

Pengadaan Peralatan Laboratorium ICO (Instrumentasi Control dan Optimasi) Teknik Fisika FTIRS

Pengadaan ini dilakukan di departemen Teknik fisika FTIRS dengan spesifikasi sbb :

No	Nama Barang	Spesifikasi	Vol	Harga Satuan	Harga Total
1	Kabel DAHUA CAT6 LAN Data UTP IP CAT 6 DH-PFM922I-6UN-CN 305M Orange (1 Box)	Network LAN (Jaringan LAN DCS) Siemens Simatic Wincc 7 Scada System	1		
2	Konektor RJ 45 Original Belden Connector RJ45 Cat5E Isi(2 x 50pcs)		2		
3	EGC-364 Crimping Tool RJ45 RJ11 Tang Kriming Tools RJ 45 Cramping(1 pcs)		1		
4	Protektor Kabel TC 5 Kabel Duct 1M Pelindung Kabel TC5 w/ Double Tip(100 m)		100		
5	Kabel Ties(3 bks) 3 x 13250		3		
6	D-Link Switch Hub DGS-1016C 16 Port DLink Gigabit Unmanaged Ethernet(1 pcs) 1723000		1		
7	Ethernet LAN Card Quad Gigabit 4 Port PCIe x8 Network Adapter Server(1 pcs)		1		
8	TP-Link TL-SF1005P TPLink 5 Port 10/100Mbps Switch Hub with 4 port PoE(1 pcs)		1		
9	Mikrotik RB951Ui-2nD Routerboard Router WiFi		1		

10	RS232 to Ethernet Converter, RS232 to RS485 Passive industrial converter switch adapter AU99 (1 pcs)	Converter Device Interface (Interface) Converter & Adapter	1		
11	RS485 to Ethernet Converter, USR-DR302 Din Rail RS485 to Ethernet Converter Support Modbus TCP RTU (3 pcs) 3x370000		3		
12	RS232 to RS485 Converter, RS232 to RS485 RS422 Active converter ESD Surge lightning protect PW03 (1 pcs) 360000		1		
13	USB to Ethernet Converter, Converter USB 3.0 to Gigabit Ethernet Adapter UGREEN 20256 (1 pcs)		1		
14	4 Ports Serial Server RS232 RS485 RS422 To Ethernet Modbus RTU TCP AY25		1		

15	PC Komputer Server Core i7-4770 Ram 16Gb SSD 120Gb Dual GigaLan	Server PC & Device Pendukungnya (Server) Rakitan PC Komputer Server Core i7-4770 Ram 16Gb SSD 120Gb Dual GigaLan SPESIFIKASI: *Motherboard Intel H81 *Proc Intel Core I7 4770 3.4Ghz *Hardisk 500GB *SSD 120GB Super Faster *Memory Ddr3 16 GB *Power supply 500watt *Dual LAN Gigan *Casing Gaming RGB Transparan 3Fan *Sudah Terinstal Windows 10 *Aplikasi Standart Multimedia (Office 2010, Google, Firefox, PDF, Media Player) Spek Monitor dan acc : Spesifikasi : Monitor LED Lenovo 22 inch Panel Size : 21.5 inches Resolution : 1920 x 1080 Panel Type : VA Backlight : WLED Aspect Ratio ; 16:9 AMD FreeSync : Yes Response Time (gray to gray) : 4ms(extreme mode), 6ms(normal mode) Contrast Ratio (typical) ; 3000:1 Dynamic Contrast Ratio (typical) ; 3M:1 Connectivity : 1 x VGA, 1 x HDMI 1.4, 1 x Audio Out (3.5mm) Viewing Angle (H x V) ; 178/178 Color Gamut ; 72% NTSC Color Support : 16.7M Anti-Glare ; Yes Stand ; Tilt Angle-5/22	1
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16	DCS Software (Integrated all Controller) Siemens Simatic Wincc 7 Scada System (KEPServerEX)	KEPServerEX merupakan product dari Kepware dan salah satu OPC Server yang populer selain Matrikon. KepserverEX sendiri sudah support MQTT client serta IoT gateway dan juga support OPC UA. Didalam installer ini sudah terdapat banyak driver PLC dan hanya tinggal centang driver mana saja yang diperlukan jadi tidak perlu download terpisah. OPC KEPServerEX mempunyai masa trial 2 jam terhitung dari mulai Start Runtime, jika sudah lebih dari 2 jam maka perlu restart Runtime agar dapat digunakan kembali. Pada post kali ini sudah terdapat medicine / aktivator yang mana tidak perlu restart Runtime setiap 2 jam	1		
17	Komputer Full Set Intel Core I5 Ram 8GB SSD 120GB HDD 500GB LED 19 Inc - CPU ONLY STD, 4GB-500GB	Spesifikasi CPU Rakitan : ▪Motherboard Chipset Intel H55 LGA 1156 ▪Intel Core i5 650 Socket 1156 ▪RAM DDR3 4/8 GB (4x2) PC-12800 ▪HDD 500GB ▪SSD 120 GB ▪Vga On Board ▪Cassing [Terdapat di Varian] ▪PSU MBP 500 Watt ▪Keymouse Standar [Free] ▪Usb Wifi Antena [Free] Spesifikasi MONITOR INFORCE LED 1560 15 16 15.6 inch inc 15.6" 15" 16" - VGA + HDMI: High Glossy Finish(Back Cabinet No-Glossy) Panel Size: 15.6" (16:9) Viewing Angle: H160/V140 Max. Brightness: 200cd/m2 Max. Contrast Ratio:100000/1(Dynamic) Pixel Pitch: 0.179mm Response Time: 5ms Number of Colors: 262K	1		

