

LAMPIRAN – LAMPIRAN

Lampiran 1 Data Sheet Komponen Data Sheet Relay

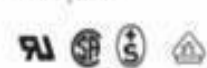
OMRON

General Purpose Relay

LY

- Arc barrier equipped.
- High dielectric strength (2,000 VAC).
- Long dependable service life assured by AgCdO contacts.
- Choose models with single or bifurcated contacts, LED indicator, diode surge suppression, push-to-test button, or RC circuit.
- All models meet UL and CSA approvals; VDE, LR, and SEV approved versions are available.





Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., LY1-DC6).

Type	Terminal	Contact form	Model					
			Single contact			Bifurcated contact		
			Standard bracket mounting	Upper mounting bracket	Lower mounting bracket	Standard bracket mounting	Upper mounting bracket	Lower mounting bracket
Standard	Plug-in/holder	SPDT	LY1	LY1F	LY1S	---	---	---
		DPDT	LY2	LY2F	LY2S	LY2Z	LY2ZF	LY2ZS
		3PDT	LY3	LY3F	LY3S	---	---	---
		4PDT	LY4	LY4F	LY4S	---	---	---
	PCB	SPDT	LY1-D	---	---	---	---	---
		DPDT	LY2-D	---	---	LY2Z-D	---	---
		3PDT	LY3-D	---	---	---	---	---
		4PDT	LY4-D	---	---	---	---	---
LED indicator	Plug-in/holder	SPDT	LY1N	---	---	---	---	---
		DPDT	LY2N	---	---	LY2ZN	---	---
		3PDT	LY3N	---	---	---	---	---
		4PDT	LY4N	---	---	---	---	---
Diode surge suppression	Plug-in/holder	SPDT	LY1-D	---	---	---	---	---
		DPDT	LY2-D	---	---	LY2Z-D	---	---
		3PDT	LY3-D	---	---	---	---	---
		4PDT	LY4-D	---	---	---	---	---
LED indicator and diode surge suppression	Plug-in/holder	SPDT	LY1N-D2	---	---	---	---	---
		DPDT	LY2N-D2	---	---	LY2ZN-D2	---	---
		4PDT	LY4N-D2	---	---	---	---	---
		SPDT	LY1-CR	---	---	---	---	---
RC circuit	Plug-in/holder	DPDT	LY2-CR	---	---	LY2Z-CR	---	---
		SPDT	LY1N-CR	---	---	---	---	---
LED indicator and RC circuit	Plug-in/holder	DPDT	LY2N-CR	---	---	LY2ZN-CR	---	---
		SPDT	LY1N-CR	---	---	---	---	---

Notes: 1. Types with specifications other than those listed are available. Contact your Omron Sales representative.
 2. To order connecting sockets and mounting tracks, see "Accessories" section.

Lampiran 2 Data Sheet Solenoid Valve

MV-DLE/5

EN 161

Sicherheits-Magnetventil

Safety solenoid valve

Electrovanne de sécurité

Valvole elettromagnetica di sicurezza

erstufiges automatisches Absperrventil

single stage automatic shut-off valve

vanne d'arrêt automatique une allure

valvole di chiusura automatica monostadio

Teilenummer	Bezeichnung	Abgleich des Ventils	Diagramm	
1	Stem	Stem	Stem	1
2	Stem	Stem	Stem	2
3	Stem	Stem	Stem	3
4	Stem	Stem	Stem	4
5	Stem	Stem	Stem	5
6	Stem	Stem	Stem	6
7	Stem	Stem	Stem	7
8	Stem	Stem	Stem	8
9	Stem	Stem	Stem	9
10	Stem	Stem	Stem	10
11	Stem	Stem	Stem	11

MOP 350 / 360 / 300 mbar (20/36/50 kPa)
 Rp 1/2 - Rp 2 1/2, DN 40 - DN 100

Edition: 06/2011

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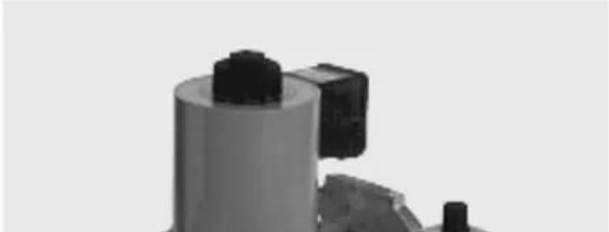
www.dungs.com

