

# **IDEC PLC Serial and Ethernet Communications Drivers**

Information Sheet for Crimson v3.0+

#### **Compatible Devices**

IDEC PLC's equipped with a serial or Ethernet port capable of being configured as a server using IDEC's Maintenance Communication Protocol.

### Verified Device

IDEC FC6A-C40K1CE

#### Overview

Red Lion's communication drivers for IDEC PLC's are master drivers available for both serial and Ethernet ports providing access to memory ranges as described within.

### **Serial Port Configuration**

In IDEC's WindLDR software, click on Comm Ports in the Configuration tab of the tool bar.



Set a Communication Port to Maintenance Protocol mode and configure to the desired Slave Number and port settings including Baud rate, Data length, Parity and Stop bits.

F	unction Area Settings								8 23	
	Run/Stop Control Memory Backup	7	Configure the communication pots.							
L	Input Configuration Communication Ports			tion Ports						
	Communication Ports Port Communication N		Communication Mode		Comm. Param.	Slave No.	Interface	Slot		
	External Memory Devices		1	Maintenance Protocol	Configure	115200-7-Even-1	1	RS485		
	Device Settings		2	Modbus RTU Slave	Configure	115200-8-Even-1	2		Cartridge Slot 1	
	Program Protection		3	Modbus RTU Slave	Configure	115200-8-Even-1	3		Cartridge Slot 2	

In Crimson's Communications category select the desired serial port in the Communications tree and click on the Pick... button.

Navigation Pane X	Communications - RS-485 Comms Port A
Ktev-     Communications     G    Communications     G    R5-322 Program Port     G    R5-322 Comms Port A     G    R5-322 Comms Port A     G    R5-435 Comms Port B     P    Network     Driver Picker	Driver Selection Driver: No Driver Selected Post Commands for Serial Port
Protocol 1     Manufact       Protocol 2     Hardy In       Protocol 3     HBM       Protocol 4     Hitachi       Wemory Stick     IPC Das       Keyboard     IFM       Mouse     IMO       Image Services     Indrama       Time Manager     Intellige       Que OPE, Proy     Johnson	ell t t Actuator i Controls
Sync Manager  Mail Manager  K SQL Sync	Cancel Total of 172 Drivers Available.
Slot 1	

Find the IDEC Micro 3 Series / ONC communications driver as shown above and click OK.

Navigation Pane X	Communications - RS-485 Comms Port A
🙈 New 🗸 📉	Driver Selection
Communications	
=() RS-232 Program Port	Driver: IDEC Micro 3 Series / ONC Pick
RS-485 Comms Port A - IDEC Micro 3	
PLC1	Port Settings
RS-232 Comms Port	
RS-485 Comms Port B	Baud Rate: 115200 -
Po Network	Data Bits: Seven
Frotocol 1	
6 Protocol 2	Stop Bits: One 👻
Protocol 3	Dariba Evan
Protocol 4	Parity.
Grad USB Host Ports	Port Mode: 2-Wire RS485
Kathoard	
Moure	Port Sharing
E Services	
Time Manager	Share Port: No TCP Port: 0

Modify the Baud Rate, Data Bits, Stop Bits and Parity settings such that it mirrors the port settings in the WindLDR software.

Next select the PLC device and set the Drop Number to the same value as configured in the WindLDR software in the first step of this section.

Navigation Pane	×	Communications - RS-485 Comms Port A - PLC1
🔏 New 🕶 🔀		Device Settings
Communications	*	
RS-232 Program Port		Enable Device: Yes 👻
🖃 🛋 RS-485 Comms Port A - IDEC Micro 3		
PLC1		Device Settings
RS-232 Comms Port		Drop Number: 1
RS-465 Comms Port B		
Protocol 1		Advanced Settings
Protocol 2		Secondary (F. 11. 1
🚏 Protocol 3		Spanning Reads:
🚏 Protocol 4		Transactional Writes: Enabled -
😑 🖨 USB Host Ports		
Memory Stick		Preempt Other Devices: No 🔻
Keyboard		Favor III Writes:
Mouse	=	NO VIES
E Services	-	Comms Delay: 0 🚔 ms
Time Manager		

#### **Ethernet Port Configuration**

In IDEC's WindLDR software, click on Comm Ports in the Configuration tab of the tool bar.



Click on Network Settings and configure an appropriate IPv4 address according to the network requirements. Please consult your IT department for assistance if needed.