18	Data Acquisition AI Module (DCS Client Controller) Analog input 0 10V ModBus RS485 Module Voltage Acquisition WP3084 8 Ch	Product type designation SM 1232, AQ 2x14 bit • Supply voltage: Rated value (DC) 24 V • Input current: Current consumption, typ. 45 mA from backplane bus 5 V DC, typ. 80 mA • Power loss, typ. 1.5 W • Analog outputs: Number of analog outputs 2; Current or voltage Output ranges, voltage • -10 V to +10 V Yes Output ranges, current • 0 to 20 mA Yes Load impedance (in rated range of output) • with voltage outputs, min. 1 000 Ω • with current outputs, max. 600 Ω Cable length • shielded, max. 100 m; shielded, twisted pair Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution (incl. overrange) Voltage: 14 bit; Current : 13 bit Errors/accuracies Temperature error (relative to output range), (+/-) 25 °C $\pm 0.3\%$, to 55 °C $\pm 0.6\%$ total measurement range Basic error limit (operational limit at 25 °C) • Voltage, relative to output range, (+/-) 0.3 % • Current, relative to output range, (+/-) 0.3 % Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, $f1$ = interference frequency • Common mode voltage, max. 12 V	1		
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19	Data Acquisition DI/DO Module (DCS Client Controller) Remote IO Data Acquisition Module Modbus RTU - WP8028ADAM-8DIO	Remote IO Data Acquisition Module Modbus RTU - WP8028ADAM-8DIO 1, deskripsi produk • Delapan saluran masukan digital isolasi optoelektronik (masukan tingkat rendah) • Delapan saluran keluaran digital isolasi optoelektronik (Keluaran kolektor NPN) • Protokol komunikasi standar RTU MODBUS RS485 • Terjaring dengan perangkat lunak konfigurasi, PLC atau panel sentuh industri • LED komunikasi, input digital, dan status output digital 2, spesifikasi • Saluran input Digital 8ch (input level rendah) • Saluran keluaran Digital 8ch (Keluaran kolektor NPN, 500mA) • Suhu kerja-20 ~ 70 °C • Catu daya eksternal DC9V ~ 30V/2W • Perlindungan isolasi DC1500V • Dimensi 125 × 73 × 35mm	1		
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20	Data Acquisition AI/DI/DO Module (DCS Client Controller) 6AI /4DI/4DO, 0-20MA/4-20MA input-WP9038ADAM Wellpro	6AI /4DI/4DO, 0-20MA/4-20MA input-WP9038ADAM Wellpro 1, deskripsi produk • Enam saluran masukan saat ini: DC0 ~ 20mA / DC4 ~ 20mA • Empat saluran masukan digital isolasi optoelektronik (masukan tingkat rendah) • Empat saluran keluaran digital isolasi optoelektronik (Keluaran kolektor NPN) • Protokol komunikasi standar RTU MODBUS RS485 • LED komunikasi, input digital, dan status output digital 2, spesifikasi • Saluran input Analog 6ch • Rentang input Analog DC0 ~ 20mA / DC4 ~ 20mA • Akurasi input Analog $\pm 0,02\text{mA}$ • Saluran input Digital 4ch (input tingkat rendah) • Saluran keluaran Digital 4ch (Keluaran kolektor NPN, 500mA) • Suhu kerja-20 ~ 70 °C • Catu daya eksternal DC9V ~ 30V/2W • Dimensi 125 × 73 × 35mm	1		
21	Data Acquisition AO Module (DCS Client Controller) WP3078ADAM MODBUS RTU Analog Output Module 3 channel	WP3078ADAM MODBUS RTU Analog Output Module 3 channel current output 1, deskripsi produk • Tiga saluran keluaran saat ini: DC4 ~ 20mA • Protokol komunikasi standar RTU MODBUS RS485 • LED status komunikasi 2, spesifikasi • 3ch saluran keluaran Analog • Rentang keluaran Analog DC4 ~ 20mA • Akurasi output Analog $\pm 0.03\text{mA}$ • Beban output maksimum 1050Ω(DC24V) • Suhu kerja-20 ~ 70 °C • Catu daya eksternal DC9V ~ 30V/2W • Perlindungan isolasi DC1500V • Dimensi 125 × 73 × 35mm	1		

