

Electrical installation

X100.1			X100.2 (Daisy Chain)		
Han Q4/2 male	Pin	Assignment	Han Q4/2 female	Pin	Assignment
	1	L1.1		1	L1.2
	2	L2.1		2	L2.2
	3	L3.1		3	L3.2
	4	Not assigned		4	Not assigned
	⓪	PE		⓪	PE
	11	24E		11	24E
	12	GND		12	GND

100AMxxxC from 7.5 kW and 100AMxxxF from 15 kW: The mains connection is made via terminals.

Recommended field mounting accessories:

Lenze material number 13648785

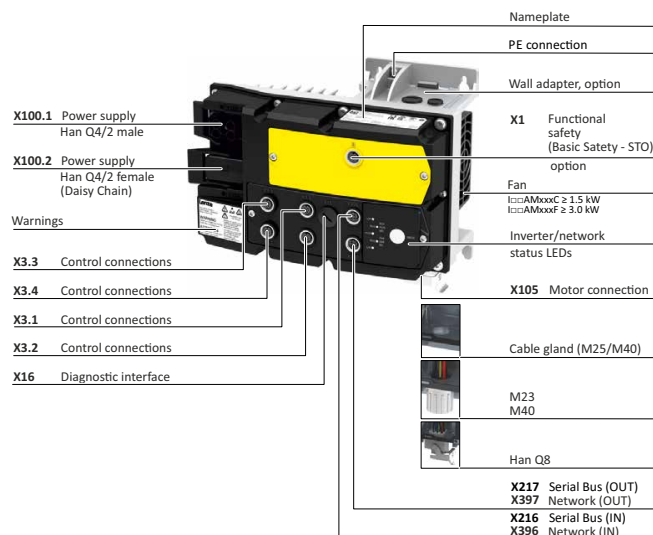


Han Q4/2 mains connector set for X100.1, female, screw connection (allen key)

Lenze material number 13689869



M12 connector, A-coded, male, push-lock connection



I/O signals and functions (factory settings)

M12 (A-coded) female	Pin	X3.1	X3.2	X3.3	X3.4	X1 (STO)
	1	24V (100 mA max/Signal)				n.c.
	2	DI2	DI4	AI1	24V	SIA
	3	GND	GND	GND	GND	GS
	4	DI1	DI3	DI5	GND	SIB
	5	Pin 5 and housing connected to functional earth (FE)				n.c.
	⓪					FE

Pre-set signal	Pre-set function
Digital input 1	Start
Digital input 2	Reset fault
Digital input 3	Reverse direction of rotation
Digital input 4	Activate speed preset 1 (Bit 0)
Digital input 5	-
Analog input 1	0 ... 10 VDC signal
Analog output 1	0 ... 10 VDC signal

Optional fieldbus

Multi-Ethernet variant				CANopen/Modbus RTU variant			
M12 (D-coded) female	Pin	X396 (In)	X397 (Out)	M12 (A-coded) female	Pin	X216 (In)	X217 (Out)
	1	TX+			1	FE	
	2	RX+			2	-	
	3	TX-			3	CG/COM	
	4	RX-			4	CH/TB	
	5	-			5	CL/TA	
	⌀	FE			⌀	FE	

Parameterization and diagnostics (via X16 with USB-C cable)

Lenze EASY Starter (freeware)	Lenze Smart Keypad App
Download	

Basic setup (V/f mode)

Parameter	Description	Default	Proposal	Comment
P700.001	Load default settings	0	1	Restore VFD
Define speed setpoint (either speed preset 1 or analog input 1)				
P450.001	Speed preset 1	20	-	20 Hz is default
P201.001	Frequency setpoint source	11	-	11 = Speed preset 1 2 = Analog input 1
P430.001	Analog input 1: Input range	0	-	0 = 0...10 VDC 4 = 4...20 mA 5 = 0...20 mA
P430.002	Analog input 1: min. frequency	0.0	-	Application specific
P430.003	Analog input 1: max. frequency	50.0	-	Application specific
P210.000	Minimum frequency	0.00	-	Minimum frequency irrespective of speed setpoint
P211.000	Maximum frequency	50.00	-	Maximum frequency irrespective of speed setpoint
P220.001 0x291D:001	Acceleration time 1	5.00	-	Acceleration to set speed setpoint
P220.001 0x291D:002	Deceleration time 1	5.00	-	Deceleration to set speed setpoint
P303.001	V/f characteristic data: Base voltage	-	-	Mains voltage, preset by VFD (e.g. 400 V)
P320.004	Motor parameter: Rated speed	1450	-	According to motor nameplate
P320.005	Motor parameter: Rated frequency	50	-	According to motor nameplate
P323.000	Motor parameter: Rated current	Variable	xx.yy	According to motor nameplate.
P400.002	Run	11	11	Digital input 1 To start operation "Run" and speed preset 1 or analog input 1 must be active
Setting up digital output 3 (DO3) for unused digital input 5 (DI5) in factory settings				
P404.012	Digital input settings: Plug X3.3 configuration	48	49	48 = AI1 + DI5 49 = AI1 + DO3
P420.004	Function for digital output 3	0	-	0 = Not used 50 = Running 51 = Ready for operation 155 = STO active 56 = Fault active
Final step before start				
P700.004	Save user data	0	1	Saves parameters to memory

