



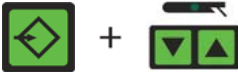




FRONIUS TS SERIES QUICK REFERENCE CARDS MIG/MAG






1ST LEVEL SETUP MENU

<p>ENTER 1ST LEVEL SETUP MENU 1st Select desired process with process buttons or robot</p> 	<p>NAVIGATE 1ST LEVEL MENU Push one of the process buttons</p> 	<p>CHANGE PARAMETER Turn knob</p> 	<p>EXIT FIRST LEVEL MENU Push the store button</p> 
<p>2nd Push and hold the store button Push one of the process buttons Release store button</p> 			

1st LEVEL MENU ITEMS **NOTE:** Some menu items listed may not be available depending on installed options, some items are accessible in multiple menus

Display	Description	Settable Range	Default
GPr	Gas pre-flow time	0-9.9 sec	0.1 sec
Gpo	Gas post flow	0-9.9 sec	0.5 sec
Fdc	Feeder creep: wire run in speed prior to arc ignition, Off=set to speed of wire during welding, Auto=aprox. 60% of wire speed during welding, Sfi=spatter free ignition, or manually selectable between 19 IPM and 866 IPM	OFF, AUT, SFi, 19-866 IPM	AUT
Fdi	Feeder inching: wire inching speed while pushing inching button on feeder, power supply, or robot signal	39-866 IPM	394 IPM
bbc	Burn back time correction: affects length of pre-programmed stick out after welding +(plus) = shorter stick out, longer burn back time, -(minus) = longer stick out, shorter burn back time	+/- 0.20 sec	0
ALS	Arc length start: only standard synergic mode, 0 to 100% higher voltage as voltage set for main welding power.	0 – 100%	0%
Alt	Arc length start time: only standard synergic mode, controls time that ALS parameter is used during weld start	OFF, 0.1 – 5.0 sec	OFF
F	Frequency: synchro pulse frequency in cycles per second only when optional feature synchro pulse is enabled	OFF, 0.5 – 5.0 Hz	OFF
dFd	delta Feeder: welding power offset for synchro pulse option (defined by wire feed speed) 0.0 - 78.74 ipm	0.0 – 78.74 IPM	0.0
AL.2	Arc Length correction.2: arc length control at top of pulse for synchro pulse option	+/- 30 %	0 %
FAC	Restores factory defaults in 1 st and 2 nd level menus, to operate push and hold store button for two seconds	N/A	N/A
2nd	Access 2 nd level set up menu, see other side of this card for access instructions	N/A	N/A

OPERATING MODE PARAMETERS MENU

<p>ENTER OPERATING MODE PARAMETERS MENU 1st Select desired operating mode by pressing one of the operating mode buttons, selection is automatic with robot interface connected</p> 	<p>NAVIGATE OPERATING MODE PARAMETERS MENU Push one of the operating mode buttons</p> 	<p>EXIT MENU Push the store button</p> 
<p>2nd Push and hold the store button Push one of the operating mode buttons Release the store button</p> 	<p>CHANGE PARAMETER Turn knob</p> 	

OPERATING MODE PARAMETERS MENU ITEMS **NOTE:** Some items may not be listed depending on operating mode selected

Display	Description	Settable Range	Default
I-S	I (current) Starting: Starting current 0 – 200% of main welding current, no effect if t-S is set to OFF	0 – 200%	135%
SL	Slope: slope time I-Starting to main current and main current to I-End, no effect if t-S and t-E are set to OFF	0.1 – 9.9 sec	1.0 sec
I-E	I (current) End: End current 0 – 200% of main welding current	0 – 200%	50%
tS	Time starting: duration of I (current) Starting parameter in seconds	OFF 0.1 – 9.9 sec	OFF
tE	Time end current: duration if I (current) End parameter in seconds	OFF 0.1 – 9.9 sec	OFF
SPt	Spot welding time	0.1 – 5.0 sec	1.0 sec



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2nd LEVEL SETUP MENU

<p>ENTER 2ND LEVEL MENU 1st push and hold store button and push a process button, release store button  + </p> <p>2nd Navigate 1st level menu until "2nd" is displayed by pushing a process button repeatedly </p> <p>3rd Push and hold store button, and push a process button, release store button  + </p>	<p>NAVIGATE 2ND LEVEL MENU Push one of the process buttons </p>	<p>EXIT MENU Push the store button twice to exit </p>
<p>CHANGE PARAMETER Turn knob </p>		







2nd LEVEL SETUP MENU ITEMS

Display	Description	Settable Range	Default
PPU	Push Pull Unit: used to synchronize wire feed motors in a push pull system, see manual "Push-pull unit"	0-62	0
C-C	Cooling unit Control, Off=unit off all the time, Aut=on during welding & 2 min. after, On=runs continuously	Off, Aut, On	Aut
C-t	Cooling Time: controls pumping time before error message sent if < .7 lmin water flow present	5 – 25 seconds	5
Ito	Ignition Time Out: length of wire fed until error message displayed, "no Ign"	OFF, 0.20 – 3.94in	OFF
Arc	Arc break watchdog: delay time until error message displayed "no Arc" if current not present during welding	OFF, 0.01 – 2 sec	OFF
FCO	Feeder Control: only if wire end sensor installed, ON=stops wire at wire end w/Err 056, noE sends message to robot via field bus interface, OFF=halts wire feed after completion of weld w/Err 056	OFF, On, noE	OFF
SEt	Setting: US=standard, Standard=metric	US, Std	US
S2t	Special 2-Step: allows job selection via torch trigger, 0=feature off, 1=job select with trigger	0, 1	0
S4t	Special 4-step: allows job selection via torch trigger in 4-step mode, 0=feature OFF, 1=job select with trigger	0, 1	0
Gun	Gun trigger: software option for job master torch only, allows control of syncro pulse on, off, and frequency from torch, also gas test from torch	0, 1	0
r	Resistance: welding circuit resistance, see manual "Measuring the welding circuit resistance"	N/A	10
L	Inductivity: welding circuit inductivity, see manual "Indicating the welding circuit inductivity"	N/A	
P-C	Power Control: defines master and slave power source in twin wire system, On=master, Off=slave	On, Off	N/A
T-C	Twin Control: defines leading and trailing power source in twin wire system, On=leading, Off=Trailing	On, Off	N/A

PROGRAM AND DELETE A JOB

<p>PROGRAM A JOB 1st Select desired welding parameters then push the store button  2nd Turn knob to select desired job number  3rd Push and hold store button until display changes from "Prg" to "PrG" </p>	<p>DELETE A JOB 1st Push the store button  2nd Turn knob to select desired job number  3rd Push and hold delete button until display changes from "del" to "nPG" </p>	<p>EXIT JOB PROGRAM Push the store button </p>
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SHORTCUTS

<p>WIRE INCHING OR GAS FLOW SHORTCUT Push and hold store button and push the wire inching button or gas test button, release store button  +  or </p>	<p>NAVIGATE SHORTCUTS Push one of the process mode buttons </p>	<p>CHANGE PARAMETER Turn knob </p>	<p>EXIT SHORTCUTS Push the store button to exit </p>
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MODIFY A PROGRAMMED JOB

ENTER JOB CORRECTION MENU 1 st Push and hold store button, push parameter selection button, release store button 2 nd Turn knob to select desired job	 + 	NAVIGATE CHANGEABLE JOB PARAMETERS Push one of the process mode buttons 	EXIT MENU Push the store button 
		CHANGE PARAMETER Turn knob 	

JOB CORRECTION MENU ITEMS

Display	Description	Settable Range	Default
P	Power correction: wire feed speed	0.2 - 866.14 ipm	N/A
AL.1	Arc Length correction.1: arc length	+/-30%	0%
dYn	Arc force correction if job is standard synergic process, pulse correction if job is pulse synergic process	+/-5%	0%
tri	Changes trigger mode of job, 2-step, 4-step, Special 2-step, Special 4-step and Spot-welding	2t, 4t, S4t, SPt	N/A
JSL	Job Slope: for switching Jobs during welding, defines time between Job currently used and next Job selected	OFF or 0.1 - 9.9 s	OFF
GPr	Gas pre-flow time	0-9.9 sec	0.1
Gpo	Gas pos t flow	0-9.9 sec	0.5
Fdc	Feeder creep: wire run in speed prior to arc ignition, Off = set to speed of wire during welding, Auto = aprox. 60% wire speed during welding, Sfi = spatter free ignition, or manually selectable between 19 IPM and 866 IPM	OFF, AUT, SFi, 19-866 IPM	Aut
Fdi	Feeder inching: wire inching speed while pushing inching button on feeder, power supply, or robot signal	39-866 IPM	390
bbc	Burn back time correction: affects length of pre-programmed stick out after welding +(plus) = shorter stick out or longer burn back time, -(minus) = longer stick out or shorter burn back time	+/- 0.20 sec	0
I-S	I (current) Starting: Starting current 0 – 200% of main welding current, no effect if t-S is set to OFF	0 – 200%	135%
SL	Slope: slope time I-Starting to main current and main current to I-End, no effect if t-S and t-E are set to OFF	0.1 – 9.9 sec	1.0 se
I-E	I (current) End: End current 0 – 200% of main welding current	0 – 200%	50%
tS	Time starting: duration of I (current) Starting parameter in seconds	OFF 0.1 – 9.9 sec	OFF
tE	Time end current: duration if I (current) End parameter in seconds	OFF 0.1 – 9.9 sec	OFF
SPt	Spot welding time	0.1 – 5.0 sec	1.0 sec
PcH	Power correction High: correction boundary for welding power positive range 0 - 20 % of value set for P	0 – 20%	0
PcL	Power correction High Low: correction boundary for welding power negative range, 0 - 20 % of value set for P	0 – 20%	0
AL.c	Arc Length.correction: correction boundary for arc length positive & negative, 0 - 30 % of the value set for AL.1	0 – 30%	0
F	Frequency: synchro pulse frequency	OFF 0.5 – 5.0 Hz	OFF
dFd	delta Feeder: welding power offset for synchro pulse option (defined by wire feed speed) 0.0 - 78.74 ipm	0.0 – 78.74 IPM	0.0
AL.2	Arc Length correction.2: arc length control at top of pulse where the synchro pulse option is enabled	+/- 30 %	0 %

ACCESS SOFTWARE VERSIONS/ARC ON TIME

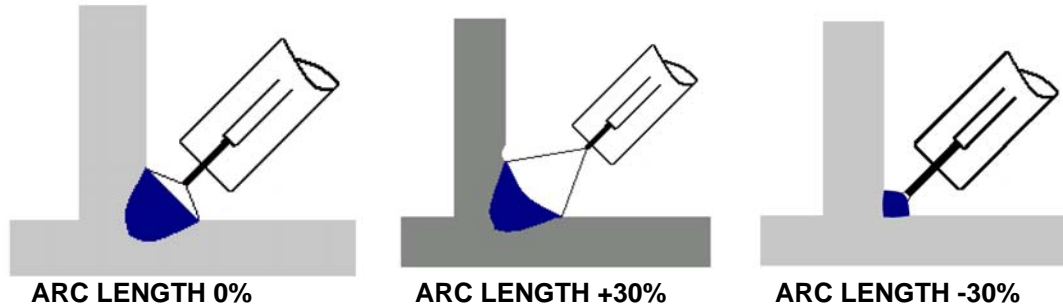
ACCESS SOFTWARE VERSIONS Push and hold store button, push a materials button, release store button  + 	NAVIGATE SOFTWARE VERSIONS Push one of the process mode buttons 	EXIT SOFTWARE VERSIONS Push the store button to exit 
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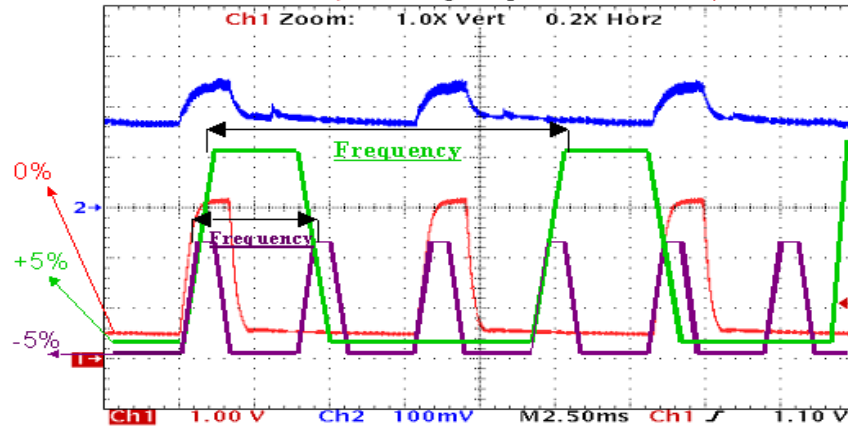
ARC LENGTH CORRECTION



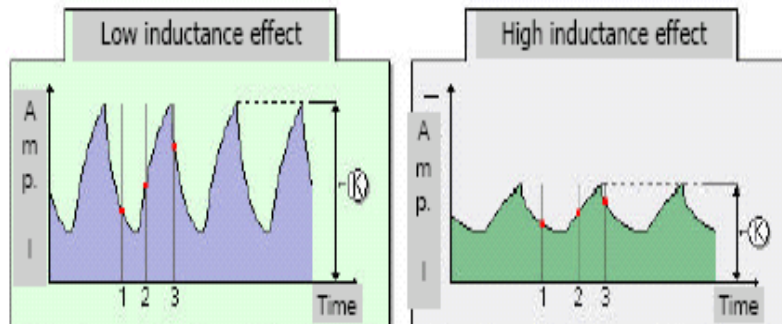
PULSE CORRECTION PULSE SYNERGIC MODE ONLY

+ 5% Pulse Correction
More pulse time and current
Less pulses per/sec.(Frequency)
High droplet detachment energy

- 5% Pulse Correction
Less pulse time and current
More pulses per/sec.(Frequency)
Low droplet detachment energy



ARC FORCE CORRECTION STANDARD SYNERGIC MODE ONLY



-5% ARC FORCE CORRECTION
Sharp current rise
Sharp current drop
High Special dynamic
Harder more stable arc

+ 5% ARC FORCE CORRECTION
Shallow current rise
Shallow current drop
Low Special dynamic
Soft Arc

SYNCROPULS

The graph below shows how SynchroPuls functions, in this case when used with the "Special 4-step" mode (I-S = Starting-current phase, SL = Slope, I-E = Crater-fill phase):