27	Siemens Simatic Wincc 7 Scada System SIMATIC WinCC : Configuration Studio and Graphics Designer.	SIMATIC WinCC : Configuration Studio and Graphics Designer Features include: WinCC V7.4 supports the following the Microsoft operating systems: a. Windows 10 (64-bit) Professional, Enterprise for WinCC Server / Single user Client b. Windows 7 SP1 (32-bit) Professional, Enterprise, Ultimate for WinCC single / Client c. Windows 7 SP1 (64-bit) Professional, Enterprise, Ultimate for WinCC Server / Single user / Client d. Windows 8.1 (32-bit) Professional, Enterprise for WinCC single / Client e. Windows 8.1 (64-bit) Professional, Enterprise for WinCC Server / Single user / Client f. Windows 2012 Server R2 (64- bit) Standard, Enterprise for WinCC Server / Single g. Windows 7 SP1, Windows 8.1 and Windows 10 permit a maximum of three client connections in a multi-user configuration	1		
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28	Siemens SIMATIC TIA Portal 15.1 X64	Software FULL VERSION Include: 1. Step7 Pro V15.1 Step7 itself for programming S7-300, S7-400, S7-1200 and S7-1500, S7-1500R, S7-1500H, ET200 CPU 2. WinCC Pro V15.1 visualization environment for panels and computer 3. SIMATIC S7PLCSIM V15.1 simulator processors S7-1200 and S7-1500, S7-1500R, S7-1500H 4. Startdrive V15.1 setup and use of Sinamics 5. Step 7 Safety V15.1 frequency converters Step7 additives for programming safe F S7-300F, S7-400F, S7-1200F and S7- 1500F, ET200F CPU 6. SIMATIC Energy Suite configuration and use of energy consumption control devices such as PAC3200 and other 7. SiVArc V15.1 SIMATIC Visualization Architect (SiVArc) configuration of the content of HMI projects based on the user program STEP 7. 8. SIMOCODE ES V15.1 configuration and use of SIMOCODE power distribution devices (smart contactors, automatic devices, etc. with Profibus and Profinet communication interfaces) 9. Start Drive Advance V15.1	1		
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29	Siemens STEP 7 Micro Win V4.0 SP9 PLC Programming Software	Siemens STEP 7 Micro Win V4.0 SP9 PLC Programming Software Package Software : 1. S7-200 Explorer 2. STEP 7 MicroWin 3. TD Keypad Designer PLC S7-200 Support: 1. CPU 226XM 2. CPU 226 3. CPU 224XP 4. CPU 224 5. CPU 222 6. CPU 221 7. CPU 216 8. CPU 215 9. CPU 214 10. CPU 212 11. PDS 210 Operating system support : 1. Win-10 (64bit)	1		
30	Schneider EcoStruxure Machine Expert-Basic Software Modicon M221	Program any functionality of your machine as easy and as fast as possible with EcoStruxure Machine Expert - Basic - Schneider Electric's lightweight software solution dedicated to Modicon M221 controller. The intuitive automation of simple machines within just four steps: Hardware configuration, programming, display configuration, commissioning – and your machine is running! Compatible with: - Logic controller: Modicon M221 - I/O modules: Modicon TM2, TM3 Operating Systems: - Win-10 (64bit) - Windows 8.1 Professional Edition (32 Bit & 64 Bit) - Windows 8 Professional Edition (32 Bit & 64 Bit) - Microsoft Windows 7 Professional Edition (32 Bit & 64 Bit)	1		

