



# WEG SSW07 SOFT STARTER SERIAL COMMUNICATIONS QUICK-START GUIDE

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*NOTE: This Quick-Start guide is intended for the sole purpose of establishing communications connections between WEG SSW07 Soft Starter and AutomationDirect programmable controllers, or between the SSW07 and the USB port of a personal computer. Please refer to WEG SSW07 documents for specifications and instructions for using the WEG SSW07 Soft Starter.*

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## COMMUNICATIONS PARAMETERS SUMMARY

A summary of the WEG SSW07 Soft Starter Communications Parameters is listed below. Refer to the Soft Starter SSW07/SSW08 Serial Communication Manual for more detailed information on parameters and programming.

### SUMMARY – SERIAL COMMUNICATION PARAMETERS

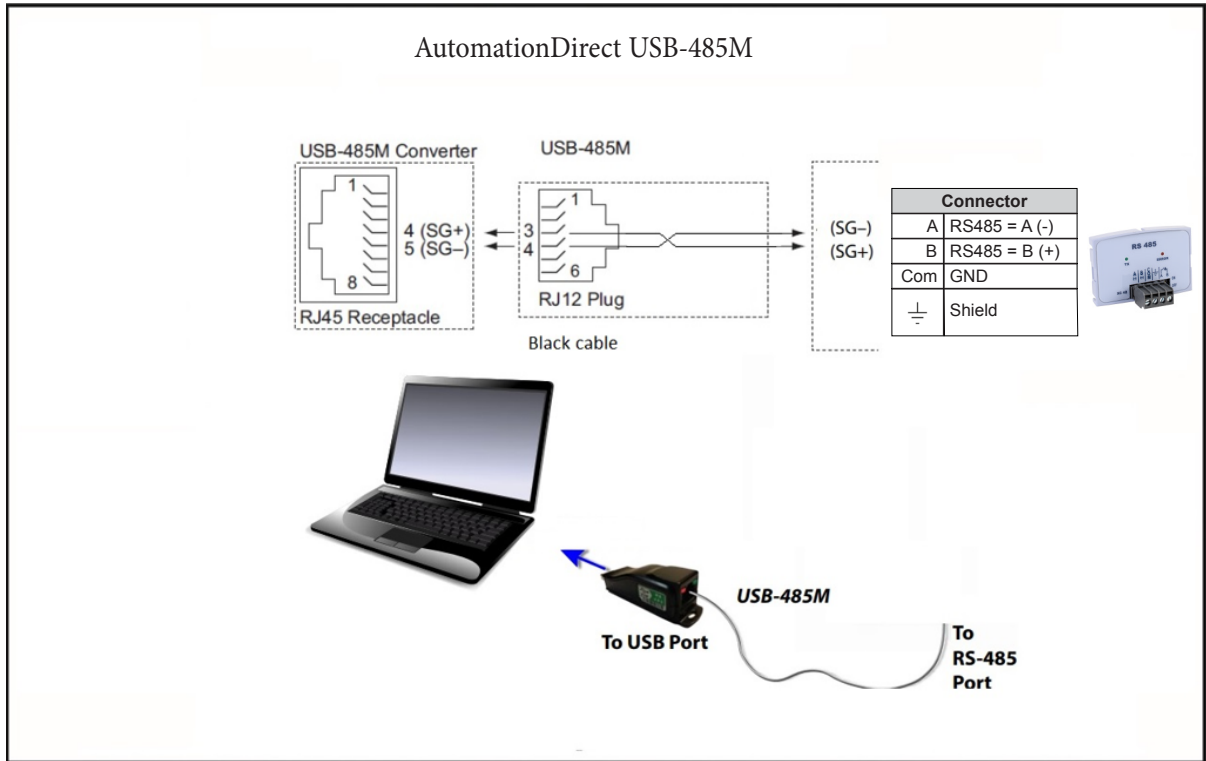
WEG SSW07 Serial Communication Parameters Summary <sup>1</sup>						
Parameter <sup>2</sup>	Range	Setting		Modbus Address		
		Comm <sup>3</sup>	Default <sup>3</sup>	Hex	Modicon <sup>4</sup>	
1) To read parameters, use Function Code 3; To write parameters, use Function Code 6 or 16						
2) ♦ indicates a parameter that can be changed only with a stopped motor						
3) RO = Read Only						
4) Modicon Modbus addressing for the SSW07 is 40001 + the Parameter Address; Example: P222 Modicon Modbus address would be 40001 + 222 = 40223						
5) Speed references and commands via Modbus RTU will always be Remote references; not Local						
6) Baud rate in the PLC must match the baud rate in the Soft Starter						
<b>General Parameters</b>						
<b>P000</b>	Access to Parameters	0 to 9999		0 (5)	0	40001
<b>P001</b>	Motor current %In of SSW-07/SSW-08	0.0-999.9	RO	–	1	40002
<b>P002</b>	Motor current %In of Motor	0.0-999.9	RO	–	2	40003
<b>P003</b>	Motor Current in Amps	0.0-6553	RO	–	3	40004
<b>P005</b>	Power supply frequency	0.0 to 99.9	RO	–	5	40006
♦ <b>P200</b>	The password is	0 = Inactive 1 = Active		1 = Active	C8	40201
<b>Parameters necessary to communicate with the Soft Starter using module KRS-485 or KRS-232</b>						
♦ <b>P220</b>	Local/remote supply selection	0 = Always local 1 = Always remote 2 = Keypad (local default) 3 = Keypad (remote default) 4 = D11 to D13 5 = Serial (local default) 6 = Serial (remote default) 7 = Fieldbus (default Local) 8 + Fieldbus (Default Remote)	1	3 = Keypad (default remote)	DC	40221
♦ <b>P229</b>	Command selection - local situation	0 = Keypad 1 = Digital Input Dlx 2 = Serial 3 = Fieldbus		0	E2	40230
♦ <b>P230</b>	Command selection - remote situation	0 = Keypad 1 = Digital Input Dlx 2 = Serial 3 = Fieldbus	2	1 = Digital Input Dlx	E3	40231
♦ <b>P308</b>	Soft-Starter address	1 to 247	1	1	134	40309
♦ <b>P312</b>	Type of protocol and serial communication transmission rate	1 = Modbus 9600bps, 8, no parity, 2 stop 2 = Modbus 9600bps, 8, odd parity, 1 stop 3 = Modbus 9600bps, 8, even parity, 1 stop 4 = Modbus 19200bps, 8, no parity, 2 stop 5 = Modbus 19200bps, 8, odd parity, 1 stop 6 = Modbus 19200bps, 8, even parity, 1 stop 7 = Modbus 38400bps, 8, no parity, 2 stop 8 = Modbus 38400bps, 8, odd parity, 1 stop 9 = Modbus 38400, 8, even parity, 1 stop	2	1 = Modbus 9600bps, 8, no parity, 2 stop	138	40313

