

## TecNote 3033 – Setting up the Commander/ATC/2070 Hardware binding for Communications

The purpose of this TecNote is to help the user configure Commander, ATC or 2070 controllers for various communications purposes including interfacing with StreetSync or Master/Slave Setups. All related software for these controllers utilize the Binding screens found under MM->6->6 to properly set up the hardware ports for communications to the outside world.

### Controller Hardware Binding Considerations

The Binding menu associates the physical hardware ports of the Commander/ATC//2070 controller with the logical ports assigned through software.

For 2070 applications, “Software Ports” SP1 and SP2 correspond with the 9-pin serial connectors, C21S and C22S on the 2070-7A card when inserted in slot A2 of the 2070. “Software Ports” SP3 and SP4 correspond with the 9-pin serial connectors, C21S and C22S on the 2070-7A card when inserted in slot A1 of 2070.

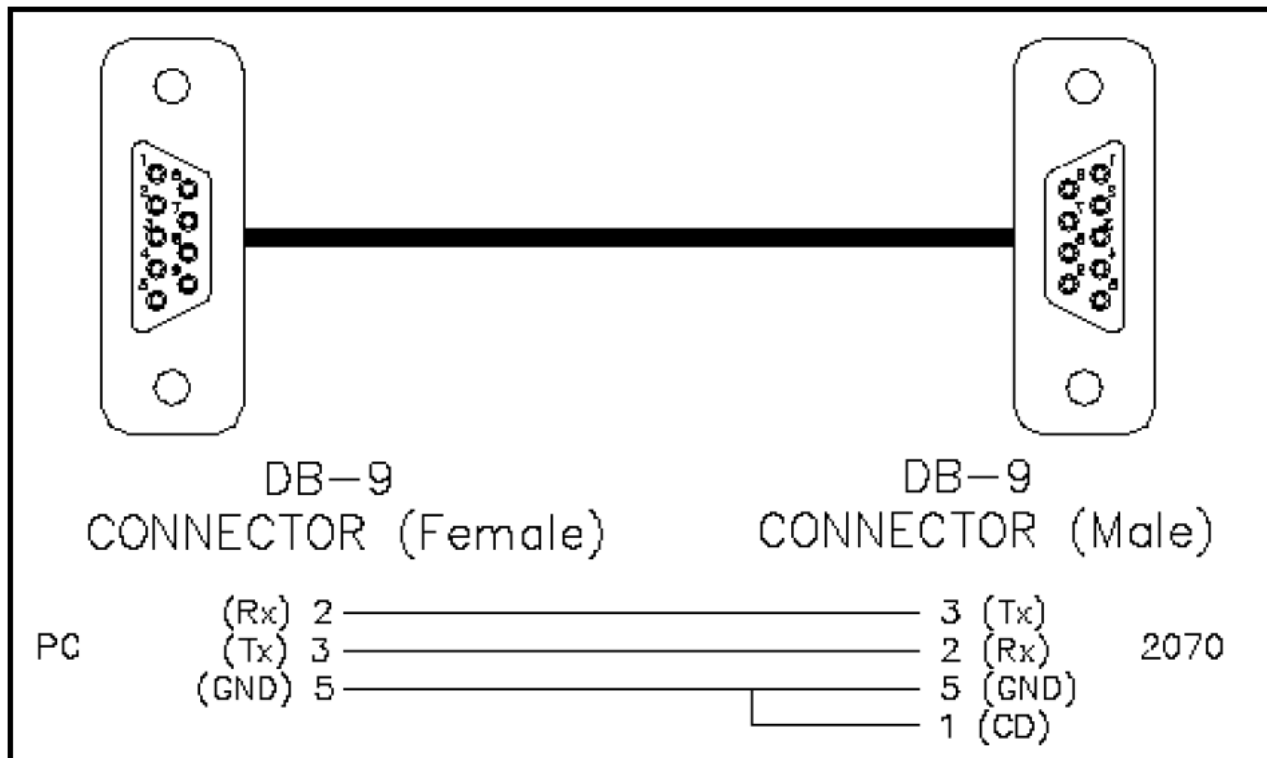
For an ATC or Commander controller, the serial ports SP1, SP2, SP3 and SP4 are marked using silk screen of the front panel.

The user should power cycle the controller to ensure that the port changes have been bound.