31	ZELIO SOFT2 V4.5 SOFTWARE PLC SCHNEIDER	Zelio CPU models supported in version 4.5 of Zelio Soft 2 software: SR2A101BD, SR2A101FU, SR2B121JD, SR2B121BD, SR2B122BD SR2B121B, SR2B121FU, SR2D101BD, SR2D101FU SR2E121BD, SR2E121B, SR2E121FU, SR2A201BD SR2A201FU, SR2A201E, SR2B201JD, SR2B201BD SR2B202BD, SR2B201B, SR2B201FU, SR2D201BD SR2D201FU, SR2E201BD, SR2E201B, SR2E201FU SR3B101BD, SR3B102BD, SR3B101B, SR3B101FU SR3B261BD, SR3B262BD, SR3B261B, SR3B261FU, and SR3B261JD Operating Systems: - Win-10 (64bit) - Windows 8.1 Professional Edition (32 Bit & 64 Bit)	1		
32	Ni Multisim Terbaru NI Labview AWR Ni LabView Toolkits+Moduls Ni Labview Realtime Modul NI Labview Runtime Engine	Including: NI AWR Design Environment NI Circuit Design Suite NI Combustion Analysis System (CAS) Software for LabVIEW NI DIAdo NI Labview NI LabView + Toolkits NI LabVIEW + Toolkits and Modules NI LabVIEW Database Connectivity Toolkit NI LabVIEW Digital Filter Design Toolkit NI LabVIEW Real Time Module NI LabVIEW Run-Time Engine NI LabVIEW Sound and Vibration Analysis VIs NI LabVIEW Switch Executive NI Labview with Toolkits NI LabWindows/CVI with Real-Time Module NI SystemLink Ni VeriStand NI Vision	1		

33	Software HMI Weintek Easy Builder 8000 & Easy Builder Pro	EasyBuilderPro V6.04.02.597 for HMI iP Series : MT6051iP/MT8051iP, MT6071iP, MT6071iP, MT6103iP, MT6102iQ, MT8102iP, 8102iQ TK6051iP*, 6071iP*, 6071iQ*, TK8071iP iE Series MT8050iE, MT8053iE, MT6070iE, MT6071iE, MT8070iE, MT8100iE, MT8071iE, MT8101iE, MT8073iE, MT8102iE, MT8103iE, MT8121iE, MT8150iE, MT8121iE2, MT8150iE2 eMT Series eMT3070, eMT3105, eMT3120, eMT3150 XE Series MT8090XE, MT8091XE, MT8092XE, MT8121XE*, MT8150XE	1		
34	Weinview PLC HMI 7 Inch Weintek MT8071iP	EasyBuilderPro V6.04.02.597 for HMI Features I Wide input voltage range: 10.5~28VDC I 7" 800 x 480 TFT LCD, LED Backlight I Fan-less Cooling System I Built-in flash memory and RTC I COM2 RS-485 2W supports MPI 187.5K* I NEMA4 / IP65 Compliant Front Panel I Built-in power isolation	1		