Single-stage safety solenoid valves

MV/4
 MVD, MVD/5,
 MVDLE/5

DUNGS®
 Combustion Controls

6.20



Lampiran 3 Data Sheet Kontaktor

DUO series Manual Motor Starters Adjustable thermal-magnetic trip types

Adjustable thermal-magnetic trip types

Features

- A wide rated operational current range of up to 32A for the 45mm wide and 63A for the 55mm wide starters.
- ON/OFF and trip indications ensure instant status recognition.
- Suitable for 3-phase motors up to 30kW at 440V AC, AC-3.
- Accessories like auxiliary contact blocks, shunt trip devices, and undervoltage trip devices have been standardized for the 45mm and 55mm wide frame sizes of the BM3R and BM3V.
- Enclosures and external operating handles are available as optional accessories.

Standards

IEC 60947-1, 60947-2, 60947-4-1, UL 508, CSA C22.2 No.14, TÜV, CCC

Types and ratings

• 32AF standard breaking capacity, rocker handle types

Max. motor capacity and full-load current 3-phase ^{*)}				Rated current ^{*)} In (A)	Thermal current setting range I _{se} (A)	Instantaneous trip current (A)	Rated breaking capacity I _{cu} (kA)			Type
200-240V AC (kW)	(A)	380-440V AC (kW)	(A)				240V AC	415V AC	440V AC	
—	—	0.02	0.1	0.16	0.1–0.16	2.1	100	100	100	BM3RSB-P16
0.03	0.24	0.06	0.21	0.25	0.16–0.25	3.3	100	100	100	BM3RSB-P25
0.06	0.37	0.1	0.34	0.4	0.25–0.4	5.2	100	100	100	BM3RSB-P40
0.06	0.37	0.12	0.41	0.63	0.4–0.63	8.2	100	100	100	BM3RSB-P63
0.1	0.68	0.2	0.65	1	0.63–1	13	100	100	100	BM3RSB-001
0.2	1.3	0.4	1.15	1.6	1–1.6	20.8	100	100	100	BM3RSB-1P6
0.4	2.3	0.75	1.8	2.5	1.6–2.5	32.5	100	100	100	BM3RSB-2P5
0.75	3.6	1.5	3.1	4	2.5–4	52	100	100	100	BM3RSB-004
1.5	6.1	2.2	4.6	6.3	4–6.3	81.9	100	100	50	BM3RSB-6P3
2.2	9.2	3.7	7.5	10	6.3–10	130	100	100	15	BM3RSB-010
2.2	9.2	5.5	11.5	13	9–13	169	100	50	10	BM3RSB-013
3.7	15	7.5	14.5	16	11–16	208	100	25	10	BM3RSB-016
3.7	15	7.5	14.5	20	14–20	260	50	25	10	BM3RSB-020
5.5	22.5	11	21	25	19–25	325	50	25	10	BM3RSB-025
7.5	29	15	27.5	32	24–32	416	50	25	10	BM3RSB-032