Port Binding					
Async	Hdwr	Echo/Mode		Sync	Hdwr
Chan	Port			Chan	Port
Async1:	SP1	NONE	0	Sync1:	SP5S
Async2:	SP2	NONE	0	Sync2:	SP3S
Async3:	SP8	NONE	0		
Async4:	OFF	NONE	0		
Func Chan					
TS2 CVM:	ASYNC3				
CMU/MMU:	NONE				
Out Conn:	NONE				
GPS	: NONE				
SysUp	: NONE				
SysDown	: NONE				
Shell	: NONE				
F1020	: SYNC1				
TS210	: SYNC2				

## PC to 2070 Cable Setup

The following is a diagrams outlining the pin-outs for a cable connecting the 2070 C50 connector to the comm. port of your PC or laptop. This cable is available from Trafficware via Part # 10492-2000.



## NEMA TS2/ATC/Commander Communications Port Cable setup

The following shows the pin-outs for a cable connecting an ATC, Commander or TS2 connector to the comm. port of your PC or laptop. This cable is typically a DB25 Male to DB9 Male connector available from Trafficware via Part # 10224-2100.

System (P-A)				System Up (P-A)				System Down (P-B)			
Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	Earth Ground	7	Signal Ground	1	Earth Ground	7	Signal Ground	1	Earth Ground	5	CTS
2	TX	8	DCD	2	TX	8	DCD	2	TX	7	Signal Ground
3	RX	20	DTR	3	RX	20	DTR	3	RX	8	DCD
4	RTS	24	Enable	4	RTS	24	Enable	4	RTS	20	DTR
5	CTS	25	Logic Ground	5	CTS	25	Logic Ground				

## StreetSync Specific Programming

### 2070 set up using 2070-7A in slot A2

1. Set MM>6>6 (Port Bindings) to proper Async port for communications. It is recommend to use Async1-SP1 with the 2070-7A in Slot A2.

Port Binding					
Async	Hdwr			Sync	Hdwr
Chan	Port	Echo	Mode	Chan	Port
Async1:	SP1	NONE	0	Sync1:	SP5S
Async2:	SP2	NONE	0	Sync2:	SP3S
Async3:	SP8	NONE	0		
Async4:	OFF	NONE	0		
					+

2. For StreetSync communications, the screen below can be programmed to directly communicate to the proper port.

Port Binding	
LoopDet:	NONE -
GPS :	NONE
SysUp :	ASYNC1
SysDown:	#SYNC2
Shell :	NONE
FI020 :	SYNC1
TS2IO :	SYNC2

3. Set MM>6>2 (Port Parameters), set corresponding serial ports to correct modem rate. (For example: SP1 – 9600 – 6). For 2070's Baud Rates can be as high as 38,400.

Hardware Port Parameters		
/SP#	Baud	FCM
1	9600	6
2	9600	6
3	1200	0
4	1200	0
5	1200	0
6	1200	0
		+

## 2070 set up using 2070-7A in slot A1

An alternate way is to use SP4 (Async4) which is connected to the C50 connector on the 2070 Front panel or via the bottom port (C22S) of the 2070-7A in Slot A1.

1. Turn OFF Run Timer (MM-1-7)
2. Route ASYNC4 to SP4 hardware (MM->6->6)

Port Binding					
Async	Hdwr			Sync	Hdwr
Chan	Port	Echo	Mode	Chan	Port
Async1:	SP1	NONE	0	Sync1:	SP5S
Async2:	SP2	NONE	0	Sync2:	SP3S
Async3:	SP8	NONE	0		
Async4:	SP4	NONE	0		

3. Force 2070 to listen for commands on SP4 / ASYNC4 (MM-6-6)+

Port Binding		
LoopDet:	NONE	-
GPS :	NONE	
SysUp :	ASYNC4	
SysDown:	NONE	
Shell :	NONE	
FIO20 :	SYNC1	
TS2IO :	SYNC2	

4. Set MM>6>2 (Port Parameters), corresponding serial port to correct modem rate, i.e. SP4 – 9600 – 6). Note, if using the C50 connector, the recommended Baud rate is 38,400.