35	Siemens Simatic 1214C S7-1200 6ES7 214- 6ES7214-1AG40-0XB0 14DI/10DO	CPU 1214C DC/DC/DC, Firmware version V4.4 Engineering with • Programming package STEP 7 V16 or higher Supply voltage Rated value (DC) • 24 V DC Yes permissible range, lower limit (DC) 20.4 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Load voltage L+ • Rated value (DC) 24 V • permissible range, lower limit (DC) 20.4 V • permissible range, upper limit (DC) 28.8 V • Input current: Current consumption (rated value) 500 mA • Current consumption, max. 1 500 mA; CPU with all expansion modules • Inrush current, max. 12 A; at 28.8 V I^2t 0.5 A²·s • Output current: for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM • Encoder supply: 24 V encoder supply, 24 V L+ minus 4 V DC min.	1		
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36	Siemens SM 1223 DC/DC - 6ES7223-1BH32-0XB0	Product type designation SM 1223, DI 8x24 V DC, DQ 8x24 V DC Supply voltage: Rated value (DC) 24 V • permissible range, lower limit (DC) 20.4 V • permissible range, upper limit (DC) 28.8 V Input current: from backplane bus 5 V DC, max. 145 mA Digital inputs • from load voltage L+ (without load), max. 4 mA; per channel Output voltage • Power loss, typ. 2.5 W • Digital inputs: Number of digital inputs 8 • Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. 8 horizontal installation — up to 40 °C, max. 8 — up to 50 °C, max. 8 vertical installation — up to 40 °C, max. 8 Input voltage • Type of input voltage DC • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA Input current • for signal "0", max. (permissible quiescent current) 1 mA • for signal "1", min. 2.5 mA • for signal "1", typ. 4 mA	1		
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37	Analog Input Expand Module (for expand to Cpu 1214C) ANALOG INPUT SM 1231, 4 AI Input, 6ES7231-4HD32-0XB0	Product type designation SM 1231, AI 4x13 bit • Supply voltage: Rated value (DC) 24 V • Input current : Current consumption, typ. 45 mA from backplane bus 5 V DC, typ. 80 mA • Power loss, typ. 1.5 W • Analog inputs: Number of analog inputs 4; Current or voltage differential inputs permissible input voltage for voltage input (destruction limit), max.35 V • Cycle time (all channels) max. 625 µs Input ranges • Voltage Yes; $\pm 10V$, $\pm 5V$, $\pm 2.5V$ • Current Yes; 4 to 20 mA, 0 to 20 mA • Thermocouple No • Resistance thermometer No • Resistance No Input ranges (rated values), voltages • -10 V to +10 V Yes — Input resistance (-10 V to +10 V) $\geq 9 \text{ MOhm}$ • -2.5 V to +2.5 V Yes — Input resistance (-2.5 V to +2.5 V) $\geq 9 \text{ MOhm}$ • -5 V to +5 V Yes — Input resistance (-5 V to +5 V) $\geq 9 \text{ MOhm}$ Input ranges (rated values), currents • 0 to 20 mA Yes — Input resistance (0 to 20 mA) 280Ω • 4 mA to 20 mA Yes — Input resistance (4 mA to 20 mA) 280Ω	1		
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38	Analog Output SM 1232, 2AO, 6ES7232-4HB32-0XB0	Product type designation SM 1232, AQ 2x14 bit • Supply voltage: Rated value (DC) 24 V • Input current: Current consumption, typ. 45 mA from backplane bus 5 V DC, typ. 80 mA • Power loss, typ. 1.5 W • Analog outputs: Number of analog outputs 2; Current or voltage Output ranges, voltage • -10 V to +10 V Yes Output ranges, current • 0 to 20 mA Yes Load impedance (in rated range of output) • with voltage outputs, min. 1 000 Ω • with current outputs, max. 600 Ω Cable length • shielded, max. 100 m; shielded, twisted pair Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution (incl. overrange) Voltage: 14 bit; Current : 13 bit Errors/accuracies Temperature error (relative to output range), (+/-) 25 °C $\pm 0.3\%$, to 55 °C $\pm 0.6\%$ total measurement range Basic error limit (operational limit at 25 °C) • Voltage, relative to output range, (+/-) 0.3 % • Current, relative to output range, (+/-) 0.3 % Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency • Common mode voltage, max. 12 V	1		
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39	S7-1200 Communication module CM 1241, RS422/485, 6ES7241-1CH32-0XB0	Product type designation SM 1232, AQ 2x14 bit • Supply voltage: Rated value (DC) 24 V • Input current: Current consumption, typ. 45 mA from backplane bus 5 V DC, typ. 80 mA • Power loss, typ. 1.5 W • Analog outputs: Number of analog outputs 2; Current or voltage Output ranges, voltage • -10 V to +10 V Yes Output ranges, current • 0 to 20 mA Yes Load impedance (in rated range of output) • with voltage outputs, min. 1 000 Ω • with current outputs, max. 600 Ω Cable length • shielded, max. 100 m; shielded, twisted pair Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution (incl. overrange) Voltage: 14 bit; Current : 13 bit Errors/accuracies Temperature error (relative to output range), (+/-) 25 °C $\pm 0.3\%$, to 55 °C $\pm 0.6\%$ total measurement range Basic error limit (operational limit at 25 °C) • Voltage, relative to output range, (+/-) 0.3 % • Current, relative to output range, (+/-) 0.3 % Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency • Common mode voltage, max. 12 V	1		
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40	SITOP PSU100L 24 V/10 A, 6EP1334-1LB00	Product Description: ● SITOP PSU100L 24 V/10 A Stabilized power supply input: 120/230 V AC, output: DC 24 V/10 A ● Product family : 1-phase, 24 V DC ● Product Lifecycle (PLM): PM300:Active Product ● Input 1-phase AC Supply voltage : ● 1 at AC Rated value 120 V ● 2 at AC Rated value 230 V ● Note Set by means of selector switch on the device Input voltage ● 1 at AC 93 ... 132 V ● 2 at AC 187 ... 264 V Wide-range input No Overvoltage resistance 2.3 × Vin rated, 1.3 ms Mains buffering at lout rated, min. 20 ms; at Vin = 93/187 V Rated line frequency 1 50 Hz Rated line frequency 2 60 Hz Rated line range 47 ... 63 Hz Input current: ● at rated input voltage 120 V 4.1 A ● at rated input voltage 230 V 2 A, Switch-on current limiting (+25 °C), max. 65 A	1		
41	KABEL PLC SIEMENS 0CB20 USB-MPI/PPI Buat S7200/300/400	USB PPI Cable USB/PPI 6ES7 901-3DB30-0XA0 For SIEMENS S7-200 PLC PB09 Description: Pengganti untuk kabel Siemens S7-200 USB-PPI 6ES7 901-3DB30-0XA0 SPEK: Kompatibilitas: Siemens S7-200/300/400 SIMATIC PLC Sistem operasi: Windows 2000/XP/7 Suhu kerja: -20o s/d +75o Celsius Panjang kabel: 3 meter Koneksi PC: USB port Baud rate:9.6k 19.2k 187.5k	1		
42	SR2USB01, Zelio Kabel Programming Schneider	Kabel pemrograman PLC Zelio smart logic berfungsi sama dengan SR2USB01 dan terisolasi antara Zelio dgn PC	1		

