

ASTRA

SNP Protocol of GE Fanuc 90-70/ 90-30 Device Driver

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⌘ Preface ⌘

This document introduces you to the Protocol of GE Device Driver in the context of its use with Astra. It contains technical information about GE Device Driver.

⌘ Technical & Communication Details ⌘

PLC Make :	_____
PLC Modles :	GE Fanuc 90-70 / 90-30 models:9030-311, 9030-313, 9030-331, 9030-341,9070-731, 9030-732, 9070-771, 9030-772, 9070- 781,9070-782
PLC Memory :	WORD Memory
Communication Protocol :	GE Fanuc SNP (Series Ninety Protocol) GE (MultiPoint, Half Duplex).
Communication Parameters :	
Baud Rate	19200
Parity	ODD
Data Bits	8
Stop Bits	1
Cable Connections :	_____
Node ID :	_____



Address Ranges



I. Address Range : Model Name : GE Fanuc 9030-311 and 9030-313

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Inputs	%I1	%I512	RW	Discrete
	%Ib1	%Ib505	RW	Byte
	%I1	%I497	RW	Integer, Unsigned integer
	%I1	%I497	RW	Large integer
Discrete Outputs	%Q1	%Q512	RW	Discrete
	%Qb1	%Qb505	RW	Byte
	%Q1	%Q497	RW	Integer, Unsigned integer
	%Q1	%Q497	RW	Large integer
Temporary Coils	%T1	%T256	RW	Discrete
	%Tb1	%Tb249	RW	Byte
	%T1	%T241	RW	Integer, Unsigned integer
	%T1	%T241	RW	Large integer
Internal Coils	%M1	%M1024	RW	Discrete
	%Mb1	%Mb1017	RW	Byte
	%M1	%M1009	RW	Integer, Unsigned integer
	%M1	%M1009	RW	Large integer
SA Discretes	%SA1	%SA32	RW	Discrete
	%SAb1	%SAb25	RW	Byte
	%SA1	%SA17	RW	Integer, Unsigned integer
	%SA1	%SAB17	RW	Large integer
SB Discretes	%SB1	%SB32	RW	Discrete
	%SBb1	%SBb25	RW	Byte
	%SB1	%SB17	RW	Integer, Unsigned integer
	%SB1	%SB17	RW	Large integer
SC Discretes	%SC1	%SC32	RW	Discrete
	%SCb1	%SCb25	RW	Byte
	%SC1	%SC17	RW	Integer, Unsigned integer
	%SC1	%SC17	RW	Large integer
Status References	%S1	%S32	R	Discrete
	%Sb1	%Sb25	R	Byte
	%S1	%S17	R	Integer, Unsigned integer
	%S1	%S17	R	Large integer



Address Ranges



Model Name : GE Fanuc 9030-311 and 9030-313

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Globals	%G1 %Gb1 %G1 %G1	%G1280 %Gb1273 %G1265 %G1265	RW RW RW RW	Discrete Byte Integer, Unsigned integer Large integer
Analog Inputs	%Alb1 %AI1 %AI1	%Alb64 %AI63 %AI63	RW RW RW RW	Byte Integer, Unsigned integer Large integer,Real
Analog Outputs	%AQb1 %AQ1 %AQ1	%AQb32 %AQ31 %AQ31	RW RW RW	Byte Integer, Unsigned integer Large integer,Real
Register References for Model 9030 -311	%Rb1 %R1 %R1	%Rb512 %R511 %R511	RW RW RW	Byte Integer, Unsigned integer Large integer,Real
Register References for Model 9030 -313	%Rb1 %R1 %R1	%Rb512 %R511 %R511	RW RW RW	Byte Integer, Unsigned integer Large integer,Real



