

**PANEL-TEC  
MICROGATE II**

**P1 TO  
ALTIVAR 58/61 DRIVES**

**INSTALLATION  
AND  
OPERATION**

## **REVISION HISTORY**

<b>Revision</b>	<b>Date</b>	<b>Author</b>	<b>Comments</b>
000	14 May 2010	David Walker	Initial release.

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## INTRODUCTION

The P1 to Altivar 58 version of the MicroGate II connects one Altivar 58 drive or Altivar 61 drive operating in “58 Mode” to a P1 Network. A pre-defined set of P1 points are provided that allow access to the most common drive parameters, monitor values, setpoint values, and control points for the Altivar 58 drive.

## Ordering Information

The MicroGate II product is sold with several different applications. To ensure that the correct version of the MicroGate II is procured, please include the correct part number when ordering. Part numbers for the MicroGate II, power supply and cables for the P1 to Altivar 58/61 application are as follows:

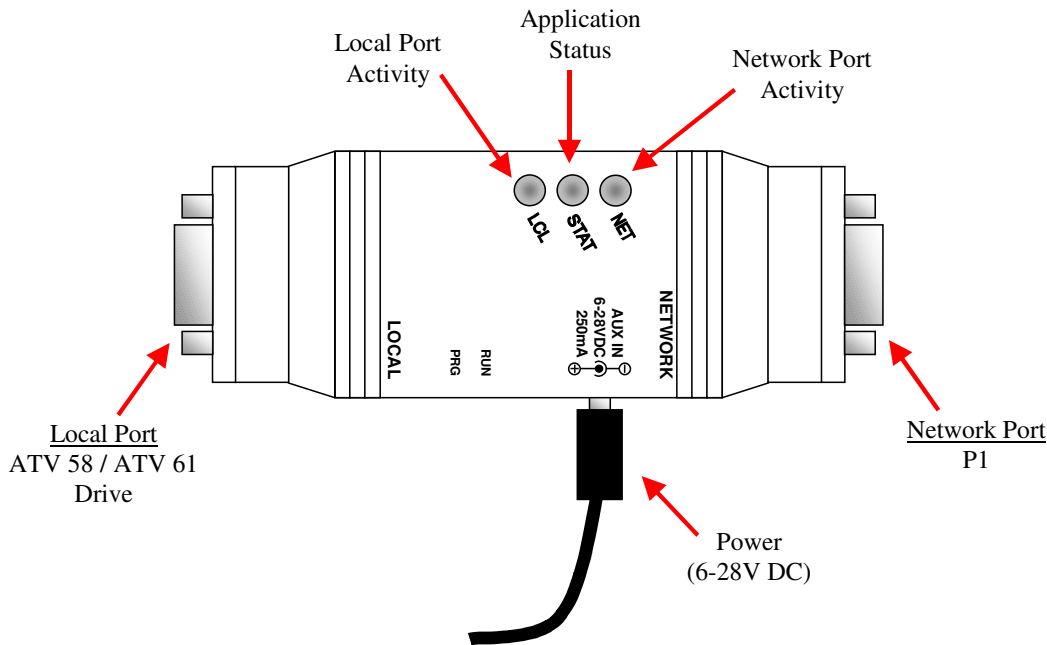
**Table 1 - Part Numbers**

<b><u>Description</u></b>	<b><u>Part Number</u></b>
<b>■ MicroGate II P1 to Altivar 58 Drives</b>	<b>7058-202-101</b>
includes the following:	
□ MicroGate II with P1 to ATV 58/61 application	(5001-202-101)
□ 3-position plug	(2100-0018)
□ MicroGate II power supply	(4000-0205)
□ MicroGate II Local Port ATV 58 Drive Cable (RS485 DB9-M to DB9-M)	(6000-0002)
□ MicroGate II Network Port P1 Cable (RS485 DB9-F to 3-pos socket)	(6000-0013)
□ MicroGate II P1 to ATV58 and ATV61 application note (CD)	
<b>■ MicroGate II P1 to Altivar 61 Drives</b>	<b>7061-202-101</b>
includes the following:	
□ MicroGate II with P1 to ATV 58/61 application	(5001-202-101)
□ 3-position plug	(2100-0018)
□ RJ45 to DB9 Male (Local Port)	(2100-0913)
□ RJ45 to RJ45 Cable	(6000-6037)
□ MicroGate II power supply	(4000-0205)
□ MicroGate II Network Port P1 Cable (RS485 DB9-F to 3-pos socket)	(6000-0013)
□ MicroGate II P1 to ATV58 and ATV61 application note (CD)	

## HARDWARE

### Dimensions

The MicroGate II is packaged in a 11cm x 4cm x 2cm plastic box. The serial ports are located on either end of the unit; the leds are located on the top of the unit; and the power connector is on the side of the unit.