43	Kabel Lan 1M Schneider Cat 6	kabel LAN UTP siap pakai sudah lengkap dengan RJ45 dan plugboot - Kondisi kabel BARU merk Schneider CAT6 - PC KE MODEM - PC KE ACCESPOINT - PC KE SWICHT HUB - ACCESPOINT KE POE - DLL 1. Menghubungkan antara computer dengan switch 2. Menghubungkan computer dengan LAN pada modem cable/DSL 3. Menghubungkan router dengan LAN pada modem cable/DSL 4. Menghubungkan switch ke router 5. Menghubungkan hub ke router	1		
44	Box panel listrik ukuran 60x120x30	• Box panel listrik ukuran 60x120x30 - bahan bes,cat powder. Coating • Model Standing Panel • Menggunakan kunci pintu • Ada tombol tekan untuk membuka panel	1		
45	Cooling Fan Panel 8 Inch XF20060MBL / Exhaust Fan Panel 8 Inch Kotak	Merek : TAB Tipe : XF20060MBL Model: Double Ball bearing Ukuran: 200x200x60 mm (8 Inch) Input : 220V AC Bentuk : Persegi Frekuensi: 50/60 HZ Power: 17/14 W Speed 2450 / 2700 Rpm Air Flow: 145/160 m/min Fan Metal Guard Grill 8 inch	1		
46	ROLL ETERNA NYAF 1x0.75mm 0.75 Kabel Listrik Serabut MERAH HITAM BIRU – Biru	Deskripsi ETERNA NYAF 1x0.75mm 0.75mm Kabel Listrik Serabut MERAH HITAM BIRU KH Kemasan roll 100M Supreme NYA 1,5mm 50M merk: Supreme ukuran: 1,5mm panjang per roll: 50m varian warna: merah,biru,hitam,kuning (kuning hijau)	1		