Hardware Port Parameters		
✓SP#	Baud	FCM
1	9600	6
2	9600	6
3	9600	6
4	9600	6
5	1200	0
6	1200	0

5. Turn ON Run Timer (MM-1-7)
6. Power Cycle 2070

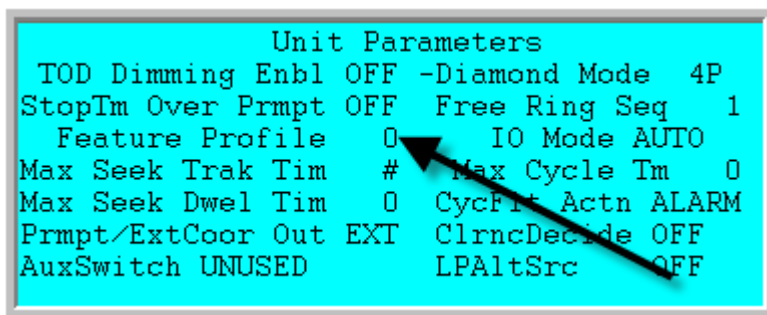
Prep the communications cable – Connects PC serial port DB9F to 2070 C50S DB9M

## Field Masters and Local Specific Programming

### Setting up the field master software

You should have a license for Master software on the controller running the Master software. Verify that you are licensed for the Master software via MM->8->6, Registration. Please contact your Trafficware representative for further License information.

- 1) MM>1>2>1 (Unit Parameters), set “Feature Profile” to “0” to enable master. NOTE: Menu option #9 will not appear until power cycle.



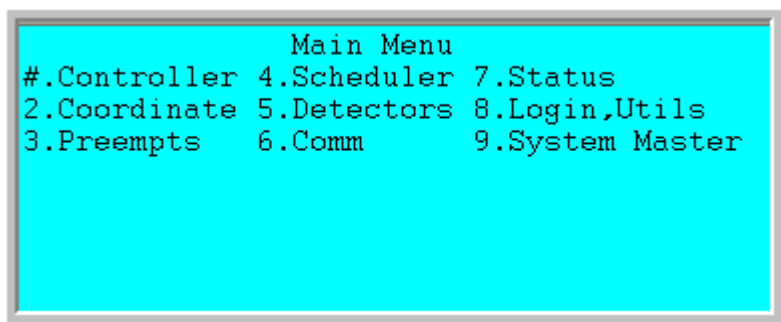
```
Unit Parameters
TOD Dimming Enbl OFF -Diamond Mode 4P
StopTm Over Prmpt OFF Free Ring Seq 1
Feature Profile 0 IO Mode AUTO
Max Seek Trak Tim # Max Cycle Tm 0
Max Seek Dwel Tim 0 CycFit Actn ALARM
Prmpt/ExtCoor Out EXT ClnrcDecide OFF
AuxSwitch UNUSED LPAltSrc OFF
```

- 2) MM>2>1 (Coord Modes+), set “Closed Loop” to “ON” on Master.

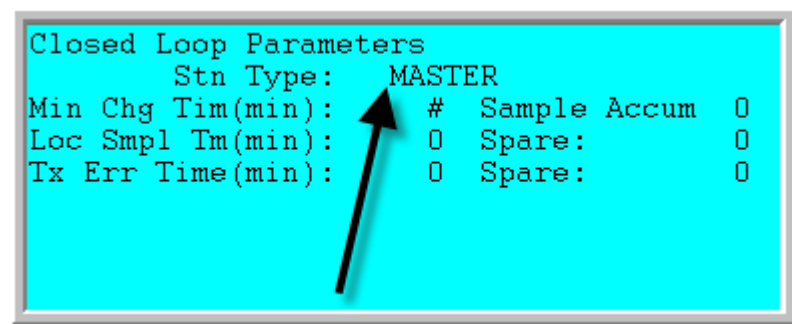


```
< Coordination Modes+
Force-Off+ FRC,YLD Easy Float OFF
Closed Loop ON Auto Err Reset OFF
External OFF NTCIP Yield + 0
Latch Sec Frc OFF -- Leave Walk --
Stop-in-Walk OFF Before TIMED
Walk Recycle NO_RECYCLE After TIMED
ExpandSplits OFF
```

- 3) Power Cycle controller. Menu #9 will appear for System Master menu.



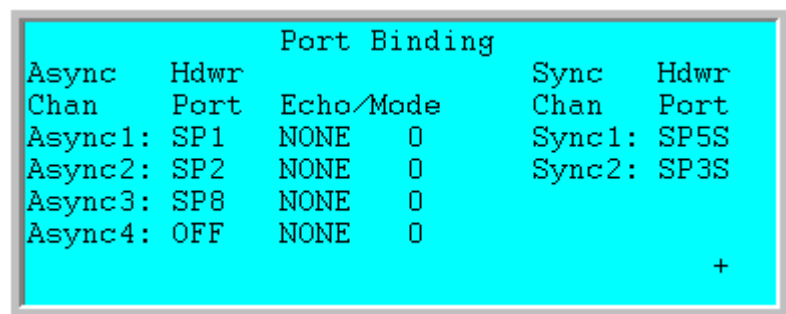
- 4) MM>9>1 (Master Parameters), set “Stn Type” to “MASTER”.