WEG SSW07 Available Basic Variables Summary						
Parameter		Range	Setting		Modbus Address	
			Comm		Hex	Modicon
<b>P313</b>	Serial communication error action (E28)	0 = Inactive 1 = Disable 2 = General disable 3 = Change to local	1	1 = Disable	139	40314
<b>◆P314</b>	Serial communication verification time	0 = inactive 1 to 999	0.0	0 = Inactive	13A	40315
<b>VB01</b> – Soft-Starter SSW-07/ SSW-08 Status	Status Variable Bits	0 = motor stopped. 1 = motor running	Read only		00h	01
		0= disabled 1 =enabled	Read only		01h	02
		0= not jogging 1= Jogging	Read only		02h	03
		0=not accelerating 1= acclerating	Read only		03h	04
		0= not in current limit 1= in current limit	Read only		04h	05
		0= full voltage not applied to motor 1= full volgate applied to motor	Read only		05h	06
		reserved	Read only		06h	07
		0=not decelerating 1= declerating	Read only		07h	08
		0= Local 1= Remote	Read only		08h	09
		0= not in DC braking 1= DC braking on	Read only		09h	10
		0 = Not in Reverse 1 = In Reverse	Read only		0Ah	11
		0= CW 1= CCW	Read only		0Bh	12
		0= Bypass open 1= Bypass closed	Read only		0Ch	13
		reserved	Read only		0Dh	14
		0= power supply off 1= power supply on	Read only		0Eh	15
0= No error 1= Error	Read only		0Fh	16		
<b>VB03</b> – Soft-Starter SSW-07/ SSW-08 Command	Command Variable Bits	0 = stopping by ramp 1 = running by ramp	R/W		64h	101
		0 = general disable 1 = general enable	R/W		65h	102
		0 = no jog 1 = with jog	R/W		66h	103
		0 = CW 1 = CWW	R/W		67h	104
		0 = local. 1 = remote	R/W		68h	105
		reserved	R/W		69h	106
		reserved	R/W		6Ah	107
		0 = no command. 0 → 1 = executes reset (when in error status)	R/W		6Bh	108

## CONNECTING PC TO SSW07 USING AUTOMATIONDIRECT CABLE USB-485M

An AutomationDirect cable, part number USB-485M, provides a quick and easy method of communicating to a WEG SSW07 Soft Starter from a PC which has WEG SuperDrive G2 software installed.

*NOTE: Refer to the WEG SuperDrive G2 Software User Manual for information and instructions regarding configuration of SSW07 Soft Starters.*



## CONNECTING COMMUNICATION CABLES TO SSW07 SOFT STARTERS



The SSW07-08-KRS-485 Soft Starter communication module includes a DIP switch that will switch in a 120Ω terminating resistor for the RS-485 network.

The SSW07 serial communication port is an RS-485 input. SSW07 to SSW07 serial connections can be accomplished with standard RS-485 cable (L19827-1 or similar). RS-232 signals can be converted to RS-485 by using a separate converter (see the FA-ISOCAN drawings on [page 5-7](#)).

### SSW07-08-KRS-485 SERIAL COMMUNICATIONS MODULE

SSW07-08-KRS-485

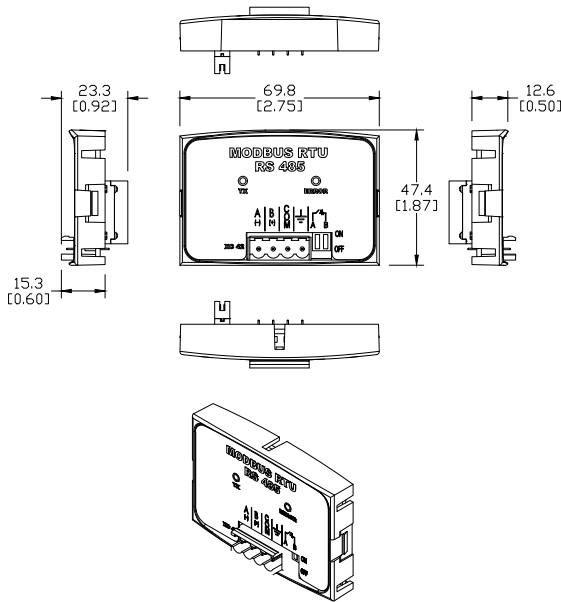
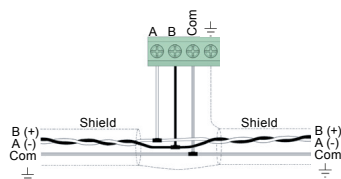


Figure A2: SSW07-08-KRS-485 dimensions in mm [in] and connectors location



**Recommended RS-485 cable: Belden 9842, AutomationDirect L19954 series, or equivalent.**

### 1 SAFETY INFORMATION

#### 1.1 SAFETY WARNINGS



#### NOTE!

- Only use the KRS-485 module on WEG SSW07 series soft starters.
- It is recommended reading the SSW07 user's manual before installing or operating this accessory.
- The content of this guide provides important information for the full understanding and proper operation of this module.

