

read only access
read/write access

Type explanation
rising edge action will be executed on rising edge. Note: Some coils are overlaid with a readable state value, you are not able to read the last written value there.
bool action will be enabled on writing 1 and disabled on writing 0
string 2 characters per register, end marked by 0 byte unless all bytes are used
int32 / uint32 1st register contains lower bytes, 2nd contains upper byte

1 Bit coils

Category	Address	Count	Access	Action Type	Description	Notes
	First	Last				
I/O	200	299	100	RD/RW	Gsig	
	300	363	64	RD/RW	DOut	
	364	427	64	RD	DIn	

16 Bit input registers (read only)

Category	Address	Count	Type	Precision	Description	Notes
	First	Last				
	207	210	4	Bitfield	DIn	

16 Bit holding registers (read + write access)

Category	Address	Count	Type	Precision	Description	Notes
	First	Last				
	200	206	7	Bitfield	Gsig	
	207	210	4	Bitfield	Dout	

Category	Address	Count	Type	Precision	Description	Notes
Software Info	0	1	uint16		Software ID	CProg=902, TinyCtrl=980
	1	1	uint16		Software version major	e.g. 12
	2	1	uint16		Software version minor	e.g. 6
	3	1	uint16		Modbus Mapping Version	See top left corner of this document

Category	Address	Count	Type	Precision	Description	Notes
Statistics	4	5	2	uint32	minutes	Uptime complete
	6	7	2	uint32	minutes	Uptime last
	8	9	2	uint32	minutes	Uptime enabled
	10	11	2	uint32	minutes	Uptime motion
	12	1	uint16			Program starts
	13	1	uint16	0.1ms		Cycle time target
	14	1	uint16	0.1ms		Cycle time max (last 50 cycles)
	15	1	uint16	0.01Hz		Cycle frequency (average)
	16	1	uint16	0.01%		Work load
						TC: Load of kinematics loop, CProg/IRC: Load of entire application

Category	Address	Count	Type	Precision	Description	Notes
Configuration Info	10	1	RD		Has robot axis	
	11	1	RD		Has external axis	
	12	1	RD		Has gripper axis	
	13	1	RD		Has platform axis	
	14	1	RD		Has I/O module	
	20	1	uint16		Count of robot joints	0-6
	21	1	uint16		Count of external axes	0-3
	22	1	uint16		Count of gripper joints	0-3
	23	1	uint16		Count of platform axes	0-4
	24	1	uint16		Count of I/O modules	0-3

Category	Address	Count	Type	Precision	Description	Notes
Error and State Info	20	1	RD		Module - No error	Combined error codes
	21	1	RD		Module error - Temperature	of all joints
	22	1	RD		Module error - Estop / Low voltage	
	23	1	RD		Module error - Motor not enabled	
	24	1	RD		Module error - Communication	
	25	1	RD		Module error - Position lag	
	26	1	RD		Module error - Encoder error	
	27	1	RD		Module error - Overcurrent	
	28	1	RD		Module error - Driver error	
	29	1	RD		Module error - Bus dead	
	30	1	RD		Module error - Module dead	
	31	36	6	RD	Module error - reserved for future use	
	60	65	6	int16	0.1°C	Temperatures of robot joint motors
	66	68	3	int16	0.1°C	Temperatures of external axis electronics
	69	71	3	int16	0.1°C	Temperatures of gripper joints motors
	72	75	4	int16	0.1°C	Temperatures of platform axis motors
	76	81	6	uint16	mA	Currents of robot joints
	82	84	3	uint16	mA	Currents of external axis
	85	87	3	uint16	mA	Currents of gripper joints
	88	91	4	uint16	mA	Currents of platform axis
	92	1	uint16	0.01V		Voltage
	93	1	uint16	mA		Current total
	94	1	uint16	0.1%		Battery charge
	95	1	enum			Kinematics - Error code
	96	1	enum			Operation mode

Category	Address	Count	Type	Precision	Description	Notes
Connection etc.	50	1	RD/RW	rising edge	Is Connected / Connect / Disconnect	Connect/Disconnect only CProg/IRC
	51	1	RW	rising edge	Shutdown computer (power off)	
	52	1	RW	rising edge	Reset	
	53	1	RD/RW	rising edge	Is Enabled / Enable / Disable	TinyCtrl: Enable implies reset
	54	1	RD		Is operating okay	true if opMode=standard
	96	1	enum			Standard=0, serious fail=1, CAN bridge=2; only TinyCtrl

Category	Address	Count	Type	Precision	Description	Notes
Referencing	60	1	RD/RW	rising edge	Is referenced / reference all	
	61	66	6	RD/RW	rising edge	IsRefA / reference robot joint
	67	69	3	RD/RW	rising edge	IsRefE / reference external joint
	70	72	3	RD/RW	rising edge	IsRefG / reference gripper joint
	73	1	RW	rising edge	Set all joints to zero	
	74	1	RW	rising edge	Start referencing program, then reference all	Since V13-040, must be ref'd and enabled

Category	Address	Count	Type	Precision	Description	Notes
Position + Motion	100	1	RW	rising edge	Start MoveTo cart	Current position cartesian
	101	1	RW	rising edge	Start MoveTo cart relative base	Current orientation cartesian
	102	1	RW	rising edge	Start MoveTo cart relative tool	Current position robot joints
	103	1	RW	rising edge	Start MoveTo joint	Current position external axis
	104	1	RW	rising edge	Start MoveTo joint relative	Current position gripper joints
	105	1	RW	rising edge	Start MoveTo platform pos	Current position platform cartesian
	106	1	RW	rising edge	Start MoveTo platform pos-ori	Current orientation platform cartesian
	130	135	6	int32	0.01mm	Target position cartesian
	136	141	6	int32	0.01°	Target orientation cartesian
	142	153	12	int32	0.01 units	Target position robot joints
	154	159	6	int32	0.01 units	Target position external axis
	174	177	4	int32	0.01mm	Target position platform cartesian
	178	179	2	int32	0.01°	Target orientation platform cartesian

Category	Address	Count	Type	Precision	Description	Notes
	180	1	int16	0.1% / 0.1mm/s	Velocity for MoveTo	default 500 (50% or 50mm/s)
	181	186	6	int32	0.1unit/s	Target velocities external axes in velocity mode
	187	1	int16	0.01%	Override	
	188	1	enum		Jog mode	Joint=0, CartBase=1, CartTool=2, Platform=3, invalid=0xffff

Category	Address	Count	Type	Precision	Description	Notes
Program	110	1	RD		Zero Torque mode (teach by hand) available	
	111	1	RD/RW	bool	Zero Torque mode (teach by hand) is enabled / enable	Requires reset after disable
	112	1	RD		Is Moving	Program running, MoveTo or jog
	120	1	RD		Is robot program loaded	
	121	1	RD		Is logic program loaded	
	122	1	RD/RW	rising edge	Is program running / start program	
	123	1	RD/RW	rising edge	Is program paused / pause program	
	124	1	RD/RW	rising edge	Is program not running (and not paused) / stop program	
	260	1	enum		Program RunState	NotRunning=0, Running=1, Paused=2
	261	1	enum		Replay Mode	Single=0, Repeat=1, Step=2, Fast=3 (not used)
	262	1	uint16		Loaded robot programs count	Main program + number sub programs
	263	1	int16		Current robot program number	starts at 0 (= main program)
	264	1	uint16		Count of commands in current program	
	265	1	int16		Current command number	-1 (Duff) when not running
	266	1	enum		Reason for last program stop/pause	see enum IPO Stop Reason
	267	298	32	string		Name of loaded robot program / load robot program
	299	330	32	string		Name of loaded logic program / load logic program

Up to 64 ASCII characters
Up to 64 ASCII characters

Program selection	130	1 RW	rising edge	Next directory entry	only TinyCtrl	331	1	uint16	Count of entries in current directory	only TinyCtrl					
	131	1 RW	rising edge	Previous directory entry	only TinyCtrl	332	1	uint16	Number of the selected directory entry	0-??; if current dir is not the base dir entry 0 is ".,/"; only TinyCtrl	332	1	uint16		
	132	1 RW	rising edge	Is directory entry a file? (Does not validate content)	only TinyCtrl	333	364	32	string	Name of the selected directory entry	Up to 64 ASCII characters, only TinyCtrl				
	133	1 RW	rising edge	Load selected program / open selected directory	only TinyCtrl	365	396	32	string	Name of the current directory	Up to 64 ASCII characters, only TinyCtrl				
	134	1 RW	rising edge	Go to base directory (../Data/Programs)	only TinyCtrl										
	135	1 RW	rising edge	Unload robot program											
	136	1 RW	rising edge	Unload logic program											
Teach programming	140	1 RW	rising edge	Save program	only CPRog/IRC										
	141	1 RW	rising edge	Remove last command (from main program)	only CPRog/IRC										
	142	1 RW	rising edge	Add joint command (current position, MoveTo velocity)	only CPRog/IRC										
	143	1 RW	rising edge	Add linear command (current position, MoveTo velocity)	only CPRog/IRC										
Info message					400	431	32	string	Info/error message short (same as shown on teach pendant)	Up to 64 ASCII characters					
Program variables					440	455	16	int16	Readable number variables mb_num_r1 - mb_num_r16	1 register per variable, value is rounded to next integer	440	455	16	int16	
					456	711	256	int16	Readable position variables mb_pos_r1 - mb_pos_r16	16 registers per variable: see enum conversion type	456	711	256	int16	
								0.1 mm / 0.1°						0.1 mm / 0.1°	
														Writable number variables mb_num_w1 - mb_num_w16	1 register per variable, value is rounded to next integer
														Writable position variables mb_pos_w1 - mb_pos_w16	16 registers per variable: see enum conversion type