Function Area Settings		8 23						
Run/Stop Control	Configure the network settings.	Configure the network settings.						
Memory Backup								
Input Configuration	IP Settings	IP Settings						
Communication Ports	Obtain an IP Address automatically	Obtain an IP Address automatically (DHCP)						
External Memory Devices	🔘 Use special data register to configu	ure the IP address						
Device Settings	Use the following IP address:							
Program Protection	IP Address:	192.168.1.5						
Self Diagnostic	Subnet Mask:	255.255.255.0						
Calendar & Clock	Default gateway:	0.0.0						
Network Settings	DNE Cattings							
Network Management	Obtain DNS server address automa	atically (DHCP)						
Connection Settings	Use special data register to configu	ure the DNS server addresses						
Access Control	Use the following DNS server addre	isses:						
	Preferred DNS Server:	0.0.0						
	Alternate DNS Server:	0.0.0						
	IP Settings / DNS Settings Option							
	Enable D8303 (IP Settings / DNS Set	ttings switching)						
Default								
Derauic		UK Cancel						

Next click on Connection Settings.

unction Area Settings					8
Run/Stop Control Memory Backup	2 c	onfigure parameters for connections.			
Input Configuration	Connec	tions			
Communication Ports	No.	Communication Mode			
External Memory Devices	1	User Communication Server	TCP	Configure	
Device Settings	2	Maintenance Communication Server	TCP	Configure	
Program Protection	3	Maintenance Communication Server	TCP	Configure	
Calendar & Clock	4	Maintenance Communication Server	TCP	Configure	
Network Settings	5	Maintenance Communication Server	TCP	Configure	
Network Management	6	Maintenance Communication Server	TCP	Configure	
Connection Settings	7	Maintenance Communication Server	TCP	Configure	
Access Control	8	Maintenance Communication Server	тср	Configure	

Click on the Configure button for the desired Maintenance Communication Server connection. Set/note the Local Host Port Number.

Maintenance Communication Server	<u>8</u> X
Local Host Port No.:	2101
Receive Timeout (ms):	2000
Allow Access by IP Address: 0	. 0 . 0 . 0
Enable Pass-Through over Modbus RTU (Port1)	Cancel

In Crimson's Communications category select an available protocol in the Network element of the Communications tree and click on the Pick... button.

Keyboard     Keyboard	Driver Selection Driver: IDEC MicroSmart TCP/IP Master Port Commands Driver Picker for Ethernet Port  Driver Picker for Ethernet Port  Driver Selected Cfit Cfit EtherNet/IP Ez Automation Fatek Galil GE
Services Services Services Services Services Services Services Services	Galil GE Honeywell IDEC
ETP Server	OK Cancel Total of 101 Drivers Available.
SQL Sync	

Find the IDEC MicroSmart TCP/IP Master communications driver as shown above and click OK.

Next, configure the Primary IP Address and the TCP Port such that it matches the IPv4 address and the Local Host Port Number in the WindLDR configuration respectively.

🚜 New - 🔀		Device Settings
Communications	*	·
■① RS-232 Program Port		Enable Device: Yes 👻
■① RS-485 Comms Port A		
RS-232 Comms Port		Device Identification
<ul> <li>◄① RS-485 Comms Port B</li> <li>□ φ<sup>b</sup> Network</li> </ul>		IP Address: 192.168.1.5
🖃 🍞 Protocol 1 - IDEC MicroSmart		Fallback IP Address: 0.0.0.0
PLC1		
🏹 Protocol 2		TCP Port: 2101
🏹 Protocol 3		Unit Number 1
🏹 Protocol 4		
C Ch USE Hort Barts		

Note - Only configure the Fallback IP Address if there is a secondary IDEC IP address for redundancy communications.

Also ensure that the Red Lion device's Ethernet Port Settings are configured – please refer to the **NETWORK CONFIGURATION** section within the Crimson manual.

#### **Ethernet User Access**

Ethernet configuration access is provided to the Red Lion device's UI by using the DevCtrl function:

INT **DEVCTRL(**DEVICE, FUNCTION, DATA)

For DEVICE use the Device Number shown in Crimson's lower Toolbar when the IDEC PLC is selected in the Communications tree.



For FUNCTION reference the codes below.

Function Code Operation Performed	
1 Set Primary IP Address	
5	Set Fallback IP Address
2	Set TCP Port
4 Get Primary IP Address	
6	Get Fallback IP Address
7	Get Fallback Status $(1 = Fallback active, 0 = Primary active)$

DATA is defined as a string containing write data.

Note returned data is always a number.

For demonstration purposes consider the following functions within a user program accessing Device Number 1:

Programs - EthernetConfig_1							
Source Properties							
Data	Types						
Р	rototype: void EthernetConfig_1(void)						
Prog	ram Code						
	// Set Primary IP Address to 192.168.1.15						
1	<pre>DevCtrl(1, 1, "192.168.1.15");</pre>						
,	// Set Fallback IP Address to 192.168.1.16						
1	DevCtrl(1, 5, "192.168.1.16");						
,	// Set TCP Port to 2110						
1	DevCtrl(1, 2, "2110");						
/	// Get Primary IP						
1	<pre>PrimaryIP = DevCtrl(1, 4, "");</pre>						
	// Get Fallback IP						
1	<pre>FallbackIP = DevCtrl(1, 6, "");</pre>						
	// Get Fallback Status ( 1 = Fallback active, 0 = Primary active )						
1	FallbackStatus = DevCtrl(1, 7, "");						

#### **Data Access**

The IDEC address selection dialog box is found by selecting the device representing the IDEC PLC device in the Source drop down box of a Tag created in the Data Tag category in Crimson.

🗩 i 🗅 🖻	s 🖬 🖻 🖬 🐒 🔓 📴  🐴 🗢	<b>I</b>	
igation Pane	×	Data Tags - Tag1	
New 👻 🛱	× & 2	Data Format Colors	Alarms Triggers Plot Security
Data Tags		Data Source	
X Tag1		C	
		Source:	Internal
		Extent:	Internal
		Manipulation:	General
		Treat As:	Complex
		incut risk	Tag
		Access:	New Tag
		Read Mode:	Next v
		Storage:	Master
			PLC1
		Data Scaling	
Data Item		Elen	ment
<none></none>	No Selection	▲ D	0001
EDR	Extra Data Register		
TC	Timer (Current Value)		
TP	Timer (Preset Value)	=	
CC	Counter (Current Value)	<ul> <li>Detail</li> </ul>	ails
CP	Counter (Preset Value)		
1	Input Bits	Typ	pe: Word
мв	Ordinary Relay Bytes	Mi	inimum: D0000
M	Ordinary Relay Bits	▼ Ma	aximum: D8999
		Pa	adiv Decimal
Data <u>T</u> ype		Ka	aux. Decifildi
Word as V	Word		
Word as I	Long		
Word as I	Real	-	
			OK Cancel

The following IDEC address memory registers are available for access.

Prefix	Description	Data Types	Format	Range	Access
D	Data Register	Word, Long, Real	Decimal	0-8999	R/W
EDR	Extra Data Register	Word, Long, Real	Decimal	10000-55999	R/W
TC	Timer (Current Value)	Word	Decimal	0-1023	RO
TP	Timer (Preset Value)	Word	Decimal	0-1023	R/W
CC	Counter (Current Value)	Word	Decimal	0-511	RO
CP	Counter (Preset Value)	Word	Decimal	0-511	R/W
I	Input Bits	Bit	Decimal*	0-637	R/W
Q	Output Bits	Bit	Decimal*	0-637	R/W
MB	Ordinary Relay Bytes	Byte	Decimal	0 – 799	R/W
М	Ordinary Relay Bits	Bit	Decimal*	0 – 7997	R/W
S8	Special Relay Bits	Bit	Decimal*	8000 - 8317	R/W
RB	Shift Register Bytes	Byte	Decimal	0 - 248	R/W
R	Shift Register Bits	Bit	Decimal	0 – 255	R/W
IB	Input Bytes	Byte	Decimal	0 - 63	R/W
QB	Output Bytes	Byte	Decimal	0 - 63	R/W
SB8	Special Relay Bytes	Byte	Decimal	800 - 831	R/W

\*The least significant digit is an octal number (0-7). This is consistent with WindLDR access.

# **Serial Cable Information**

Red Lion RS232 RJ12 Port	IDEC MicroSmart FC6A RJ45 Port
Pin 2 - Rx	2 - SD
Pin 5 - Tx	1 - RD
Pin 3 - COMM	8 - GND

Red Lion RS485 RJ45 Port	IDEC MicroSmart FC6A RJ45 Port
7 - TxB	4 - A
8 - TxA	5 - B
6 - COMM	8 - GND

Red Lion RS232 RJ12 Port	IDEC (8 way male mini-DIN)
5	4
2	3
4	7

Red Lion RS485 RJ45 Port	IDEC (8 way male mini-DIN)
1	1
2	2
6	7
3 and 8	NC
4 and 7	NC





# **Ethernet Cable Information**

Standard Ethernet Cable

### **Revision History**

08/07/18 - Created.