#### 1.2 PRELIMINARY RECOMMENDATIONS



#### ATTENTION!

- Always disconnect the general power supply before connecting or disconnecting the accessories of the SSW07 Soft Starter.
- Wait for at least 10 minutes for the full discharge of the Soft Starter.

### 5 CONFIGURATIONS

The RS485 interface connections must be done on the connector as per [Table 1](#)

Table 1: Connector signals of the RS485 interface

Connector	Description
A	RS485: A(-) RS485 (Terminal A)
B	RS485: B(+) RS485 (Terminal B)
Com	GND Reference 0V
⊥	Shield Cable shield

The location of the DIP switch to select the RS485 network termination can be better viewed in [Figure A2](#) and it must be configured as per [Table 2](#). [Figure A3](#) shows a connection example of the SSW-7-08-KRS-485 accessory to a RS485 network.

Table 2: Configuration of the switches to configure the RS485

Communication	Switch	Switch Setting	Option
RS485	S1 <sup>(*)</sup>	A = OFF and B = OFF	RS485 termination off
		A = ON and B = ON	RS485 termination on <sup>(**)</sup>

(\*) Any other combination of the switches is not allowed.  
 (\*\*) It is recommended to use this termination with cables longer than 3 m.

The SSW07-08-KRS-485 module has the necessary resources to perform setting, command and monitoring of the Soft Starter through SuperDrive G2 software. For further details, refer to the SuperDrive G2 users manual.

## AUTOMATIONDIRECT PLCs AS MODBUS MASTER

### COMMUNICATION CABLE CONNECTIONS

Serial Modbus-capable AutomationDirect PLCs can communicate with SSW07 Soft Starters which have an optional communication card installed.

Serial Modbus control is easier to accomplish from a PLC that supports dedicated Modbus messaging. [Older PLCs may require programming to construct the Modbus strings.] We recommend PLCs with dedicated Modbus serial commands: CLICK (with RS-485 ports), P1000, P2000, P3000, BRX/Do-more, DirectLogic (DL06 or D2-260). Other PLC-Soft Starter connectivity is possible: Please refer to the “Typical ADC PLC to SSW07 Serial Connectivity Matrix” below.

#### Typical ADC PLC to WEG SSW07 Serial Communications Connectivity

Typical ADC PLC to WEG SSW07 RS-232 Serial Communications Connectivity Matrix					
Recommended PLC Connectivity			Communication	Direct Cable	SSW07 Port Type
PLC	Port #	Port Type			
<b>CLICK</b>	2	RJ12	RS-232	ZL-RJ12-CBL-2P	SSW07 - KRS-232 Pin connections Pin 2 - RX Pin 3 - TX Pin 5 - COM (0V)
<b>D2-260</b>	2	HD15		D2-DSCBL-2	
<b>DL06</b>	2	HD15		D2-DSCBL-2	
<b>BRX/Do-more</b>	RS-232	3 screw terminals		L19772-1 cable	
<b>Do-more H2-DM1</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P1-540</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P2-550</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P3-530</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P3-550</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P3-550E</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>Other PLC Connectivity</b>				-	
<b>D2-250-1</b>	2	HD15	RS-232	D2-DSCBL-2	SSW07 - KRS-232 Pin connections Pin 2 - RX Pin 3 - TX Pin 5 - COM (0V)
<b>D4-450/D4-454</b>	2	RJ12		ZL-RJ12-CBL-2P	
<b>DL05</b>	2	RJ12		ZL-RJ12-CBL-2P	
<b>DL06 + DCM</b>	2	RJ12		ZL-RJ12-CBL-2P	
<b>Do-more H2-DM1 + H2-SERIO-4</b>	1,2	RJ12		ZL-RJ12-CBL-2P	
<b>Do-more T1H-DM1</b>	RS-232	RJ12		ZL-RJ12-CBL-2P	
<b>P2-SCM</b>	1,2,3	RJ12		ZL-RJ12-CBL-2P	
<b>P3-SCM</b>	1,2,3	RJ12		ZL-RJ12-CBL-2P	

#### Typical ADC PLC to WEG SSW07 RS-485 Serial Communications Connectivity

Typical ADC PLC to WEG SSW07 RS-485 Serial Communications Connectivity Matrix					
Recommended PLC Connectivity			Communication	Direct Cable	SSW07 Port Type
PLC	Port #	Port Type			
<b>CLICK</b>	3	3 screw terminals	RS-485	L19954 cable	SSW07-08-KRS-485 screw terminals A (-) B (+) COM (0V)
<b>D2-260</b>	2	HD15	RS-485	D2-DSCBL-2	
<b>DL06</b>	2	HD15	RS-485	D2-DSCBL-2	
<b>BRX/Do-more</b>	RS-485	3 screw terminals	RS-485	L19954 cable	
<b>Do-more H2-DM1</b>	RS-232	RJ12	RS-232 to RS-485	FA-ISOCOCON with L19954 cable	
<b>P2-550</b>	RS-485	3 screw terminals	RS-485	L19954 cable	
<b>P3-530</b>	RS-485	3 screw terminals	RS-485	L19954 cable	
<b>P3-550</b>	RS-485	3 screw terminals	RS-485	L19954 cable	
<b>P3-550E</b>	RS-485	3 screw terminals	RS-485	L19954 cable	
<b>Other PLC Connectivity</b>			-	-	
<b>D2-250-1</b>	2	HD15	RS-485	D2-DSCBL-2	
<b>D4-450/D4-454</b>	1	DB25	RS-232 to RS-485	FA-ISOCOCON with L19954 cable	
<b>DL05</b>	2	RJ12	RS-232 to RS-485	FA-ISOCOCON with L19954 cable	
<b>DL06 + DCM</b>	2	HD15	RS-485	D2-DSCBL-2	
<b>Do-more H2-DM1 + H2-SERIO-4</b>	3	5 screw terminals	RS-485	L19954 cable	
<b>Do-more T1H-DM1</b>	RS-232	RJ12	RS-232 to RS-485	FA-ISOCOCON with L19954 cable	
<b>P2-SCM</b>	4	4 screw terminals	RS-485	L19954 cable	
<b>P3-SCM</b>	4	4 screw terminals	RS-485	L19954 cable	

### RS-232C TO RS-485 CONVERSION

An RS-485 network cable can span up to 1000 meters (4000 feet). However, many AutomationDirect PLCs have only RS-232C communication ports, and require an FA-ISOCAN (RS-232C to RS-422/485 network adapter) in order to make an RS-485 connection.



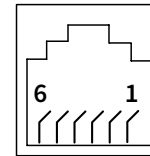
If an FA-ISOCAN module is used, set the module dipswitches as required. Refer to the FA-ISOCAN manual for more detailed information.

#### FA-ISOCAN Switch Settings:

- S21–S23: OFF, ON, ON (19200 baud)
- S24–S27: OFF (Automatic Network Transmit Enable)
- Terminate: ON (end of run term resistors)
- Bias (2): ON (end of run bias resistors)
- 1/2 DPX (2): ON (RS-485 TXD/RXD jumpers)

**Helpful Hint:** Some applications require that the FA-ISOCAN baud rate is set faster than the drive/network baud rate.

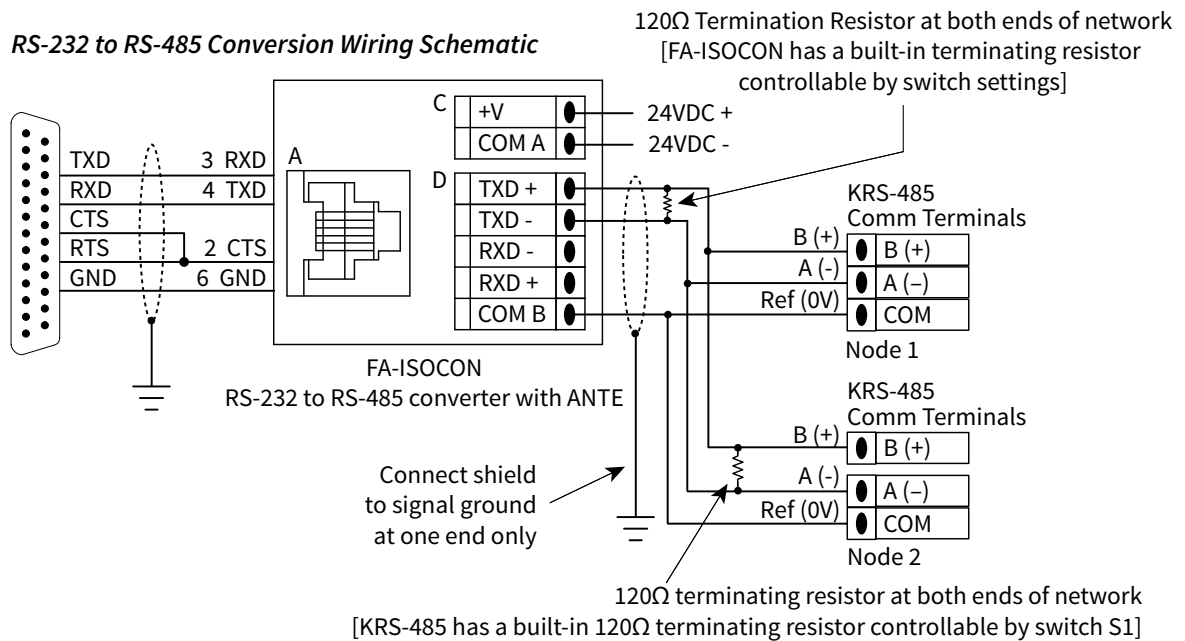
#### FA-ISOCAN RJ-12 Serial Comm Port A RS-232 Input Port



- 1: Signal Ground
- 2: CTS (input)
- 3: RXD (input)
- 4: TXD (output)
- 5: +5VDC in
- 6: Signal Ground

#### FA-ISOCAN Wiring

##### RS-232 to RS-485 Conversion Wiring Schematic



For information regarding configuration of AutomationDirect PLCs or other PLCs, please refer to the applicable PLC user manual for your application.

**AUTOMATIONDIRECT PLC CABLE CONNECTIONS**

**CLICK SERIES PORT 2,**

**DO-MORE SERIES H2-DM1**

**PRODUCTIVITY SERIES P1-540, P2-550, P3-530/550/550E VIA RS-232**

AutomationDirect PLC RJ-12, RS-232 connectors: CLICK Port 2, P1-540, P2-550, P3-550/550E/530, H2DM1

RJ12 6-pin Phone Plug (6P6C)

1 = Sig GND  
2 = not used  
3 = RXD  
4 = TXD  
5 = not used  
6 = not used

RJ12 6-pin Phone Plug (6P6C)

1 2 3 4 5 6

Wiring Diagram

GND ← 1 → COM  
RXD ← 3 → TXD  
TXD ← 4 → RXD

Connection	
1	NC
2	RX
3	TX
4	NC
5	COM

KRS-232

The connection above can be accomplished using the ZL-RJ12-CBL-2P. For longer connections, use AutomationDirect part number L19772-1 or equivalent specifications.

**CLICK SERIES PORT 3 VIA RS-485**

AutomationDirect CLICK PLC

CLICK Com Port 3

RS-485

RS-485 Signal A +  
RS-485 Signal B -  
Logic Ground LG

Wiring Diagram

RS-485 Signal A ← Term. → RS-485 Signal B  
RS-485 Signal B ← → RS-485 Signal A  
Logic Ground ← → COM  
shield → r/r

Connector	
A	RS485 = A (-)
B	RS485 = B (+)
COM	GND
⊥	Shield

KRS-485

Note: Use the above wiring diagram to make your own cable. We recommend AutomationDirect part number L19954-1 shielded cable or equivalent. Use 120 ohm termination resistor on each end. KRS-485 has built-in termination that can be enabled by DIP switches.

**DIRECTLOGIC SERIES D2-250-1, D2-260, DL06 PORT 2 VIA RS-232**

AutomationDirect D2-250-1, D2-260 or DL06 Port 2

TERMINATE  
ZL-CMA15L  
RXD  
TXD  
RS-232/485  
ZL-CMA15L

Wiring Diagram

SG ← → COM  
RXD ← → TXD  
TXD ← → RXD

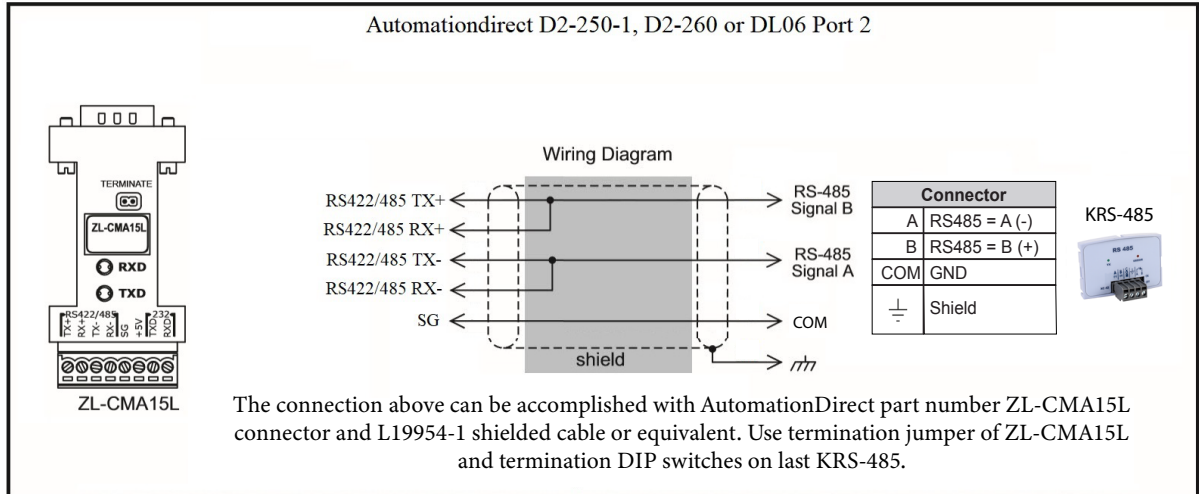
Connection	
1	NC
2	RX
3	TX
4	NC
5	COM

KRS-232

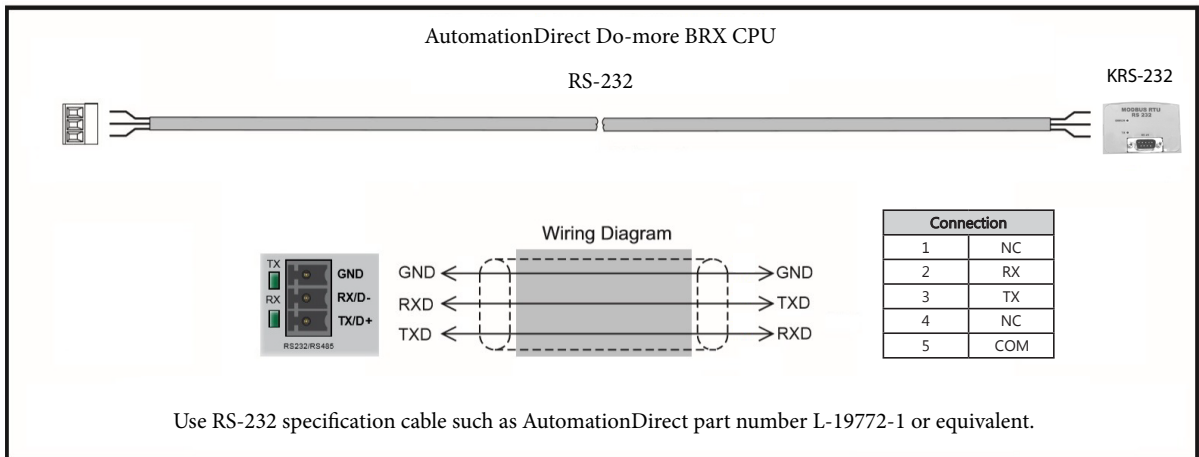
Use RS-232 specification cable such as AutomationDirect part number L19772-1 or equivalent.



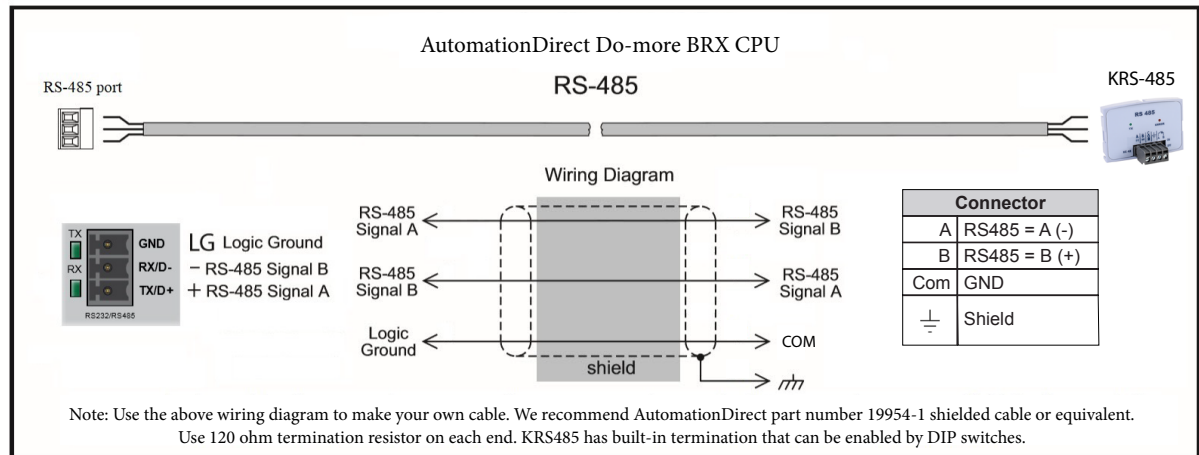
**DIRECTLOGIC SERIES D2-250-1, D2-260, DL06 PORT 2 VIA RS-485**



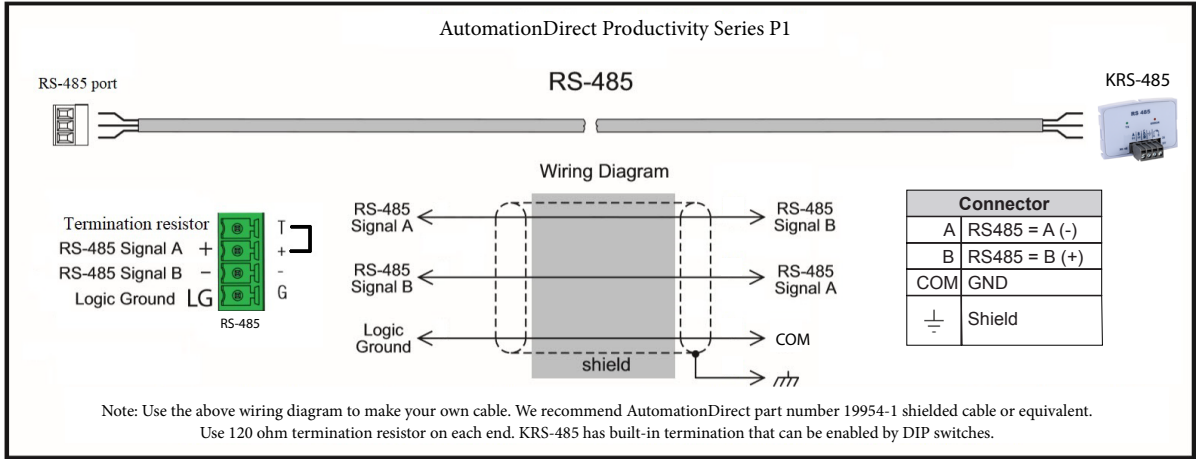
**DO-MORE BRX SERIES VIA RS-232**



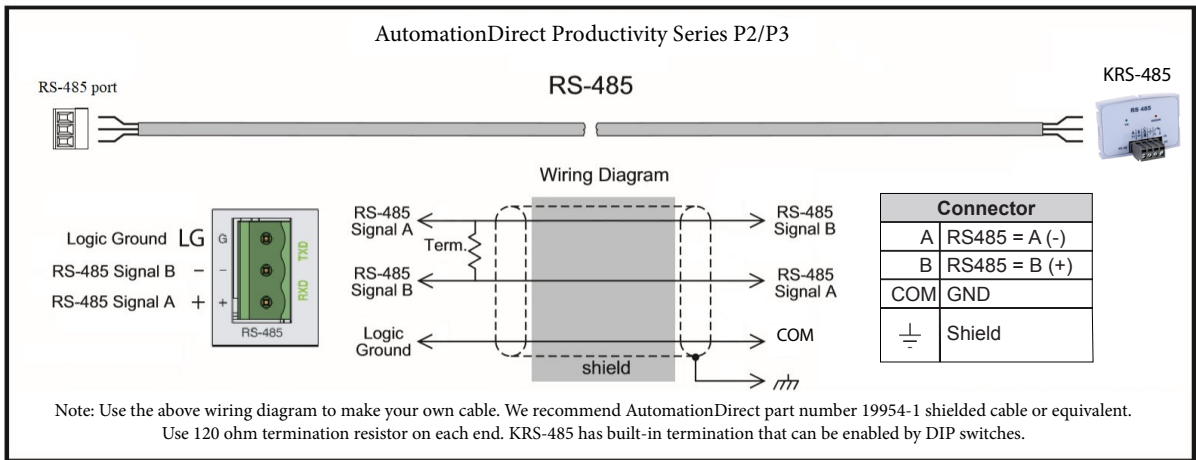
**DO-MORE BRX SERIES VIA RS-485**



**PRODUCTIVITY SERIES P1 VIA RS-485**



**PRODUCTIVITY SERIES P2/P3 VIA RS-485**



**AUTOMATIONDIRECT PLC EXAMPLE PROGRAMS FOR WEG SSW07 SOFT STARTER**

Example programs for various AutomationDirect PLCs are available for free download from AutomationDirect: <https://support.automationdirect.com/examples.html>.  
 Also, an example CLICK PLC ladder diagram is show in the following section.

**CLICK PLC Example Program for WEG SSW07 AC Soft Starter**



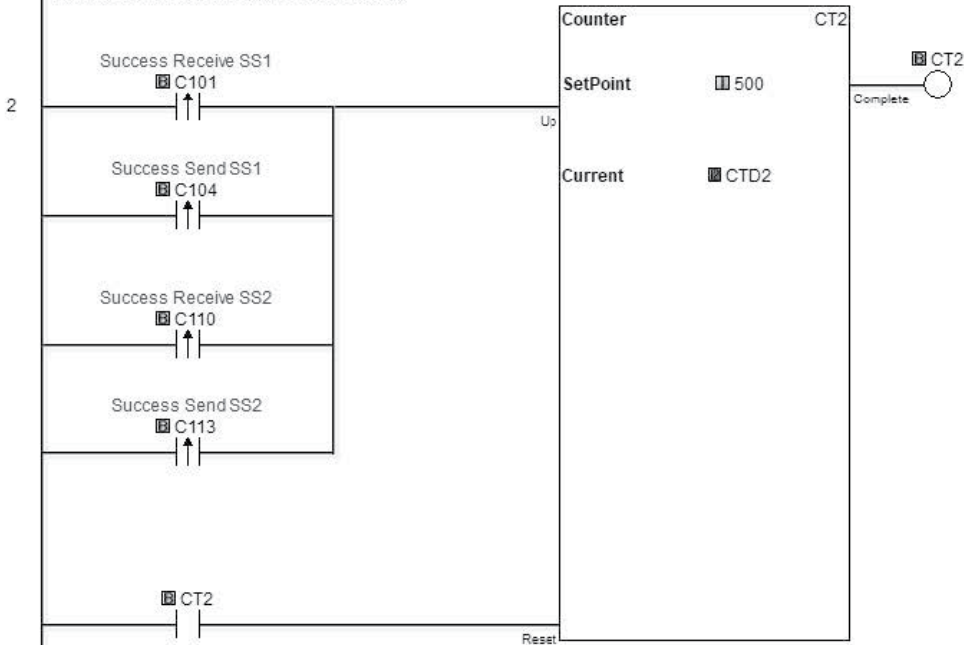
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1 ( NOP )

This example section shows network comms using 2 WEG SSW07 with Modbus RTU. Eaudrate in SSW07 is 9.6Kbps 8,2,N (by default). P220=6 (Serial Remote). P230=2 (Serial). P308=1 (Node number) and P308=2 (Node number) for the second unit

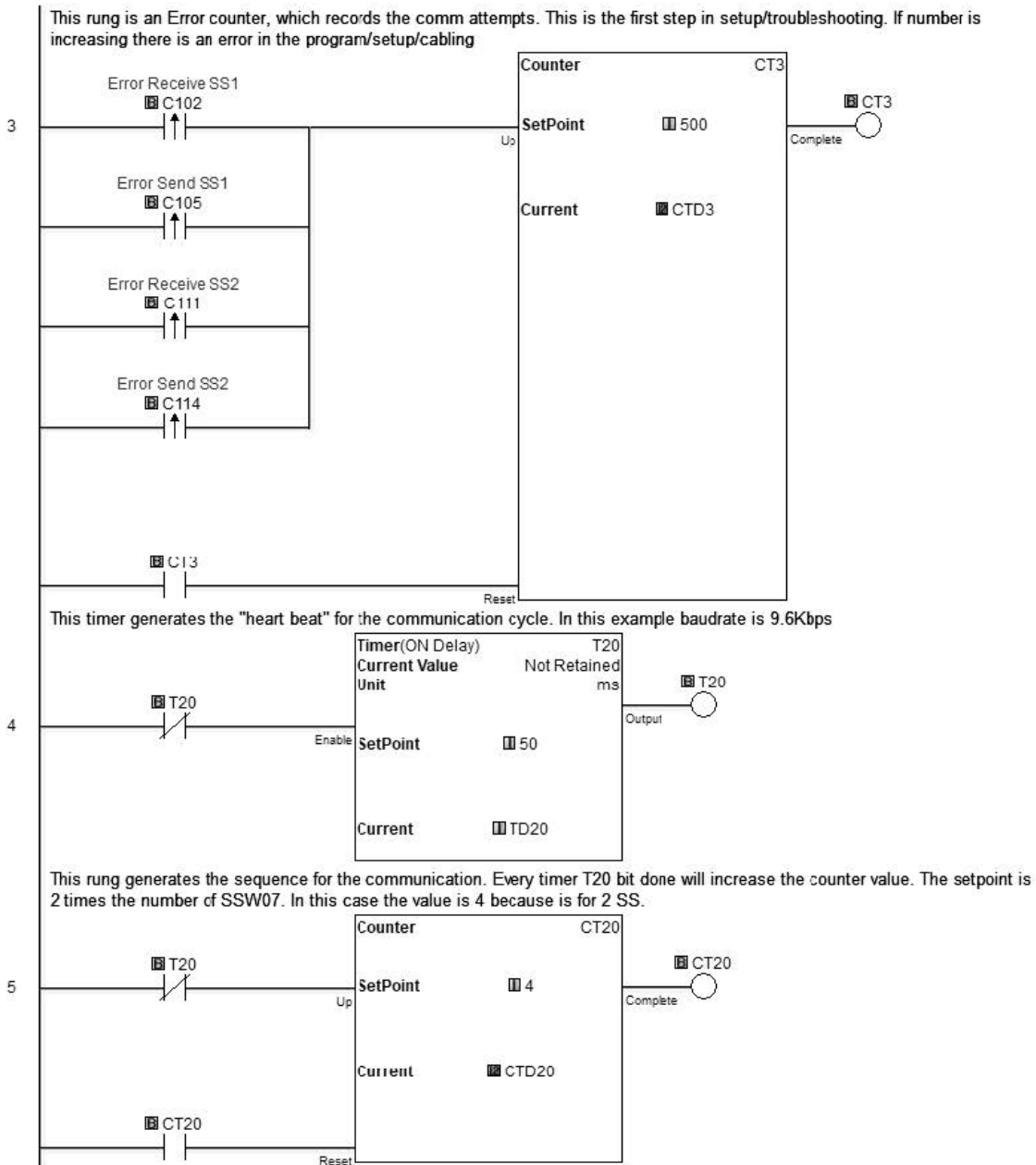
This rung is an success activity counter, which records the comm attempts. This is the first step in setup/troubleshooting. Attempts must be occuring or there is an error in the program/setup/cabling.

The counter will reset after it counts to 500.



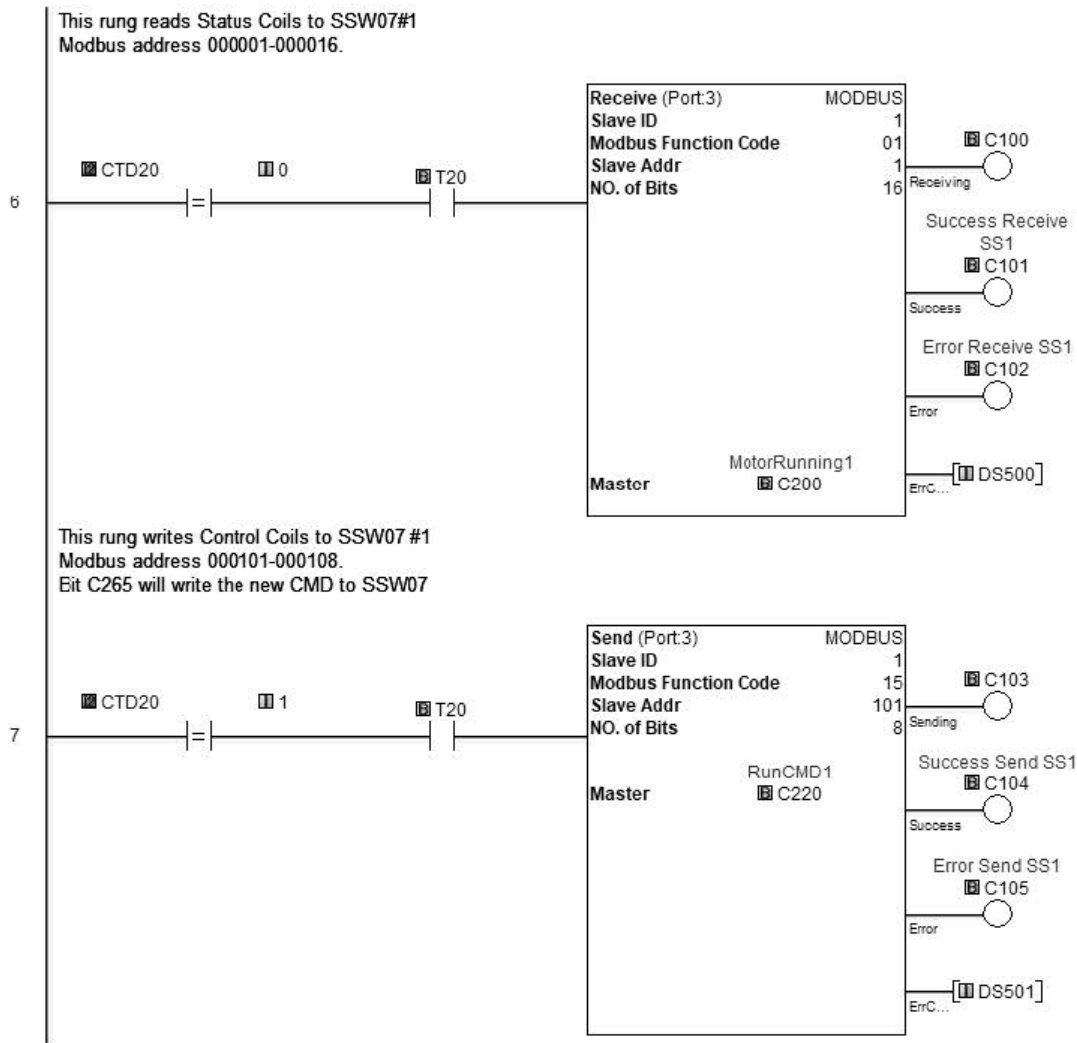
*(program continued next page)*

**CLICK PLC Example Program for WEG SSW07 AC Soft Starter (continued)**



(program continued next page)

**CLICK PLC Example Program for WEG SSW07 AC Soft Starter (continued)**



(program continued next page)

**CLICK PLC Example Program for WEG SSW07 AC Soft Starter (continued)**