• 32AF high breaking capacity, rotary handle types

Max. motor capacity and full-load current 3-phase ^{*)}				Rated current ^{*)} In (A)	Thermal current setting range I _{se} (A)	Instantaneous trip current (A)	Rated breaking capacity I _{cu} (kA)			Type
200-240V AC (kW)	(A)	380-440V AC (kW)	(A)				240V AC	415V AC	440V AC	
—	—	0.02	0.1	0.16	0.1–0.16	2.1	100	100	100	BM3RHB-P16
0.03	0.24	0.06	0.21	0.25	0.16–0.25	3.3	100	100	100	BM3RHB-P25
0.06	0.37	0.1	0.34	0.4	0.25–0.4	5.2	100	100	100	BM3RHB-P40
0.06	0.37	0.12	0.41	0.63	0.4–0.63	8.2	100	100	100	BM3RHB-P63
0.1	0.68	0.2	0.65	1	0.63–1	13	100	100	100	BM3RHB-001
0.2	1.3	0.4	1.15	1.6	1–1.6	20.8	100	100	100	BM3RHB-1P6
0.4	2.3	0.75	1.8	2.5	1.6–2.5	32.5	100	100	100	BM3RHB-2P5
0.75	3.6	1.5	3.1	4	2.5–4	52	100	100	100	BM3RHB-004
1.5	6.1	2.2	4.6	6.3	4–6.3	81.9	100	100	100	BM3RHB-6P3
2.2	9.2	3.7	7.5	10	6.3–10	130	100	100	50	BM3RHB-010
2.2	9.2	5.5	11.5	13	9–13	169	100	100	50	BM3RHB-013
3.7	15	7.5	14.5	16	11–16	208	100	50	35	BM3RHB-016
3.7	15	7.5	14.5	20	14–20	260	100	50	35	BM3RHB-020
5.5	22.5	11	21	25	19–25	325	100	50	35	BM3RHB-025
7.5	29	15	27.5	32	24–32	416	100	50	35	BM3RHB-032

Notes: ^{*)} Motor full-load currents are based on IEC standard type totally-enclosed induction motors.

^{**)} Max. thermal current setting value



Lampiran 4 Data Sheet Timer On Delay

CHARACTERISTICS

- Exclusive CMOS IC assures high performance stability and accuracy.
- High repeat accuracy $\pm 1\%$.
- Short resetting time-100 msec. max.
- Wide variety of type-14 time ranges: (0.1 sec. to 10 hrs)
- 2 modes selectable via slide switch: Mode A(2C) for DPDT time-limiting output contacts and Mode B(1A1C) for SPDT instantaneous and time-limiting output contacts

TIME RANGE

Four time are available for each timer by setting the DIP switches to required positions.

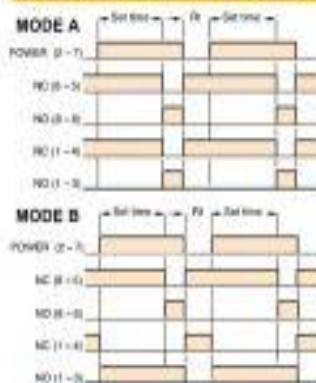
Time range	Position of time range selector			
series				
A	1S (0.055-1S)	10S (0.18-10S)	60S (0.55-60S)	10M (10S-10M)
B	3S (0.055-3S)	30S (0.55-30S)	3M (1S-3M)	30M (30S-30M)
C	6S (0.18-6S)	60S (0.55-60S)	6M (1S-6M)	60M (30S-60M)
D	60S (0.55-60S)	10M (10S-10M)	60M (30S-60M)	10H (10M-10H)
E	3M (1S-3M)	30M (30S-30M)	3H (3M-3H)	30H (1H-30H)

SPECIFICATIONS

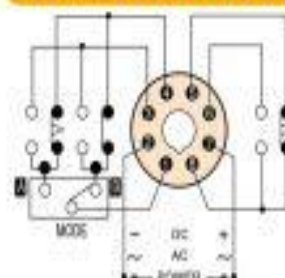
RATED VOLTAGE	AC 115V, 250V, 580V, 440V, DC 12V, 24V
Rated frequency	50/60Hz
OPERATING VOLTAGE	AC 85-115% of rated voltage, DC 85-110% of rated voltage.
CONSUMED POWER	About 2W FOR AC About 2W FOR DC
CONTROL METHOD	Time-limit operation Self-resetting
CONTACT RATING	250V AC 10A (P.F. <1)
AMBIENT TEMP	-15°C-+55°C
AMBIENT HUMIDITY	45-85% RH



OPERATION TIME CHART

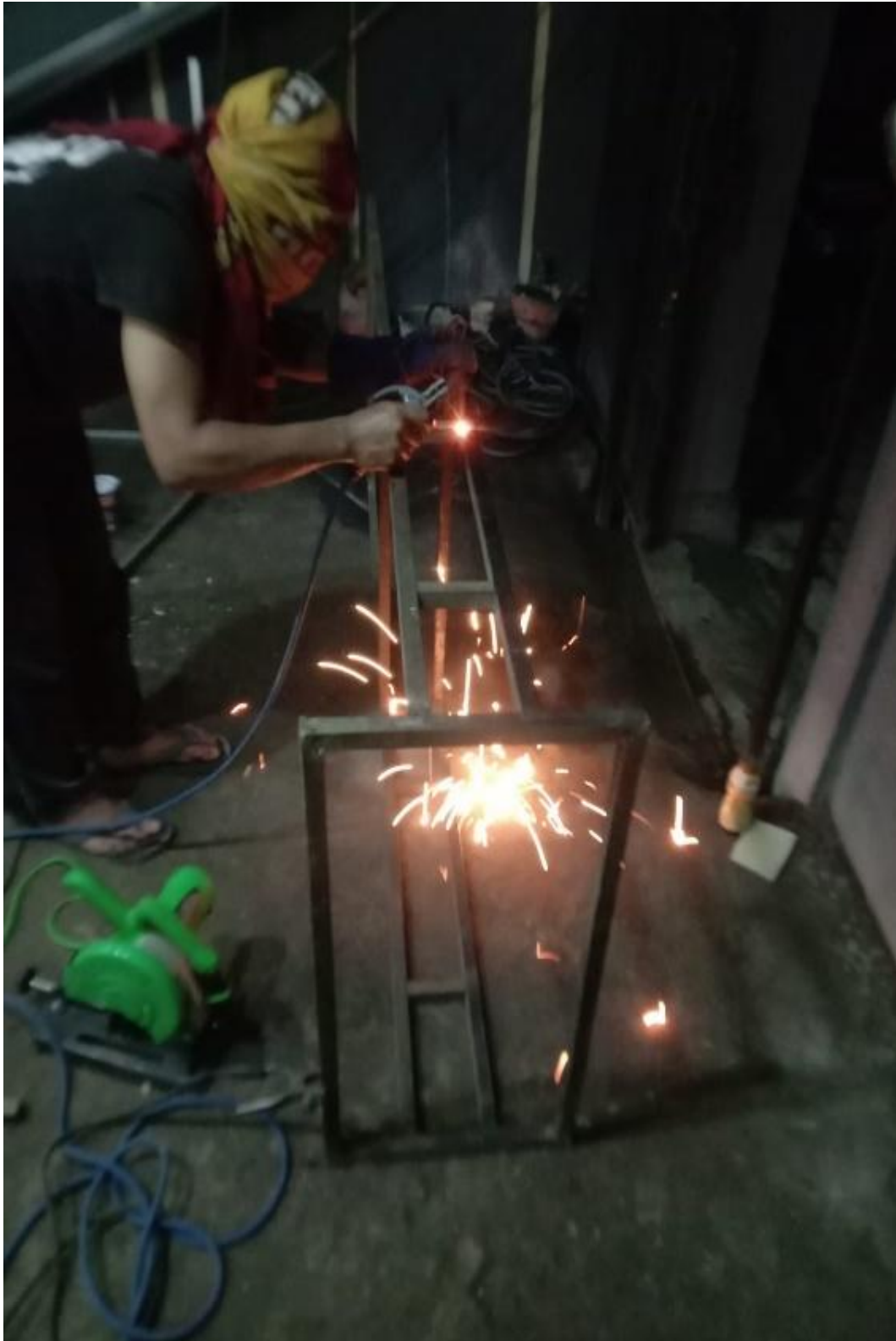


CONNECTION DIAGRAM

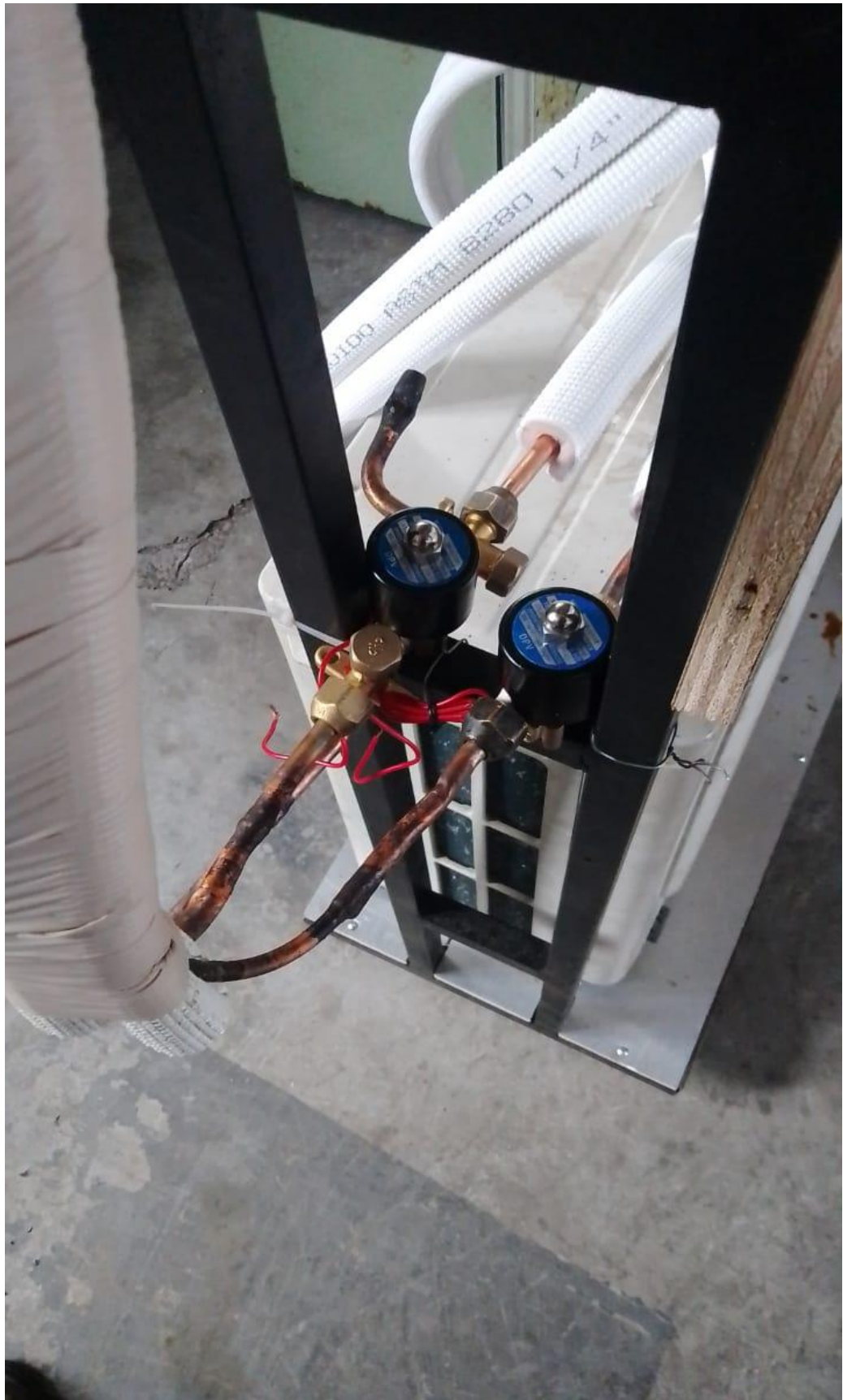


Lampiran 5 Dokumentasi Pembuatan Alat Modifikasi AC Multisplit























Lampiran 6 Pengukuran Arus Dengan Kondisi Indoor 1 Aktif Sedangkan Indoor 2 Kondisi Off Dan Settingan Suhu Remot 16°C



Lampiran 7 Pengukuran Arus Dengan Kondisi Indoor 1 Off Sedangkan Indoor 2 Aktif Dan Settingan Suhu Remot 16°C



Lampiran 8 Pengukuran Arus Dengan Kondisi Kedua Indoor Aktif Dan Settingan Suhu Remot 16°C



Lampiran 9 Pengukuran Tegangan Pada Outdoor









Lampiran 10 Bimbingan Tugas Akhir



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FAKULTAS TEKNIK DAN KEJURUAN



Alamat : Jalan Udayana No. 11 Singaraja Telepon-Fax: (0362) 22570 Kode Pos. 81116
Website : www.undiksha.ac.id

FORMULIR BIMBINGAN TUGAS AKHIR

Nama	:	Kadek Pasek Mertayasa
Nim	:	2355027001
Prodi	:	Teknik Rekayasa Sistem Elektronika
Pembimbing	:	I Wayan Sutaya, S.T., M.T
Judul	:	Modul Kontrol Untuk Modifikasi Ac Single Split Dari Satu Indoor Menjadi Dua Indoor

Pembahasan Mahasiswa :

1. Kontrol outdoor :
- Berapa kontaktor yang dipakai untuk kontrol kontaktor?

Pembahasan Pembimbing :

- Digunakan kontaktor agar bisa mengendalikan sistem.
- Menggunakan kontaktor 3 buah, dan timer outdoor 1 buah. Pengecekannya nanti akan ke Chidugadi.

Hari/Tgl	TTD Mahasiswa	TTD Pembimbing
28/10/2014	 Kadek Pasek Mertayasa	 I Wayan Sutaya, S.T., M.T NIP. 197903082006041003



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FORMULIR BIMBINGAN TUGAS AKHIR

Nama	:	Kadek Pasek Mertayasa
Nim	:	2355027001
Prodi	:	Teknik Rekayasa Sistem Elektronika
Pembimbing	:	I Wayan Sutaya, S.T., M.T
Judul	:	Modul Kontrol Untuk Modifikasi Ac Single Split Dari Satu Indoor Menjadi Dua Indoor
Pembahasan Mahasiswa : BAB IV (BIMBINGAN) BAB V (BIMBINGAN)		
Pembahasan Pembimbing : - Mengejeli Kajian Pustaka. - Cara Kerja Alat diujicobai - Penulisan BAB berikutnya		
Hari/Tgl	TTD Mahasiswa	TTD Pembimbing
Kamis / 19-12-2024.	 Kadek Pasek Mertayasa	 I Wayan Sutaya, S.T., M.T NIP. 197903082006041003

RIWAYAT HIDUP



Kadek Pasek Mertayasa lahir di Singaraja pada tanggal 10 April 1979. Penulis lahir dari pasangan suami istri, Almarhum Bapak Gede Bagiasa dan Ibu Made Ratni. Penulis berkebangsaan Indonesia dan beragama Hindu.

Kini penulis beralamat di Lingkungan Kebonsari, Kelurahan Kampung Baru, Kabupaten Buleleng, Provinsi Bali. Penulis menyelesaikan pendidikan dasar di SD Negeri 2 Kampung Baru dan lulus pada tahun 1992. Kemudian penulis melanjutkan di SMP Negeri 2 Singaraja dan lulus pada tahun 1995. Pada tahun 1998, penulis lulus dari SMA Negeri 3 Singaraja jurusan Ilmu Pengetahuan Alam dan melanjutkan ke Diploma III Jurusan Teknik Elektro di Politeknik Negeri Bali dan wisuda pada tahun 2001. Pada awal tahun 2023 Penulis bergabung di Universitas Pendidikan Ganesha Singaraja, mengambil Program Alih Kresit Diploma IV dengan kejuruan Teknologi Rekayasa Sistem Elektronika, akhir tahun 2024 penulis telah menyelesaikan Tugas Akhir yang berjudul *“MODUL KONTROL UNTUK MODIFIKASI AC SINGLE SPLIT DARI SATU INDOOR MENJADI DUA INDOOR”* Selanjutnya, mulai tahun 2024 sampai dengan penulisan skripsi ini, penulis masih terdaftar sebagai mahasiswa Program Diploma IV Teknik Rekayasa Sistem Elektronika di Universitas Pendidikan Ganesha.