Address Ranges



I. Address Range : Model Name : GE Fanuc 9030-331 and 9030-341

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Inputs	%I1	%I512	RW	Discrete
	%Ib1	%Ib505	RW	Byte
	%I1	%I497	RW	Integer, Unsigned integer
	%I1	%I497	RW	Large integer
Discrete Outputs	%Q1	%Q512	RW	Discrete
	%Qb1	%Qb505	RW	Byte
	%Q1	%Q497	RW	Integer, Unsigned integer
	%Q1	%Q497	RW	Large integer
Temporary Coils	%T1	%T256	RW	Discrete
	%Tb1	%Tb249	RW	Byte
	%T1	%T241	RW	Integer, Unsigned integer
	%T1	%T241	RW	Large integer
Internal Coils	%M1	%M1024	RW	Discrete
	%Mb1	%Mb1017	RW	Byte
	%M1	%M1009	RW	Integer, Unsigned integer
	%M1	%M1009	RW	Large integer
SA Discretes	%SA1	%SA32	RW	Discrete
	%SAb1	%SAb25	RW	Byte
	%SA1	%SA17	RW	Integer, Unsigned integer
	%SA1	%SAB17	RW	Large integer
SB Discretes	%SB1	%SB32	RW	Discrete
	%SBb1	%SBb25	RW	Byte
	%SB1	%SB17	RW	Integer, Unsigned integer
	%SB1	%SB17	RW	Large integer
SC Discretes	%SC1	%SC32	RW	Discrete
	%SCb1	%SCb25	RW	Byte
	%SC1	%SC17	RW	Integer, Unsigned integer
	%SC1	%SC17	RW	Large integer
Status References	%S1	%S32	R	Discrete
	%Sb1	%Sb25	R	Byte
	%S1	%S17	R	Integer, Unsigned integer
	%S1	%S17	R	Large integer



Address Ranges



Model Name : GE Fanuc 9030-331 and 9030-341

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Globals	%G1	%G1280	RW	Discrete
	%Gb1	%G1b273	RW	Byte
	%G1	%G1265	RW	Integer, Unsigned integer
	%G1	%G1265	RW	Large integer
Analog Inputs for Model 9030 -331	%Alb1	%Alb128	RW	Byte
	%AI1	%AI127	RW	Integer, Unsigned integer
	%AI1	%AI127	RW	Large integer,Real
Analog Inputs for Model 9030 -341	%Alb1	%Alb1024	RW	Byte
	%AI1	%AI1023	RW	Integer, Unsigned integer
	%AI1	%AI1023	RW	Large integer,Real
Analog Outputs for Model 9030 -331	%AQ1	%AQ64	RW	Byte
	%AQ1	%AQ63	RW	Integer, Unsigned integer
	%AQ1	%AQ63	RW	Large integer,Real
Analog Inputs for Model 9030 -341	%AQ1	%AQ256	RW	Byte
	%AQ1	%AQ255	RW	Integer, Unsigned integer
	%AQ1	%AQ255	RW	Large integer,Real
Register References for Model 9030 -331	%R1	%R2048	RW	Byte
	%R1	%R2047	RW	Integer, Unsigned integer
	%R1	%R2047	RW	Large integer,Real
Register References for Model 9030 -341	%R1	%R9999	RW	Byte
	%R1	%R9998	RW	Integer, Unsigned integer
	%R1	%R9998	RW	Large integer,Real



Address Ranges



Model Name : GE Fanuc 9030-731 and 9030-732

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Inputs	%I1	%I512	RW	Discrete
	%Ib1	%Ib505	RW	Byte
	%I1	%I497	RW	Integer, Unsigned integer
	%I1	%I497	RW	Large integer
Discrete Outputs	%Q1	%Q512	RW	Discrete
	%Qb1	%Qb505	RW	Byte
	%Q1	%Q497	RW	Integer, Unsigned integer
	%Q1	%Q497	RW	Large integer
Temporary Coils	%T1	%T256	RW	Discrete
	%Tb1	%Tb249	RW	Byte
	%T1	%T241	RW	Integer, Unsigned integer
	%T1	%T241	RW	Large integer
Internal Coils	%M1	%M2048	RW	Discrete
	%Mb1	%Mb2041	RW	Byte
	%M1	%M2033	RW	Integer, Unsigned integer
	%M1	%M2033	RW	Large integer
SA Discretes	%SA1	%SA128	RW	Discrete
	%SAb1	%Sab121	RW	Byte
	%SA1	%SA113	RW	Integer, Unsigned integer
	%SA1	%SAB113	RW	Large integer
SB Discretes	%SB1	%SB128	RW	Discrete
	%SBb1	%SBb121	RW	Byte
	%SB1	%SB113	RW	Integer, Unsigned integer
	%SB1	%SB113	RW	Large integer
SC Discretes	%SC1	%SC128	RW	Discrete
	%SCb1	%SCb121	RW	Byte
	%SC1	%SC113	RW	Integer, Unsigned integer
	%SC1	%SC113	RW	Large integer
Status References	%S1	%S128	R	Discrete
	%Sb1	%Sb121	R	Byte
	%S1	%S113	R	Integer, Unsigned integer
	%S1	%S113	R	Large integer