47	Rel mcb / din rail, Material: Aluminium, Panjang: 1 m(3m)	Din Rail dan Terminal Block Din Rail (PLC Control Cabinet) Rel MCB Aluminium / DIN Rail Aluminium 1 m	3		
48	Bus Bar Tembaga 3mmX20mmX200mm 75000		1		
49	Busbar Nol Arde 1 Tingkat / Busbar Import ZA8-22(3 buah) 3x58000		3		
50	Terminal Block Blok Unit Din Rail Type IN-60 1 Pole 90A 600V(3 buah) 3x14500		3		
51	TERMINAL BLOCK UK6N PHOENIX CONTACT(2 buah, 1 slot isi 50 buah)" 510000		1		
52	MCCB EZC100F 3P 40A EZC100F3040 10KA SCHNEIDER ELECTRIC	MCB dan MCCB (PLC Control Cabinet) Schneider MCB dan MCCB	1		
53	MCB Scnheider k60n 3p 32A dan 40A-40A(1 pcs)		1		
54	MCB Scnheider K60N 1P 6A, 10A, 16A, 20A, 32A, 40A-20A(4 pcs)		4		
55	RCBO CHINT ELCB + MCB NXBLE-63 1P+N 6kA 6A 10A 16A 20A 25A 32A - 1P+N 30MA,16A(4 pcs)		4		
56	Kontaktor / Contactor SP21 / S-P21 Shihlin Electric 3P 1NO +1NC, AC Koil	Kontaktor dan Relay (PLC Control Cabinet)	1		

57	Kontaktor / Contactor SHIHLIN S-P15 SP15 24V 48V 110V 220V 380V - 220V	Shihiin Kontaktor dan Relay Magnetic	1		
58	RELAY OMRON MY4N 24VDC+SOCKET 14KAKI - socket(35 pcs)		35		
59	Omron Relay MY2N 220VAC + Socket / my2n 220vAC(5 pcs)		5		
60	PV Fuse Holder PLTS 10x38 DC 1000V 1P 2A 6A 10A 16A 25A 30A Solar Cell - SSPV30+FUSE 30A(3 pcs)"		3		
61	PUSH BUTTON 25MM HANYOUNG CRF-F25M1 (CR 251-1) - Merah (10 pcs)	Push Button & Indikasi (PLC Control Cabinet) Push Button, Pilot Lamp, Box Push Button Console, Buzzer	10		
62	Box Push Button Station 22mm BX5-22 / 5 Hole / 5 Lubang Fort(2 pcs)		2		
63	PILOT LAMP LED SQUARE KOTAK SCPLSQ-16 16MM 220VAC 24VDC - Merah, 24VDC (18 pcs)		18		
64	Panel Buzzer HRB-N80 Bell TET 24VDC TAB (2 pcs)" 2		2		
	Total Harga				Rp0
	PPN 11 %				Rp0
	Grand Total				Rp0