### Power

The MicroGate II requires a 6-28 Volts DC power source, capable of supplying a minimum of 250mA. Power may be supplied to the MicroGate II by either connecting the MicroGate II Power Supply to the Input Power jack on the side of the unit, or by providing 6-28 Volts DC power to pin 9 of the Local serial port.

### Programming Switch

The Programming Switch on the MicroGate II should always be in the RUN position for normal operations and configuration. The PRG position is used strictly for loading firmware at the factory.

### Serial Ports

The MicroGate II comes with two serial ports. The pinouts for the serial ports are shown in the table below.

The Local port is for connection to a local device (in this case, an Altivar 58 or 61 Drive), and supports both RS232 and RS485 (2-wire) communications. The Local port is also used for programming the MicroGate II at the factory and for configuring the MicroGate II.

The Network port is for connection to a network (in this case, a P1 network), and also supports both RS232 and RS485 (2-wire) communications.

Table 2 - Serial Port Pinouts

Local: DB9-Female		
Pin	Label	Description
1	485+	RS485 D+
2	TXD	RS232 TxD
3	RXD	RS232 RxD
4	DTR	RS232 DTR
5	GND	Reference Ground
6	485-	RS485 D-
7	CTS	RS232 CTS
8	RTS	RS232 RTS
9	VCC	+24VDC Input

Network: DB9-Male		
Pin	Label	Description
1	485+	RS485 D+
2	RXD	RS232 RxD
3	TXD	RS232 TxD
4	-	not used
5	GND	Reference Ground
6	485-	RS485 D-
7	RTS	RS232 RTS
8	CTS	RS232 CTS
9	-	not used

## MICROGATE II CONFIGURATION

A configuration utility is built into the MicroGate II. It allows the P1 address, P1 Watchdog Time, and P1 Watchdog Timeout Action to be configured using any ANSI terminal or emulation program on a PC (HyperTerminal, etc.)

### Power Connection

The MicroGate II must be powered during configuration. A wall mount power supply (120 VAC Input, 9 VDC Output, part number 4000-0205) is available from ICP Panel-Tec, Inc.

### Connection to PC

A straight-through off-the-shelf DB9-Female to DB9-Male cable is used to connect the Local Port of the MicroGate II to a PC for configuration.

### Entering Configuration Mode

The terminal or emulation program must be configured with the parameters shown in the following table:

**Table 3 – Communication Parameters for Configuration Mode**

Parameter	Value
Emulation	ANSI
Echo	OFF
Baud Rate	9600
Parity	None
Stop Bits	1
Flow Control	None

To place the MicroGate II into configuration mode, make sure that it is powered off. Connect a straight-through DB9 cable from the female connector on the MicroGate II to the serial port on a PC or ANSI terminal. Power up the terminal or start up the terminal emulation software and configure its communications parameters with the values in the above table. After powering up the MicroGate II, press the “Enter” key on the terminal or software within 5 seconds. The middle LED on the MicroGate II will be solid green while it is looking for the Enter key to place it into configuration mode. Once “Enter” has been pressed, a menu will be displayed on the terminal showing all operating parameters of the MicroGate II. Use the up and down arrows to navigate to the parameter you would like to change. The navigation process will skip over any parameters that are fixed values that cannot be changed. When you have navigated to the parameter you would like to change and it has become highlighted, use the left and right arrows to change the value of the parameter. When all parameters are set to their desired values, use the down arrow to navigate to the “Save Configuration” text. Press Enter with “Save Configuration” highlighted to save the new configuration. The message “Saving Configuration ...” will appear on the bottom line of the screen for a few seconds. When this message is cleared from the screen, the configuration process is complete and the MicroGate II can be powered off.