Address Ranges



Model Name : GE Fanuc 9030-731 and 9030-732

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Globals	%G1	%G1280	RW	Discrete
	%Gb1	%Gb1273	RW	Byte
	%G1	%G1265	RW	Integer, Unsigned integer
	%G1	%G1265	RW	Large integer
Analog Inputs	%Aib1	%Aib8192	RW	Byte
	%AI1	%AI8191	RW	Integer, Unsigned integer
	%AI1	%AI8191	RW	Large integer,Real
	%AI1	%AI8191	RW	
Analog Outputs	%AQ1	%Aib8192	RW	Byte
	%AQ1	%AI8191	RW	Integer, Unsigned integer
	%AQ1	%AI8191	RW	Large integer,Real
Register References	%R1	%R16384	RW	Byte
	%R1	%R16383	RW	Integer, Unsigned integer
	%R1	%R16383	RW	Large integer,Real



Address Ranges



Model Name : GE Fanuc 9030-771 and 9030-772

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Inputs	%I1	%I2048	RW	Discrete
	%Ib1	%Ib2041	RW	Byte
	%I1	%I2033	RW	Integer, Unsigned integer
	%I1	%I2033	RW	Large integer
Discrete Outputs	%Q1	%Q2048	RW	Discrete
	%Qb1	%Qb2041	RW	Byte
	%Q1	%Q2033	RW	Integer, Unsigned integer
	%Q1	%Q2033	RW	Large integer
Temporary Coils	%T1	%T256	RW	Discrete
	%Tb1	%Tb249	RW	Byte
	%T1	%T241	RW	Integer, Unsigned integer
	%T1	%T241	RW	Large integer
Internal Coils	%M1	%M4096	RW	Discrete
	%Mb1	%Mb4089	RW	Byte
	%M1	%M4081	RW	Integer, Unsigned integer
	%M1	%M4081	RW	Large integer
SA Discretes	%SA1	%SA128	RW	Discrete
	%SAb1	%SAb121	RW	Byte
	%SA1	%SA113	RW	Integer, Unsigned integer
	%SA1	%SAB113	RW	Large integer
SB Discretes	%SB1	%SB128	RW	Discrete
	%SBb1	%SBb121	RW	Byte
	%SB1	%SB113	RW	Integer, Unsigned integer
	%SB1	%SB113	RW	Large integer
SC Discretes	%SC1	%SC128	RW	Discrete
	%SCb1	%SCb121	RW	Byte
	%SC1	%SC113	RW	Integer, Unsigned integer
	%SC1	%SC113	RW	Large integer
Status References	%S1	%S128	R	Discrete
	%Sb1	%Sb121	R	Byte
	%S1	%S113	R	Integer, Unsigned integer
	%S1	%S113	R	Large integer



Address Ranges



Model Name : GE Fanuc 9030-771 and 9030-772

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Globals	%G1	%G7680	RW	Discrete
	%Gb1	%Gb7673	RW	Byte
	%G1	%G7665	RW	Integer, Unsigned integer
	%G1	%G7665	RW	Large integer
Analog Inputs	%Aib1	%Aib8192	RW	Byte
	%AI1	%AI8191	RW	Integer, Unsigned integer
	%AI1	%AI8191	RW	Large integer,Real
	%AI1	%AI8191	RW	
Analog Outputs	%AQ1	%AQ8192	RW	Byte
	%AQ1	%AQ8191	RW	Integer, Unsigned integer
	%AQ1	%AQ8191	RW	Large integer,Real
Register References	%R1	%R16384	RW	Byte
	%R1	%R16383	RW	Integer, Unsigned integer
	%R1	%R16383	RW	Large integer,Real



Address Ranges



Model Name : GE Fanuc 9030-781 and 9030-782

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Inputs	%I1	%I12288	RW	Discrete
	%Ib1	%Ib12281	RW	Byte
	%I1	%I12273	RW	Integer, Unsigned integer
	%I1	%I12273	RW	Large integer
Discrete Outputs	%Q1	%Q12288	RW	Discrete
	%Qb1	%Qb12281	RW	Byte
	%Q1	%Q12273	RW	Integer, Unsigned integer
	%Q1	%Q12273	RW	Large integer
Temporary Coils	%T1	%T256	RW	Discrete
	%Tb1	%Tb249	RW	Byte
	%T1	%T241	RW	Integer, Unsigned integer
	%T1	%T241	RW	Large integer
Internal Coils	%M1	%M12288	RW	Discrete
	%Mb1	%Mb12281	RW	Byte
	%M1	%M12273	RW	Integer, Unsigned integer
	%M1	%M12273	RW	Large integer
SA Discrettes	%SA1	%SA128	RW	Discrete
	%SAb1	%SAb121	RW	Byte
	%SA1	%SA113	RW	Integer, Unsigned integer
	%SA1	%SAB113	RW	Large integer
SB Discrettes	%SB1	%SB128	RW	Discrete
	%SBb1	%SBb121	RW	Byte
	%SB1	%SB113	RW	Integer, Unsigned integer
	%SB1	%SB113	RW	Large integer
SC Discrettes	%SC1	%SC128	RW	Discrete
	%SCb1	%SCb121	RW	Byte
	%SC1	%SC113	RW	Integer, Unsigned integer
	%SC1	%SC113	RW	Large integer
Status References	%S1	%S128	R	Discrete
	%Sb1	%Sb121	R	Byte
	%S1	%S113	R	Integer, Unsigned integer
	%S1	%S113	R	Large integer



Address Ranges



Model Name : GE Fanuc 9030-781 and 9030-782

Memory Range	Low Address	High Address	Read /Write	Data Types
Discrete Globals	%G1 %Gb1 %G1 %G1	%G7680 %Gb7673 %G7665 %G7665	RW RW RW RW	Discrete Byte Integer, Unsigned integer Large integer
Analog Inputs	%Alb1 %Al1 %Al1	%Alb8192 %Al8191 %Al8191	RW RW RW RW	Byte Integer, Unsigned integer Large integer,Real
Analog Outputs	%AQ1 %AQ1 %AQ1	%AQ8192 %AQ8191 %AQ8191	RW RW RW	Byte Integer, Unsigned integer Large integer,Real
Register References	%R1 %R1 %R1	%R16384 %R16383 %R16383	RW RW RW	Byte Integer, Unsigned integer Large integer,Real



Address Ranges



The Bit Interpretation is as follows:

ASTRA Tag Type	Size in Bits	Interpretation method in ASTRA	Example	
			Read Bits from PLC	Val.
Discrete	1	Discrete	1	1
Unsigned Integer	16	Decimal	00000000 00001011	11
Integer	16	Decimal	00000000 00010001	17
Large Integer	32	Decimal	00000000 00000000 00001011 11111111	307 1
Real	32	IEEE	01000000 00000000 00000000 00000000 11000000 00000000 00000000 00000000 01000000 10000000 00000000 00000000 01000000 11000000 00000000 00000000 01000000 00100000 00000000 00000000	2 -2 4 6 2.5



Address Ranges



Selectors For Reading And Writing To The PLC Memory

Segment Selector	Value
SEGMENT_SELECTOR_I_BIT	0x46
SEGMENT_SELECTOR_Q_BIT	0x48
SEGMENT_SELECTOR_T_BIT	0x4a
SEGMENT_SELECTOR_M_BIT	0x4c
SEGMENT_SELECTOR_SA_BIT	0x4e
SEGMENT_SELECTOR_SB_BIT	0x50
SEGMENT_SELECTOR_SC_BIT	0x52
SEGMENT_SELECTOR_S_BIT	0x54
SEGMENT_SELECTOR_G_BIT	0x56
SEGMENT_SELECTOR_I_BYTE	0x10
SEGMENT_SELECTOR_Q_BYTE	0x12
SEGMENT_SELECTOR_T_BYTE	0x14
SEGMENT_SELECTOR_M_BYTE	0x16
SEGMENT_SELECTOR_SA_BYTE	0x18
SEGMENT_SELECTOR_SB_BYTE	0x1a
SEGMENT_SELECTOR_SC_BYTE	0x1c
SEGMENT_SELECTOR_S_BYTE	0x1e
SEGMENT_SELECTOR_G_BYTE	0x38
SEGMENT_SELECTOR_AI_WORD	0x0a
SEGMENT_SELECTOR_AQ_WORD	0x0c
SEGMENT_SELECTOR_R_WORD	0x08
SEGMENT_SELECTOR_L_WORD	0x00
SEGMENT_SELECTOR_P_WORD	0x04



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