## Serial Based Communications Considerations

FOR SERIAL-BASED COMM (if serial, ignore step #7 below):

- 5) On the 2070, MM>6>6 (Port Bindings), set “System Down” to proper Async port for modem.  
Recommend Async1-SP1 with 7A in second slot.



```

Port Binding
LoopDet: NONE
GPS : NONE
SysUp : ASYNC1
SysDown: #SYNC2
Shell : NONE
FI020 : SYNC1
TS2IO : SYNC2

```

6) MM>6>2 (Port Parameters), set corresponding serial ports to correct modem rate. (example: SP1 – 9600 – 6)

```

Hardware Port Parameters
/SP# Baud FCM
1 9600 6
2 9600 6
3 1200 0
4 1200 0
5 1200 0
6 1200 0

```

## Ethernet Based Communications Considerations

FOR ETHERNET-BASED COMM (if Ethernet, ignore steps #5 & #6 above):

7) MM>9>6 (Master>Local Setup), set the IP addresses for each Local controller in your subsystem, including the local IP address in that controller under MM>6>5.

```

Signal System Local Setup
Nbr IP Addr
1 #. 0. 0. 0
2 0. 0. 0. 0
3 0. 0. 0. 0
4 0. 0. 0. 0
5 0. 0. 0. 0
6 0. 0. 0. 0

```

8) MM>9>8 (Master>Local Setup+), assign all local ID #'s, including the embedded local in that controller. Define v65 Locals (including embedded Local) as Type="LOC" and Version="Default".

```

Signal System Local Setup+
Nbr Addr Type Version
1    # LOC  DEFAULT
2    0 LOC  DEFAULT
3    0 LOC  DEFAULT
4    0 LOC  DEFAULT
5    0 LOC  DEFAULT
6    0 LOC  +DEFAULT

```

9) MM>9>7>2 (Status-Subsystem), change in right column to "REESTBL" or "ONLINE". Wait 2 minutes or less for status to re-sync to locals. If each local stays online, then it should be working.

```

STATION  POS..STN..CURRENT..CHANGE
STATUS   1      0  NONE
          2      0  NONE
          3      0  NONE
          4      0  NONE
          5      0  NONE
          6      0  NONE
          7 +    0  NONE

```

You can test controller to controller communication by modifying the Date or Time under MM>9>5>1. If Date and Time are not read by each local, then test modem(s) or Ethernet connections and local settings.

```

Set Date & Time
      Date   Day   Time   Secs
Current 04-27-08 SUN 01:35   4
Set To  00-00-00    00:00  00

```

10) Subsystem test can also be done from Master under MM>7>6 (Status-Comm Ports) to check if outbound serial is going to the modem.



```

      Rx..... Tx.....
Chan Bytes Count Error CRCEr Bytes Count
1      0      0      0      0      0      0
2      0      0      0      0      0      0
3      0      0      0      0      0      0
4      0      0      0      0      0      0
Enet    0      0      0      0      0      0
C-Clear Counters

```

11) Set Master Time & Date settings under MM>9>5>1.

```

Set Date & Time
      Date      Day      Time      Secs
Current 04-27-08  SUN    01:35      4
Set To  00-00-00      00:00      00

```

12) Set Master TOD scheduler operation if needed.at various menus beginning with MM>9>5.

```

      Master Time Based Scheduler
1.Set Date/Time 4.Day Plan 7.CrossOfst
2.Easy Schedule 5.Action Tbl 8.MTB Config
3.Adv Schedule 6.Commands 9.Status

```

## Notes and Troubleshooting

If the controller is initialized with v65 Master firmware, the default settings turn the Master menu#9 off (Feature Profile 1). All above procedures have to be repeated because settings will be lost when the Profile is turned off. · The Master/Local toggling between “Feature Profiles” do not take effect until the controller is power-cycled. (Feature Profile “0” for MASTER, “1” for LOCAL). · If using Ethernet-based Master to Local communications and the time does not sync, plug laptop into switch (with settings within the same subnet as controllers). Ping each controller in the Master subsystem to verify that the network settings are correct for the Locals to receive the sync.

## Summary

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This TecNote outlines typical configurations for the Commander, ATC or 2070 controllers for various communications purposes including interfacing with StreetSync or Master/Slave Setups.