### Configuring the P1 Network Address

The P1 Network Address must be set to a value of 1 to 99. When set to 99, the MicroGate II will respond to any P1 address and must therefore be the only slave device on the P1 network. If the P1 Network Address is changed by the P1 Host, the new address will be saved in the MicroGate II and will be displayed the next time configuration mode is entered.

## **Configuring the P1 Watchdog Timer**

When enabled, the P1Watchdog Timer allows the ATV drive to be stopped or an External Fault to be generated on the drive if communications has been established with the P1 Host then lost. The P1 Watchdog Timer Value can be set to Disabled or any one of several pre-defined values. When changed, the new setting will remain in effect until the configuration utility is run again.

## ALTIVAR DRIVE CONFIGURATION

### Communications Parameter Settings (Altivar 58 and 61)

The Altivar Drive must be properly configured before the MicroGate II will communicate with it. The necessary communications parameters to configure are shown in the following table.

**Table 4 – Communication Parameters for Altivar Drive**

Parameter	Value
Protocol	Modbus RTU
Modbus Address	1
Baud Rate	19200
Parity	None
Stop Bits	1
Flow Control	None

### Altivar 58 Parameter Settings

It is recommended that LI4 be set to FLO (forced local mode) for safety.

### Altivar 61 Parameter Settings

The Altivar 61 must be configured to run in Altivar 58 mode when it is used with the MicroGate II. To place the Altivar 61 into “58 Mode”, navigate to the “1.6 COMMAND” menu and set the “Profile” parameter to “8 series”. This must be done before the “MODBUS NETWORK” communications parameters are configured on the “1.9 COMMUNICATIONS” menu.

## HARDWARE INSTALLATION

### Power Connection

The MicroGate II must be powered during operation. A wall mount power supply (120 VAC Input, 9 VDC Output, part number 4000-0205) is available from ICP Panel-Tec, Inc.

### Altivar 61 Connection

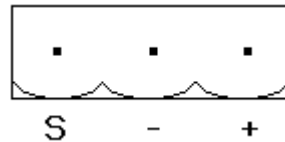
A cable assembly is provided to connect the MicroGate II's Local Port (DB9 female connector) to the ATV61's Modbus port (RJ45 receptacle). This assembly consists of a DB9 to RJ45 adapter and a flat phone cable with an RJ45 plug for direct connection between the MicroGate II and the ATV61.

### Altivar 58 Connection

A cable is provided to connect the MicroGate II's Local Port (DB9 female connector) to the Modbus port on the ATV58's Modbus Option Card. This is a special wired cable with a DB9 male connector on each end. Each DB9 connector is labeled so that the cable is installed correctly.

### P1 Network Connection

A cable is provided for connection to the P1 network. It consists of a 3-pin pluggable terminal block containing the standard P1 pin connections shown in the following diagram.



## MICROGATE II LED INDICATORS

There are a total of 3 Bi-color LED indicators on the MicroGate II. One LED (Status) is the Module Status LED that displays the operational status of the MicroGate II. Another LED (P1) is the Network Status LED that displays the P1 communication status. The third LED (Modbus) reflects the serial (Modbus) communication status with the drive.

**Table 5 - Module Status LED**

<b>For this state:</b>	<b>LED is:</b>	<b>To indicate:</b>
No Power	Off	There is no power applied to the device.
Initialization and Determination of Operating Mode	Solid Green	The device is initializing and determining the operating mode (Configuration or Normal Operation). If an Enter key is received from an external terminal connected to the Modbus (drive) port, the device will enter Configuration mode. Otherwise, the device will enter its Normal Operation mode.
Communications Not Active	Solid Red	The device is in Normal Operation mode but is either unable to communicate with the drive on the Modbus port or is not being polled by the P1 host on the P1 port.
Device Operational	Flashing Green	The device is fully operational and has active communications with both the drive and the P1 host.

**Table 6 – P1 Network Status LED**

<b>For this state:</b>	<b>LED is:</b>	<b>To indicate:</b>
Receive Data	Red	The MicroGate II is receiving data from the P1 Network.
Transmit Data	Green	The MicroGate II is transmitting data to the P1 Network.

**Table 7 – Drive Communications Status LED**

<b>For this state:</b>	<b>LED is:</b>	<b>To indicate:</b>
Receive Data	Red	The MicroGate II is receiving data from the Altivar 58/61 drive.
Transmit Data	Green	The MicroGate II is transmitting data to the Altivar 58/61 drive.

