m) cables, flow gauge regulator with 12-foot (3.7 m) gas hose, gas hose coupler, AK2C torch accessory kit and TIG torch connector.



## Weldcraft™ A-150 (WP-17) 150-Amp Air-Cooled TIG Torches

One-Piece Cable  
#WP-17-12-R (12 ft.)  
#WP-17-25-R (25 ft.)

*Note: A-150 (WP-17) one-piece torches require #195 378 connector.*

### Two-Piece Cable and Valve

#WP-17V-12-2 (12 ft.)  
#WP-17V-25-2 (25 ft.)



## Weldcraft™ A-200 (WP-26) 200-Amp Air-Cooled TIG Torches

One-Piece Cable  
#WP-26-12-R (12 ft.)  
#WP-26-25-R (25 ft.)

*Note: A-200 (WP-26) one-piece torches require #195 379 connector.*

### Two-Piece Cable and Valve

#WP-26V-12-2 (12 ft.)  
#WP-26V-25-2 (25 ft.)

### Air-Cooled TIG Torch Connectors

#195 378\* All air-cooled torches (except A-200)  
#195 379 A-200 (WP-26)

50-mm Dinse-style for one-piece air-cooled torch. *\*A-80 (WP-24) torches require 24-5 connector.*

### Water-Cooled Torch Kits

#300 185 W-250 (WP-20) (recommended)  
#300 990 W-280 (WP-280)  
Kit comes with Weldcraft™ 25-foot (7.6 m) TIG torch with Dinse-style connector, torch cable cover, work clamp with 15-foot (4.6 m) cable, flowmeter regulator with gas hose and torch accessory kit (1/16-, 3/32- and 1/8-inch 2% ceriated tungsten, nozzles, collets and collet bodies).

## Remote Controls and Switches

### Wireless Remote Foot Control #300 429

For remote current and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 90-foot (27.4 m) operating range.

### RFCS-14 HD Foot Control #194 744

Maximum flexibility is accomplished with a reconfigurable cord that can exit the front, back or either side of the pedal. Foot pedal provides remote current and contactor control. Includes 20-foot (6 m) cord and 14-pin plug.

### RCC-14 Remote Contactor and Current Control #151 086

East/west rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Includes 26.5-foot (8 m) cord and 14-pin plug.

### RCCS-14 Remote Contactor and Current Control #043 688

North/south rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Includes 26.5-foot (8 m) cord and 14-pin plug.

### RMS-14 On/Off Control #187 208

Momentary-contact switch for contactor control. Rubber-covered pushbutton dome switch ideal for repetitive on-off applications. Includes 26.5-foot (8 m) cord and 14-pin plug.

### RMLS-14 Switch #129 337

Momentary- and maintained-contact rocker switch for contactor control. Push forward for maintained contact and backward for momentary contact. Includes 26.5-foot (8 m) cord and 14-pin plug.

### RHC-14 Hand Control #242 211 020

Miniature hand control for remote current and contactor control. Dimensions: 4 x 4 x 3.25 inches (102 x 102 x 83 mm). Includes 20-foot (6 m) cord and 14-pin plug.

### Wireless Remote Hand Control #300 430

For remote current and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 300-foot (91.4 m) operating range.

## Educational Materials

*To order, please call Miller Literature at 866-931-9732 or visit [MillerWelds.com/resources/tools](http://MillerWelds.com/resources/tools).*

### Gas Tungsten Arc Welding (TIG) Publication #250 833

### Setup DVD #251 116

Video topics include tungsten selection, setup menus, DC pulse, sequencer, balance and frequency settings.