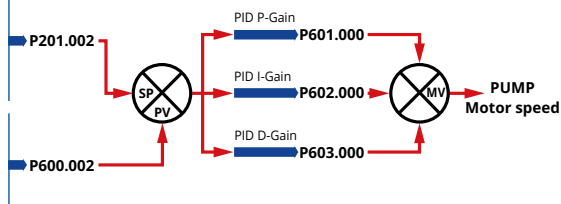
PID setup

SETPOINT source

Analog input 1 (2)
Analog input 2 (3)
Network (5)

FEEDBACK source

Analog input 1 (1)
Analog input 2 (2)
Network (5)



Parameter	Description	Default	Proposal	Comment
P201.002	PID setpoint source	1	2	11 = Speed preset 1 2 = Analog input 1 5 = Network
P600.001	PID operating mode	0	1	0 = Disabled 1 = Enabled
P600.002	PID process variable	5	2	5 = Network 1 = Analog input 1 2 = Analog input 2
P404.002	Digital input settings: Plug X3.3 configuration	1	48	1 = DI1 + DI2 48 = DI1 + AI2
P431.001	Analog input 2: Input range	0	-	0 = 0...10 VDC 4 = 4...20 mA 5 = 0...20 mA
P431.004	Analog input 2: Min PID value	0.00	-	PID unit
P431.005	Analog input 2: Max PID value	100.00	-	PID unit
P601.000	PID P-component	5.0	-	Adjust the actual value to setpoint
P602.000	PID I-component	400	-	Adjusts the accuracy of the PID controller
P603.000	PID D-component	0	0	Not recommended to change
P610.001	PID sleep mode: Activation	0	2	Feedback > P610.004
P610.002	PID sleep mode: Stop method	0	0	0 = Coast to stop
P610.003	PID sleep mode: Frequency threshold	0.0	20.0	Hz
P610.004	PID sleep mode: Feedback threshold	0.00	50.00	PID unit
P610.005	PID sleep mode: Delay time	0	10	This is the minimum time the values must fall below or exceed the respective threshold before the sleep mode is activated.
P610.006	PID sleep mode: Recovery	0	0	Speed setpoint > P610.003
P610.007	PID sleep mode: Bandwidth	0	0	Depends on the pump type
P610.008	PID sleep mode: Recovery threshold	0	32	PID units

Flying restart setup in fan applications

Parameter	Description	Default	Proposal	Comment
P203:001	Start method	0	2	0 = Normal 1 = DC Brake 2 = Flying restart circuit
P718:001	Flying restart circuit: Current	30	30	30 % of the rated motor current
P718:002	Flying restart circuit: Start frequency	20	10	Start frequency to synchronize on the running motor
P718:003	Flying restart circuit: Flying restart frequency	-	1000	1000 ms is a good time to restart the motor

Diagnostics

Important diagnostic parameters		
P100.000 Output frequency [Hz]	P103.000 Actual current [%] (100 % = Rated motor current)	P125.001 Active control source
P102.000 Frequency setpoint [Hz]		P125.002 Active setpoint source

LED "RDY" (blue)	LED "ERR" (red)	State/meaning
off	off	No supply voltage
		Initialization (drive is started)
blinking	off	Safe torque off (STO) active. The drive has been disabled by the integrated functional safety. (Optional)
	blinking fast	Safe torque off (STO) active, warning present. The drive has been disabled by the integrated functional safety. (Optional)
blinking	off	Drive disabled
	blinking fast	Drive disabled, warning present
		Drive disabled, error active
	on briefly every 1.5 s	Drive disabled, no DC-bus voltage
	off	Drive enabled. The motor rotates according to the specified setpoint or quick stop active.
	blinking fast	Drive enabled, warning present. The motor rotates according to the specified setpoint or quick stop active.
	blinking	Drive enabled, quick stop active as response to a fault.

Error message	Cause (W. = Warning, T. = Fault, F. = Error)	Remedy
.2382/.2383	Ixt error/Ixt warning	Reduce load, adapt ramps
.3210/.3211	Overvoltage DC bus/ Warning overvoltage DC bus	Reduce dynamic performance of the load profile, check mains voltage and settings for brake energy management
.3220/.3221	Undervoltage DC bus/ Warning undervoltage DC bus	Check mains voltage, DC-bus voltage (P105.00), mains settings, and fuses
.3222	DC-bus voltage too low for switch-on	
.4310	Motor overtemperature problem (PTC)	Check ambient temperature and motor load
.6280	Trigger/functions incorrectly connected	If Flexible I/O configuration (P200.001) is active, Enable inverter (P400.001) or Start (P400.002) must be assigned to an I/O. Do not use Start forwards/reverse and Run forwards/reverse at the same time!
.FF37	Automatic start inhibited	Deactivate starting command and reset error