## MICROGATE II P1 POINT TABLE

Table 6 contains the list of P1 points for the Altivar 58 that are available on the MicroGate II. Any drive parameters, monitor values, setpoints or control values not listed in this table are not supported. For all points in the table, the units, slope and intercept are the same for ENG and SI.

**Table 8 - Point Database Table for Application 2715**

Point Number	Descriptor	Default	Units	Slope	Intercept	On Text	Off Text	Point Type
						Or Range		
1	CTLR ADDRESS	99	--	1	0	0-255		Pre-Def'd
2	APPLICATION	2715	--	1	0	-		Pre-Def'd
3	FREQ OUTPUT		HZ	0.1	0	0-5000		LAI 1
4	CMD SPD REF	0	HZ	0.1	0	0-HSP		LAO 1
5	MTR SPEED		RPM	1	0	1-32767		LAI 1
6	MTR CURRENT		A	0.1	0	0-9999		LAI 1
7	MTR TORQUE		PCT	1	0	0-200		LAI 1
8	POWER		PCT	1	0	0-200		LAI 1
9	DRIVE TEMP		PCT	1	0	0-200		LAI 1
10	kWH		kWH	1	0	0-32767		LAI 1
12	RUN TIME		HRS	1	0	0-32767		LAI 1
20	OVRD TIME		HRS	1	0	0-255		Pre-Def'd
21	FWD REV				0	REV	FWD	LDI 1
22	CMD FWD REV	FWD			0	REV	FWD	LDO 1
23	STOP RUN				0	RUNNING	STOPPED	LDI 1
24	CMD STP STRT	STOP			0	START	STOP	LDO 1
25	CMD SER CTRL	KEY/IO			0	SERIAL	KEY/IO	LDO 1
27	CMD LCTN				0	SERIAL	KEY/IO	LDI 1
29	DAY.NIGHT	DAY			0	NIGHT	DAY	Pre-Def'd
30	CURRENT LIM	1.36 x I nominal	A	0.1	0	0.1-1.36		LAI 2
31	ACCEL TIME 1	3.5	SEC	0.1	0	0-9999		LAO 2
32	DECEL TIME 1	3.5	SEC	0.1	0	0-9999		LAO 2
40	RELAY OUT 1	OFF			0	ON	OFF	LDI 1
41	RELAY OUT 2	OFF			0	ON	OFF	LDI 1
42	LOW SPD SET	0	Hz	0.1	0	0-HSP		LAO 2

Table 8 - Point Database Table for Application 2715

Point Number	Descriptor	Default	Units	Slope	Intercept	On Text	Off Text	Point Type
						Or Range		
43	HI SPD SET	60.0	Hz	0.1	0	LSP-TFR		LAO 2
44	PRESET 2	10.0	Hz	0.1	0	LSP-HSP		LAO 2
45	PRESET 3	15.0	Hz	0.1	0	LSP-HSP		LAO 2
53	ANALOG IN 1		V	0.001	0	0-100.00		LAI 1
54	ANALOG IN 2		mA	0.002	0	0-100.00		LAI 1
56	LOGIC IN 1				0	ON	OFF	LDI 1
57	LOGIC IN 2				0	ON	OFF	LDI 1
58	LOGIC IN 3				0	ON	OFF	LDI 1
59	LOGIC IN 4				0	ON	OFF	LDI 1
60	PI FEEDBACK		V	0.001	0	0-10.000		LAI 1
61	PI PRO GAIN	1.00		.001	0.01	0.01-100		LAO 2
62	PI INTGRL TIME	1.00		0.01	0.01	0.01-100		LAO 2
63	CMD PI STPNT	0		0.001	0	0-10000		LAO 1
78	READY				0	READY	NOT RDY	LDI 1
79	FAULT				0	FAULT	OK	LDI 1
80	RESET				0	AUTH	NO AUTH	LDI 1
81	FAULT RESET	0			0	FLT RST	NO	LDO 1
87	THRML OVRLD				0	ALARM	NO	LDI 1
88	CURRENT LIM				0	LIMIT	NO	LDI 1
91	LAST FAULT				0	List		LAI 1
99	ERROR STATUS	0			0	FAULT	OK	Pre-Def'd