# Tungsten

Tungsten	Amp Range	2% Ceriated (AC/DC)	2% Lanthanated (AC/DC)
1/16 in. (1.6 mm)	70–150 A	WC116X7	WL2116X7
3/32 in. (2.4 mm)	140–250 A	WC332X7	WL2332X7
1/8 in. (3.2 mm)	225–400 A	WC018X7	WL2018X7
5/32 in. (4.0 mm)	300–500 A	WC532X7	WL2532X7

## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Maxstar® 210 STR</b>	<b>#907 682</b>	Auto-Line™ 120–480 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
<b>Maxstar® 210</b>	<b>#907 683</b>	Auto-Line™ 120–480 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
<b>Maxstar® 210 DX</b>	<b>#907 684</b>	Auto-Line™ 120–480 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
<b>Accessories</b>				
2-Wheel Trolley Cart	<b>#300 971</b>	See page 7		
Small Runner™ Cart	<b>#301 318</b>	See page 7		
Coolmate™ 1.3	<b>#300 972</b>	120 VAC, 60 Hz, <b>CSA</b> . <i>Requires coolant</i>		
Maxstar Mounting Bracket	<b>#301 312</b>	Required for mounting the Maxstar 210 to the Coolmate 1.3		
TIG Coolant (Must be ordered in quantities of 4)	<b>#043 810</b>	1-gallon plastic bottle. Protects against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C)		
TIG Gloves		See page 7		
No. 2 Stick Cable Set	<b>#195 196</b>	See page 7		
Memory Cards		See page 7		
<b>TIG Torches, Kits and Connectors</b>				
Air-Cooled Contractor Kits	<b>#301 309</b> <b>#301 311</b>	Foot pedal Fingertip		
Weldcraft™ A-150 (WP-17) TIG Torch	<b>#WP-17-12-R</b> <b>#WP-17-25-R</b> <b>#WP-17V-12-2</b> <b>#WP-17V-25-2</b>	12-ft. (3.7 m) 1-piece cable. Requires #195 378 connector 25-ft. (7.6 m) 1-piece cable. Requires #195 378 connector 12-ft. (3.7 m) 2-piece cable and valve 25-ft. (3.7 m) 2-piece cable and valve		
Weldcraft™ A-200 (WP-26) TIG Torch	<b>#WP-26-12-R</b> <b>#WP-26-25-R</b> <b>#WP-26V-12-2</b> <b>#WP-26V-25-2</b>	12-ft. (3.7 m) 1-piece cable. Requires #195 379 connector 25-ft. (7.6 m) 1-piece cable. Requires #195 379 connector 12-ft. (3.7 m) 2-piece cable and valve 25-ft. (7.6 m) 2-piece cable and valve		
Air-Cooled TIG Torch Connectors	<b>#195 378</b> <b>#195 379</b>	Connects all air-cooled Weldcraft™ torches (except A-200) to Dinse-style connector. A-80 (WP-24) torches require 24-5 connector Connects Weldcraft™ A-200 (WP-26) torch to Dinse-style connector		
Water-Cooled Torch Kits	<b>#300 185</b> <b>#300 990</b>	W-250 (WP-20) (recommended for Maxstar 210) W-280 (WP-280)		
Tungsten		See above		
<b>Remote Controls</b>				
Wireless Remote Foot Control	<b>#300 429</b>	Foot control with wireless 90-ft. (27.4 m) operating range		
RFCS-14 HD	<b>#194 744</b>	Heavy-duty foot control		
RCC-14	<b>#151 086</b>	Side-to-side (east/west) fingertip control		
RCCS-14	<b>#043 688</b>	North/south fingertip control		
RMS-14	<b>#187 208</b>	Momentary rubber dome switch		
RMLS-14	<b>#129 337</b>	Momentary/maintained rocker switch		
RHC-14	<b>#242 211 020</b>	Hand control		
Wireless Remote Hand Control	<b>#300 430</b>	Hand control with wireless 300-ft. (91.4 m) operating range		
<b>Educational Materials</b>				
Gas Tungsten Arc Welding (TIG) Publication	<b>#250 833</b>			
Setup DVD	<b>#251 116</b>			

Date:

Total Quoted Price:

Distributed by:

